

[MS-SSAS]: SQL Server Analysis Services Protocol Specification

Intellectual Property Rights Notice for Open Specifications Documentation

- **Technical Documentation.** Microsoft publishes Open Specifications documentation for protocols, file formats, languages, standards as well as overviews of the interaction among each of these technologies.
- **Copyrights.** This documentation is covered by Microsoft copyrights. Regardless of any other terms that are contained in the terms of use for the Microsoft website that hosts this documentation, you may make copies of it in order to develop implementations of the technologies described in the Open Specifications and may distribute portions of it in your implementations using these technologies or your documentation as necessary to properly document the implementation. You may also distribute in your implementation, with or without modification, any schema, IDL's, or code samples that are included in the documentation. This permission also applies to any documents that are referenced in the Open Specifications.
- **No Trade Secrets.** Microsoft does not claim any trade secret rights in this documentation.
- **Patents.** Microsoft has patents that may cover your implementations of the technologies described in the Open Specifications. Neither this notice nor Microsoft's delivery of the documentation grants any licenses under those or any other Microsoft patents. However, a given Open Specification may be covered by Microsoft's Open Specification Promise (available here: <http://www.microsoft.com/interop/osp>) or the Community Promise (available here: <http://www.microsoft.com/interop/cp/default.aspx>). If you would prefer a written license, or if the technologies described in the Open Specifications are not covered by the Open Specifications Promise or Community Promise, as applicable, patent licenses are available by contacting iplq@microsoft.com.
- **Trademarks.** The names of companies and products contained in this documentation may be covered by trademarks or similar intellectual property rights. This notice does not grant any licenses under those rights.

Reservation of Rights. All other rights are reserved, and this notice does not grant any rights other than specifically described above, whether by implication, estoppel, or otherwise.

Tools. The Open Specifications do not require the use of Microsoft programming tools or programming environments in order for you to develop an implementation. If you have access to Microsoft programming tools and environments you are free to take advantage of them. Certain Open Specifications are intended for use in conjunction with publicly available standard specifications and network programming art, and assumes that the reader either is familiar with the aforementioned material or has immediate access to it.

Preliminary Documentation. This Open Specification is preliminary documentation for this technology. Since the documentation may change between this preliminary version and the final version, there are risks in relying on preliminary documentation. To the extent that you incur additional development obligations or any other costs as a result of relying on this preliminary documentation, you do so at your own risk.

Revision Summary

Date	Revision History	Revision Class	Comments
08/01/2009	0.1	Major	First release

Preliminary

Contents

1 Introduction	13
1.1 Glossary	13
1.2 References	15
1.2.1 Normative References	15
1.2.2 Informative References	16
1.3 Protocol Overview (Synopsis)	17
1.4 Relationship to Other Protocols	18
1.5 Prerequisites/Preconditions	18
1.6 Applicability Statement	19
1.7 Versioning and Capability Negotiation	19
1.7.1 Versioning	19
1.7.2 Capability Negotiation	19
1.8 Vendor-Extensible Fields	19
1.9 Standards Assignments	19
2 Messages	20
2.1 Transport	20
2.2 Common Message Syntax	20
2.2.1 Namespaces	20
2.2.2 Messages	21
2.2.3 Elements	21
2.2.4 Complex Types	21
2.2.4.1 Return Value Complex Types	21
2.2.4.1.1 xmla-ds:mddataset Complex Type	21
2.2.4.1.1.1 xmla-ds:OlapInfo Complex Type	22
2.2.4.1.1.1.1 xmla-ds:CubeInfo	23
2.2.4.1.1.1.1.1 OlapInfoCube	23
2.2.4.1.1.1.1.2 xmla-ds:AxesInfo	24
2.2.4.1.1.1.1.2.1 xmla-ds:AxisInfo	24
2.2.4.1.1.1.1.2.1.1 xmla-ds:HierarchyInfo	24
2.2.4.1.1.1.1.3 xmla-ds:CellInfo Complex Type	25
2.2.4.1.1.2 xmla-ds:Axes Complex Type	25
2.2.4.1.1.2.1 Axis	26
2.2.4.1.1.2.1.1 SetType Model Group	26
2.2.4.1.1.2.1.1.1 MembersType Complex Type	26
2.2.4.1.1.2.1.1.2 MemberType Complex Type	27
2.2.4.1.1.2.1.1.3 TuplesType Complex Type	27
2.2.4.1.1.2.1.1.4 TupleType Complex Type	28
2.2.4.1.1.2.1.1.5 SetListType Complex Type	28
2.2.4.1.1.3 xmla-ds:CellData Complex Type	28
2.2.4.1.1.3.1 CellOrdinal Attribute	29
2.2.4.1.1.3.2 Cell Value Errors	30
2.2.4.1.2 xmla-e:emptyresult Complex Type	30
2.2.4.1.3 xmla-rs:rowset Complex Type	31
2.2.4.1.3.1 xmla-rs:row Complex Type	31
2.2.4.1.3.1.1 Nested Rowsets	31
2.2.4.1.4 xmla-m:results Complex Type	32
2.2.4.1.5 Error and Warning Complex Types	32
2.2.4.1.5.1 xmla-x:Exception	32
2.2.4.1.5.2 xmla-x:Messages	33

2.2.4.1.5.2.1	WarningType.....	33
2.2.4.1.5.2.1.1	MessageLocation.....	34
2.2.4.2	Object Definition Complex Types.....	34
2.2.4.2.1	Rules that Apply to All Complex Types.....	34
2.2.4.2.1.1	Names, IDs, and References.....	34
2.2.4.2.1.2	String Elements.....	35
2.2.4.2.1.3	Versioning.....	35
2.2.4.2.2	Complex Type Definitions for Server Object Hierarchy.....	36
2.2.4.2.2.1	MajorObject.....	36
2.2.4.2.2.2	Server.....	37
2.2.4.2.2.2.1	ServerProperty.....	39
2.2.4.2.2.3	Assembly.....	40
2.2.4.2.2.3.1	ComAssembly.....	41
2.2.4.2.2.3.2	ClrAssembly.....	41
2.2.4.2.2.3.2.1	ClrAssemblyFile.....	42
2.2.4.2.2.3.2.2	DataBlock.....	43
2.2.4.2.2.4	Trace.....	43
2.2.4.2.2.4.1	Event.....	44
2.2.4.2.2.4.1.1	EventColumn.....	45
2.2.4.2.2.4.2	TraceFilter.....	45
2.2.4.2.2.5	Database.....	46
2.2.4.2.2.5.1	Account.....	51
2.2.4.2.2.6	DataSource.....	52
2.2.4.2.2.6.1	RelationalDataSource.....	54
2.2.4.2.2.6.2	OlapDataSource.....	54
2.2.4.2.2.6.3	PushedDataSource.....	55
2.2.4.2.2.7	DataSourceView.....	55
2.2.4.2.2.8	Dimension.....	56
2.2.4.2.2.8.1	DimensionAttribute.....	61
2.2.4.2.2.8.1.1	AttributeRelationship.....	74
2.2.4.2.2.8.2	Hierarchy.....	75
2.2.4.2.2.8.2.1	Level.....	77
2.2.4.2.2.9	Cube.....	78
2.2.4.2.2.9.1	CubeDimension.....	83
2.2.4.2.2.9.2	CubeAttribute.....	85
2.2.4.2.2.9.3	CubeHierarchy.....	86
2.2.4.2.2.9.4	Kpi.....	87
2.2.4.2.2.9.5	Action.....	88
2.2.4.2.2.9.5.1	StandardAction.....	89
2.2.4.2.2.9.5.2	ReportAction.....	91
2.2.4.2.2.9.5.2.1	ReportParameter.....	93
2.2.4.2.2.9.5.2.2	ReportFormatParameter.....	93
2.2.4.2.2.9.5.3	DrillThroughAction.....	94
2.2.4.2.2.10	MdxScript.....	96
2.2.4.2.2.10.1	CalculationProperty.....	97
2.2.4.2.2.10.2	Command.....	99
2.2.4.2.2.11	MeasureGroup.....	99
2.2.4.2.2.11.1	MeasureGroupDimension.....	103
2.2.4.2.2.11.1.1	ManyToManyMeasureGroupDimension.....	103
2.2.4.2.2.11.1.2	RegularMeasureGroupDimension.....	104
2.2.4.2.2.11.1.3	ReferenceMeasureGroupDimension.....	105
2.2.4.2.2.11.1.4	DegenerateMeasureGroupDimension.....	107
2.2.4.2.2.11.1.5	DataMiningMeasureGroupDimension.....	108

2.2.4.2.2.11.2	MeasureGroupAttribute.....	108
2.2.4.2.2.11.3	Measure.....	109
2.2.4.2.2.12	AggregationDesign.....	112
2.2.4.2.2.12.1	AggregationDesignDimension.....	113
2.2.4.2.2.12.1.1	AggregationDesignAttribute.....	114
2.2.4.2.2.12.2	Aggregation.....	114
2.2.4.2.2.12.2.1	AggregationDimension.....	115
2.2.4.2.2.12.2.1.1	AggregationAttribute.....	115
2.2.4.2.2.13	Partition.....	116
2.2.4.2.2.13.1	AggregationInstance.....	119
2.2.4.2.2.13.1.1	AggregationInstanceDimension.....	120
2.2.4.2.2.13.1.2	AggregationInstanceAttribute.....	121
2.2.4.2.2.13.1.3	AggregationInstanceMeasure.....	122
2.2.4.2.2.14	Perspective.....	122
2.2.4.2.2.14.1	PerspectiveDimension.....	124
2.2.4.2.2.14.1.1	PerspectiveAttribute.....	125
2.2.4.2.2.14.1.2	PerspectiveHierarchy.....	125
2.2.4.2.2.14.2	PerspectiveMeasureGroup.....	126
2.2.4.2.2.14.2.1	PerspectiveMeasure.....	126
2.2.4.2.2.14.3	PerspectiveCalculation.....	127
2.2.4.2.2.14.4	PerspectiveKpi.....	128
2.2.4.2.2.14.5	PerspectiveAction.....	128
2.2.4.2.2.15	MiningStructure.....	129
2.2.4.2.2.15.1	MiningStructureColumn.....	132
2.2.4.2.2.15.1.1	ScalarMiningStructureColumn.....	132
2.2.4.2.2.15.1.2	TableMiningstructureColumn.....	135
2.2.4.2.2.16	MiningModel.....	136
2.2.4.2.2.16.1	MiningModelingFlag.....	138
2.2.4.2.2.16.2	MiningModelColumn.....	138
2.2.4.2.2.16.3	AlgorithmParameter.....	140
2.2.4.2.2.16.4	FoldingParameters.....	140
2.2.4.2.2.17	Annotation.....	141
2.2.4.2.2.18	Translation.....	141
2.2.4.2.2.18.1	AttributeTranslation.....	142
2.2.4.2.2.19	DataItem.....	143
2.2.4.2.2.20	Binding.....	145
2.2.4.2.2.20.1	ColumnBinding.....	145
2.2.4.2.2.20.2	RowBinding.....	146
2.2.4.2.2.20.3	DataSourceViewBinding.....	146
2.2.4.2.2.20.4	MeasureBinding.....	146
2.2.4.2.2.20.5	AttributeBinding.....	147
2.2.4.2.2.20.6	UserDefinedGroupBinding.....	148
2.2.4.2.2.20.6.1	Group.....	148
2.2.4.2.2.20.7	CubeAttributeBinding.....	149
2.2.4.2.2.20.8	DimensionBinding.....	150
2.2.4.2.2.20.9	CubeDimensionBinding.....	151
2.2.4.2.2.20.10	MeasureGroupBinding.....	152
2.2.4.2.2.20.11	MeasureGroupDimensionBinding.....	153
2.2.4.2.2.20.12	TimeBinding.....	153
2.2.4.2.2.20.13	TimeAttributeBinding.....	156
2.2.4.2.2.20.14	InheritedBinding.....	156
2.2.4.2.2.20.15	TabularBinding.....	156
2.2.4.2.2.20.16	TableBinding.....	157

2.2.4.2.2.20.17	QueryBinding	157
2.2.4.2.2.20.18	DSVTableBinding.....	158
2.2.4.2.2.20.19	ProactiveCachingBinding.....	158
2.2.4.2.2.20.20	ProactiveCachingObjectNotificationBinding.....	158
2.2.4.2.2.20.21	ProactiveCachingInheritedBinding.....	159
2.2.4.2.2.20.22	ProactiveCachingTablesBinding.....	159
2.2.4.2.2.20.22.1	TableNotification.....	160
2.2.4.2.2.20.23	ProactiveCachingQueryBinding.....	160
2.2.4.2.2.20.23.1	QueryNotification.....	161
2.2.4.2.2.20.24	ProactiveCachingIncrementalProcessingBinding.....	161
2.2.4.2.2.20.24.1	IncrementalProcessingNotification.....	162
2.2.4.2.2.20.25	eng200_200:RowNumberBinding.....	162
2.2.4.2.2.20.26	CalculatedMeasureBinding.....	162
2.2.4.2.2.20.27	eng200_200:ExpressionBinding.....	163
2.2.4.2.2.21	Permission.....	163
2.2.4.2.2.21.1	CubeDimensionPermission.....	164
2.2.4.2.2.21.2	AttributePermission.....	165
2.2.4.2.2.21.3	CellPermission.....	166
2.2.4.2.2.22	DatabasePermission.....	167
2.2.4.2.2.23	DataSourcePermission.....	168
2.2.4.2.2.24	DimensionPermission.....	169
2.2.4.2.2.25	MiningStructurePermission.....	171
2.2.4.2.2.26	MiningModelPermission.....	172
2.2.4.2.2.27	CubePermission.....	173
2.2.4.2.2.28	Role.....	175
2.2.4.2.2.28.1	Member.....	176
2.2.4.2.2.29	ProactiveCaching.....	176
2.2.4.2.2.30	ErrorConfiguration.....	177
2.2.4.2.2.31	ImpersonationInfo.....	179
2.2.4.3	TraceDefinition Complex Types.....	180
2.2.4.3.1	Trace_Definition_ProviderInfo.....	180
2.2.4.3.2	Trace_Event_Categories.....	181
2.2.4.3.2.1	TraceEvent.....	182
2.2.4.3.2.1.1	EventColumn.....	182
2.2.4.3.3	Trace_Columns.....	183
2.2.5	Simple Types.....	184
2.2.6	Attributes.....	184
2.2.7	Groups.....	184
2.2.8	Attribute Groups.....	184
2.3	Transport-Specific Message Details.....	184
2.3.1	TCP.....	184
2.3.2	HTTP/HTTPS.....	186
2.3.3	Encryption.....	187
2.3.4	Compression.....	187
2.3.5	Binary XML.....	187
3	Protocol Details.....	189
3.1	Server Details.....	189
3.1.1	Abstract Data Model.....	189
3.1.2	Timers.....	189
3.1.3	Initialization.....	189
3.1.4	Message Processing Events and Sequencing Rules.....	191
3.1.4.1	Authenticate.....	191

3.1.4.1.1	Messages	191
3.1.4.1.1.1	AuthenticateSoapIn	191
3.1.4.1.1.2	AuthenticateSoapOut	192
3.1.4.1.2	Elements	192
3.1.4.1.2.1	Authenticate	192
3.1.4.1.2.2	AuthenticateResponse	193
3.1.4.2	Discover	193
3.1.4.2.1	Messages	193
3.1.4.2.1.1	DiscoverSoapIn	194
3.1.4.2.1.2	DiscoverSoapOut	194
3.1.4.2.2	Elements	194
3.1.4.2.2.1	Discover	194
3.1.4.2.2.1.1	Restrictions and RestrictionList	196
3.1.4.2.2.1.2	Properties Type	196
3.1.4.2.2.2	DiscoverResponse	197
3.1.4.2.2.2.1	Return Element	197
3.1.4.2.3	Discover Request Types	197
3.1.4.2.3.1	DBSCHEMA_CATALOGS RequestType	197
3.1.4.2.3.1.1	Columns	197
3.1.4.2.3.2	DBSCHEMA_TABLES	198
3.1.4.2.3.2.1	Columns	198
3.1.4.2.3.3	DBSCHEMA_COLUMNS	198
3.1.4.2.3.3.1	Columns	198
3.1.4.2.3.4	DBSCHEMA_PROVIDER_TYPES	201
3.1.4.2.3.4.1	Columns	201
3.1.4.2.3.5	MDSHEMA_CUBES RequestType	206
3.1.4.2.3.5.1	Columns	206
3.1.4.2.3.6	MDSHEMA_DIMENSIONS	207
3.1.4.2.3.6.1	Columns	207
3.1.4.2.3.6.2	Additional Restrictions	209
3.1.4.2.3.7	MDSHEMA_HIERARCHIES	209
3.1.4.2.3.7.1	Columns	209
3.1.4.2.3.7.2	Additional Restrictions	212
3.1.4.2.3.8	MDSHEMA_LEVELS	213
3.1.4.2.3.8.1	Columns	213
3.1.4.2.3.8.2	Additional Restrictions	220
3.1.4.2.3.9	MDSHEMA_MEASURES	220
3.1.4.2.3.9.1	Columns	220
3.1.4.2.3.9.2	Additional Restrictions	223
3.1.4.2.3.10	MDSHEMA_PROPERTIES	223
3.1.4.2.3.10.1	Columns	223
3.1.4.2.3.10.2	Additional Restrictions	229
3.1.4.2.3.11	MDSHEMA_MEMBERS	230
3.1.4.2.3.11.1	Columns	230
3.1.4.2.3.11.2	Additional Restrictions	231
3.1.4.2.3.12	MDSHEMA_ACTIONS	232
3.1.4.2.3.12.1	Columns	232
3.1.4.2.3.12.2	Additional Restrictions	233
3.1.4.2.3.12.3	Remarks	234
3.1.4.2.3.13	MDSHEMA_SETS	234
3.1.4.2.3.13.1	Columns	234
3.1.4.2.3.13.2	Additional Restrictions	235
3.1.4.2.3.14	MDSHEMA_INSTANCES	235

3.1.4.2.3.14.1	Columns.....	235
3.1.4.2.3.15	MDSHEMA_KPIS.....	236
3.1.4.2.3.15.1	Columns.....	236
3.1.4.2.3.15.2	Additional Restrictions.....	237
3.1.4.2.3.16	MDSHEMA_MEASUREGROUPS.....	237
3.1.4.2.3.16.1	Columns.....	238
3.1.4.2.3.17	MDSHEMA_MEASUREGROUP_DIMENSIONS.....	238
3.1.4.2.3.17.1	Columns.....	238
3.1.4.2.3.17.2	Additional Restrictions.....	239
3.1.4.2.3.18	MDSHEMA_INPUT_DATASOURCES.....	239
3.1.4.2.3.18.1	Columns.....	239
3.1.4.2.3.19	MDSHEMA_MINING_SERVICES.....	240
3.1.4.2.3.19.1	Columns.....	240
3.1.4.2.3.20	MDSHEMA_MINING_SERVICE_PARAMETERS.....	245
3.1.4.2.3.20.1	Columns.....	245
3.1.4.2.3.21	MDSHEMA_MINING_FUNCTIONS.....	246
3.1.4.2.3.21.1	Columns.....	246
3.1.4.2.3.22	MDSHEMA_MINING_MODEL_CONTENT.....	246
3.1.4.2.3.22.1	Columns.....	246
3.1.4.2.3.22.2	Additional Restrictions.....	250
3.1.4.2.3.23	MDSHEMA_MINING_MODEL_XML.....	251
3.1.4.2.3.23.1	Columns.....	251
3.1.4.2.3.24	MDSHEMA_MINING_MODEL_CONTENT_PMML.....	251
3.1.4.2.3.24.1	Columns.....	251
3.1.4.2.3.25	MDSHEMA_MINING_MODELS.....	252
3.1.4.2.3.25.1	Columns.....	252
3.1.4.2.3.26	MDSHEMA_MINING_COLUMNS.....	253
3.1.4.2.3.26.1	Columns.....	253
3.1.4.2.3.27	MDSHEMA_MINING_STRUCTURES.....	259
3.1.4.2.3.27.1	Columns.....	259
3.1.4.2.3.28	MDSHEMA_MINING_STRUCTURE_COLUMNS.....	260
3.1.4.2.3.28.1	Columns.....	260
3.1.4.2.3.29	DISCOVER_PROPERTIES.....	265
3.1.4.2.3.29.1	Columns.....	265
3.1.4.2.3.30	DISCOVER_LITERALS.....	265
3.1.4.2.3.30.1	Columns.....	265
3.1.4.2.3.31	DISCOVER_SCHEMA_ROWSETS.....	267
3.1.4.2.3.31.1	Columns.....	267
3.1.4.2.3.32	DISCOVER_KEYWORDS.....	267
3.1.4.2.3.32.1	Columns.....	268
3.1.4.2.3.33	DISCOVER_DATASOURCES.....	268
3.1.4.2.3.33.1	Columns.....	268
3.1.4.2.3.34	DISCOVER_PROPERTIES.....	269
3.1.4.2.3.34.1	Columns.....	269
3.1.4.2.3.35	DISCOVER_ENUMERATORS.....	269
3.1.4.2.3.35.1	Columns.....	269
3.1.4.2.3.36	DISCOVER_XML_METADATA.....	270
3.1.4.2.3.36.1	Columns.....	270
3.1.4.2.3.36.2	Additional Restrictions.....	270
3.1.4.2.3.37	DISCOVER_TRACES.....	271
3.1.4.2.3.37.1	Columns.....	271
3.1.4.2.3.38	DISCOVER_TRACE_DEFINITION_PROVIDERINFO.....	272
3.1.4.2.3.38.1	Columns.....	272

3.1.4.2.3.39 DISCOVER_TRACE_COLUMNS.....	272
3.1.4.2.3.39.1 Columns.....	272
3.1.4.2.3.40 DISCOVER_TRACE_EVENT_CATEGORIES	272
3.1.4.2.3.40.1 Columns.....	273
3.1.4.2.3.41 DISCOVER_MEMORYUSAGE	273
3.1.4.2.3.41.1 Columns.....	273
3.1.4.2.3.42 DISCOVER_MEMORYGRANT	274
3.1.4.2.3.42.1 Columns.....	274
3.1.4.2.3.43 DISCOVER_LOCKS	274
3.1.4.2.3.43.1 Columns.....	275
3.1.4.2.3.43.2 Additional Restrictions	276
3.1.4.2.3.44 DISCOVER_CONNECTIONS.....	276
3.1.4.2.3.44.1 Columns.....	276
3.1.4.2.3.45 DISCOVER_SESSIONS.....	278
3.1.4.2.3.45.1 Columns.....	278
3.1.4.2.3.46 DISCOVER_JOBS.....	280
3.1.4.2.3.46.1 Columns.....	280
3.1.4.2.3.46.2 Additional Restrictions	281
3.1.4.2.3.47 DISCOVER_TRANSACTIONS	281
3.1.4.2.3.47.1 Columns.....	281
3.1.4.2.3.48 DISCOVER_DB_CONNECTIONS.....	281
3.1.4.2.3.48.1 Columns.....	281
3.1.4.2.3.49 DISCOVER_MASTER_KEY	282
3.1.4.2.3.49.1 Columns.....	282
3.1.4.2.3.50 DISCOVER_PERFORMANCE_COUNTERS.....	283
3.1.4.2.3.50.1 Columns.....	283
3.1.4.2.3.51 DISCOVER_LOCATIONS.....	283
3.1.4.2.3.51.1 Columns.....	283
3.1.4.2.3.51.2 Additional Restrictions	284
3.1.4.2.3.52 DISCOVER_PARTITION_DIMENSION_STAT	284
3.1.4.2.3.52.1 Columns.....	284
3.1.4.2.3.53 DISCOVER_PARTITION_STAT	284
3.1.4.2.3.53.1 Columns.....	284
3.1.4.2.3.54 DISCOVER_DIMENSION_STAT.....	285
3.1.4.2.3.54.1 Columns.....	285
3.1.4.2.3.55 DISCOVER_COMMANDS	285
3.1.4.2.3.55.1 Columns.....	285
3.1.4.2.3.56 DISCOVER_COMMAND_OBJECTS	286
3.1.4.2.3.56.1 Columns.....	286
3.1.4.2.3.57 DISCOVER_OBJECT_ACTIVITY.....	287
3.1.4.2.3.57.1 Columns.....	287
3.1.4.2.3.58 DISCOVER_OBJECT_MEMORY_USAGE	288
3.1.4.2.3.58.1 Columns.....	288
3.1.4.2.3.59 DISCOVER_PARTITION_TABLES	289
3.1.4.2.3.59.1 Columns.....	289
3.1.4.2.3.60 DISCOVER_PARTITION_TABLES_COLUMNS	290
3.1.4.2.3.60.1 Columns.....	290
3.1.4.2.3.61 DISCOVER_PARTITION_TABLES_COLUMNS_SEGMENTS.....	290
3.1.4.2.3.61.1 Columns.....	290
3.1.4.3 Execute.....	291
3.1.4.3.1 Messages.....	291
3.1.4.3.1.1 ExecuteSoapIn.....	291
3.1.4.3.1.2 ExecuteSoapOut.....	292

3.1.4.3.2 Elements.....	292
3.1.4.3.2.1 Execute.....	292
3.1.4.3.2.1.1 Command Element.....	293
3.1.4.3.2.1.1.1 ObjectReference Type	293
3.1.4.3.2.1.1.2 Statement.....	295
3.1.4.3.2.1.1.3 Create.....	295
3.1.4.3.2.1.1.4 Alter	296
3.1.4.3.2.1.1.5 Delete.....	297
3.1.4.3.2.1.1.6 Process.....	298
3.1.4.3.2.1.1.6.1 OutOfLineBinding	299
3.1.4.3.2.1.1.7 MergePartitions	302
3.1.4.3.2.1.1.8 DesignAggregations	302
3.1.4.3.2.1.1.9 ClearCache.....	303
3.1.4.3.2.1.1.10 Subscribe.....	304
3.1.4.3.2.1.1.11 Cancel.....	304
3.1.4.3.2.1.1.12 BeginTransaction.....	304
3.1.4.3.2.1.1.13 CommitTransaction	305
3.1.4.3.2.1.1.14 RollbackTransaction.....	305
3.1.4.3.2.1.1.15 Lock.....	306
3.1.4.3.2.1.1.16 Unlock.....	306
3.1.4.3.2.1.1.17 Backup.....	307
3.1.4.3.2.1.1.17.1 Location_Backup	308
3.1.4.3.2.1.1.18 Restore	308
3.1.4.3.2.1.1.18.1 Location	309
3.1.4.3.2.1.1.18.2 Folder	310
3.1.4.3.2.1.1.19 Synchronize	310
3.1.4.3.2.1.1.19.1 Source	311
3.1.4.3.2.1.1.20 Attach.....	311
3.1.4.3.2.1.1.21 Detach.....	312
3.1.4.3.2.1.1.22 Insert.....	312
3.1.4.3.2.1.1.22.1 Object.....	313
3.1.4.3.2.1.1.22.2 Attribute_InsertUpdate.....	313
3.1.4.3.2.1.1.22.3 Translation_InsertUpdate	314
3.1.4.3.2.1.1.23 Update.....	314
3.1.4.3.2.1.1.23.1 Where.....	315
3.1.4.3.2.1.1.23.2 Where_Attribute.....	316
3.1.4.3.2.1.1.24 Drop	316
3.1.4.3.2.1.1.25 UpdateCells.....	317
3.1.4.3.2.1.1.25.1 Cell	318
3.1.4.3.2.1.1.26 NotifyTableChange	318
3.1.4.3.2.1.1.27 Batch.....	319
3.1.4.3.2.1.2 Properties Element.....	320
3.1.4.3.2.1.3 ExecuteParameter	321
3.1.4.3.3 ExecuteResponse	321
3.1.4.3.3.1 return Element.....	321
3.1.4.4 PropertyList Complex Type	322
3.1.5 Timer Events.....	365
3.1.6 Other Local Events	365
3.2 Transport-Specific Protocol Details.....	365
3.2.1 Connection.....	365
3.2.2 Authentication and Encryption	365
3.2.3 Content Type Negotiation	365
3.2.4 Generating and Parsing Messages.....	366

3.2.5	Compression	367
4	Protocol Examples	369
4.1	Client Obtains a List of Databases from the Server over TCP	369
4.1.1	Connection.....	369
4.1.2	Authentication.....	369
4.1.3	New Session Request	374
4.1.4	Request for List of Catalogs.....	376
4.1.5	End of Session	379
4.2	Client Obtains a List of Cubes from the Server over HTTP	382
4.2.1	Connection.....	382
4.2.2	New Session Request	382
4.2.3	Request for List of Cubes.....	383
4.2.4	End of Session	384
4.3	Client Obtains a List of Measures from the Server.....	386
4.3.1	Client Sends Request	386
4.3.2	Server Response	386
4.4	Client Obtains a List of Properties from the Server.....	388
4.4.1	Client Sends Request	388
4.4.2	Server Response	388
4.5	Client Obtains a List of Mining Models from the Server.....	404
4.5.1	Client Sends Request	404
4.5.2	Server Response	404
4.6	Client Obtains a List of Traces from the Server.....	405
4.6.1	Client Sends Request	405
4.6.2	Server Response	406
4.7	Client Obtains a List of Connections from the Server.....	406
4.7.1	Client Sends Request	406
4.7.2	Server Response	407
4.8	Client Obtains a List of Locks from the Server.....	409
4.8.1	Client Sends Request	409
4.8.2	Server Response	409
4.9	Client Obtains a List of Commands from the Server	414
4.9.1	Client Sends Request	414
4.9.2	Server Response	415
4.10	Client Obtains Trace Provider Information.....	416
4.10.1	Client Sends Request.....	416
4.10.2	Server Response	417
4.11	Client Obtains List of Trace Column Definitions	418
4.11.1	Client Sends Request.....	418
4.11.2	Server Response	418
4.12	Client Obtains List of Trace Event Categories	427
4.12.1	Client Sends Request.....	427
4.12.2	Server Response	428
4.13	Client Sends MDX Query and Receives Back mddataset Result.....	498
4.13.1	Client Sends Request.....	498
4.13.2	Server Response	498
4.14	Create.....	565
4.14.1	Client Sends Request.....	565
4.14.2	Server Response	627
4.15	Alter.....	628
4.15.1	Client Sends Request.....	628
4.15.2	Server Response	629

4.16	Delete.....	629
4.16.1	Client Sends Request.....	630
4.16.2	Server Response.....	630
4.17	Process.....	630
4.17.1	Client Sends Request.....	630
4.17.2	Server Response.....	630
4.18	Backup.....	631
4.18.1	Client Sends Request.....	631
4.18.2	Server Response.....	631
4.19	Restore.....	631
4.19.1	Client Sends Request.....	631
4.19.2	Server Response.....	631
4.20	Begin Transaction.....	632
4.20.1	Client Sends Request.....	632
4.20.2	Server Response.....	632
4.21	Commit Transaction.....	632
4.21.1	Client Sends Request.....	632
4.21.2	Server Response.....	633
4.22	Rollback Transaction.....	633
4.22.1	Client Sends Request.....	633
4.22.2	Server Response.....	634
5	Security.....	635
5.1	Security Considerations for Implementers.....	635
5.2	Index of Security Parameters.....	635
6	Appendix A: Full WSDL.....	636
7	Appendix B: Product Behavior.....	637
8	Change Tracking.....	664
9	Index.....	665

1 Introduction

The [MS-SSAS]: SQL Server Analysis Services Protocol Specification provides methods for a client to communicate with, and perform operations on, an analysis server.

1.1 Glossary

The following terms are defined in [\[MS-GLOS\]](#):

Component Object Model (COM)
data manipulation language (DML)
language code identifier (LCID)
padding
security token
SOAP action
SOAP body
SOAP fault
SOAP header
SOAP message
WSDL message

The following terms are defined in [\[MS-OFSGLOS\]](#):

complex type
data block
data definition language (DDL)
MIME type
multidimensional expression (MDX)
Online Analytical Processing (OLAP)
simple type
 slicer axis
tuple
uniform resource identifier (URI)
XML namespace
XML Schema

The following terms are specific to this document:

action: OLAP objects such as Cubes, Dimensions, and Cells can have an action associated with them, so that users can perform that action when browsing OLAP data. For example, users can jump to a URL, execute a command, or drill through to data.

analysis server: A server that provides both OLAP and data mining (DM) services.

assembly: A managed application module containing class metadata and managed code as an object in SQL Server, against which CLR functions, stored procedures, triggers, user-defined aggregates, and user-defined types can be created in SQL Server.

balanced hierarchy: A **dimension hierarchy** in which all leaf nodes are the same distance from the root node.

cube: A set of data that is organized and summarized into a multidimensional structure defined by a set of **dimensions** and **measures**.

dimension: A structural attribute of a **cube**, which is an organized **hierarchy** of categories (levels) that describe data in the fact table.

hierarchy: A logical tree structure that organizes the members of a **dimension** such that each member has one parent member and zero or more child members.

key attribute: The attribute of a **dimension** that links the non-key attributes in the dimension to related measures.

lazy aggregations: Aggregations that are rebuilt by the server in the background after the processing step has been completed, instead of during the processing step. This is the process that underlies expressions such as partitions that are "lazily processed" and aggregations and indexes that are "built lazily."

level: The name of a set of members in a **dimension hierarchy** such that all members of the set are at the same distance from the root of the hierarchy.

locale identifier (LCID): A number that identifies a Windows-based locale.

measure: In a **cube**, a set of values that are usually numeric and are based on a column in the fact table of the cube. **Measures** are the central values that are aggregated and analyzed.

measure group: All the **measures** in a **cube** that derive from a single fact table in a data source view.

mining model: An object that contains the definition of a data mining process and the results of the training activity.

mining structure: A data mining object that defines the data domain from which the **mining models** are built.

partition: One of the storage containers for data and aggregations of a **cube**. Every cube contains one or more **partitions**. For a cube with multiple partitions, each partition can be stored separately in a different physical location. Each partition can be based on a different data source. Partitions are not visible to users; the cube appears to be a single object.

permission: A rule associated with an object to regulate which users can gain access to the object and in what manner. Permissions are tracked separately for different objects; specifically, Databases, Data Sources, Dimensions, Mining Structures, Mining Models, and Cubes.

proactive caching: A system that manages data obsolescence in a **cube** by which objects in MOLAP storage are automatically updated and processed in cache, while queries are redirected to ROLAP storage.

remote partition: A **partition** whose data is stored on a server running an instance of Analysis Services, other than the one used to store the metadata of the partition.

repeated base: A base column where the trace provider can reference previous data and therefore omit resending a column again to the Profiler. The client tool keeps track of all repeatable columns for each new repeated-base column value.

role-playing dimension: A single database **dimension** joined to the fact table on a different foreign key to produce multiple **cube dimensions**.

unbalanced hierarchy: A **hierarchy** in which one or more levels do not contain members in one or more branches of the hierarchy. (Also known as a **ragged hierarchy**.)

MAY, SHOULD, MUST, SHOULD NOT, MUST NOT: These terms (in all caps) are used as described in [\[RFC2119\]](#). All statements of optional behavior use either MAY, SHOULD, or SHOULD NOT.

1.2 References

1.2.1 Normative References

We conduct frequent surveys of the normative references to assure their continued availability. If you have any issue with finding a normative reference, please contact dochelp@microsoft.com. We will assist you in finding the relevant information. Please check the archive site, <http://msdn2.microsoft.com/en-us/library/E4BD6494-06AD-4aed-9823-445E921C9624>, as an additional source.

[DIME] Nielsen, H. F., Sanders, H., and Christensen, E., "Direct Internet Message Encapsulation (DIME)", February 2002, <http://xml.coverpages.org/draft-nielsen-dime-01.txt>

[MS-BINXML] Microsoft Corporation, "SQL Server Binary XML Structure Specification", <http://msdn.microsoft.com/en-us/library/cc580569.aspx>.

[MS-GLOS] Microsoft Corporation, "[Windows Protocols Master Glossary](#)", March 2007.

[MS-LCID] Microsoft Corporation, "[Windows Language Code Identifier \(LCID\) Reference](#)", July 2007.

[MS-OFSGLOS] Microsoft Corporation, "Microsoft Office Server Master Glossary", June 2008, <http://msdn.microsoft.com/en-us/library/cc307431.aspx>

[RFC793] Postel, J., "Transmission Control Protocol", STD 7, RFC 793, September 1981, <http://www.ietf.org/rfc/rfc0793.txt>

[RFC2279] Yergeau, F., "UTF-8, A Transformation Format of ISO10646", RFC 2279, January 1998, <http://www.ietf.org/rfc/rfc2279.txt>

[RFC2396] Berners-Lee, T., Fielding, R., and Masinter, L., "Uniform Resource Identifiers (URI): Generic Syntax", RFC 2396, August 1998, <http://www.ietf.org/rfc/rfc2396.txt>

[RFC2616] Fielding, R., Gettys, J., Mogul, J., et al., "Hypertext Transfer Protocol -- HTTP/1.1", RFC 2616, June 1999, <http://www.ietf.org/rfc/rfc2616.txt>

[RFC2743] Linn, J., "Generic Security Service Application Program Interface Version 2, Update 1", RFC 2743, January 2000, <http://www.ietf.org/rfc/rfc2743.txt>

[RFC2818] Rescorla, E., "HTTP Over TLS", RFC 2818, May 2000, <http://www.ietf.org/rfc/rfc2818.txt>

[RFC4178] Zhu, L., Leach, P., Jaganathan, K., and Ingersoll, W., "The Simple and Protected Generic Security Service Application Program Interface (GSS-API) Negotiation Mechanism", RFC 4178, October 2005, <http://www.ietf.org/rfc/rfc4178.txt>

[SOAP1.1] Box, D., Ehnebuske, D., Kakivaya, G., Layman, A., Mendelsohn, N., Nielsen, H. F., Thatté, S., and Winer, D., "Simple Object Access Protocol (SOAP) 1.1", May 2000, <http://www.w3.org/TR/2000/NOTE-SOAP-20000508/>

[SOAP1.2/1] Gudgin, M., Hadley, M., Mendelsohn, N., Moreau, J., and Nielsen, H.F., "SOAP Version 1.2 Part 1: Messaging Framework", W3C Recommendation, June 2003, <http://www.w3.org/TR/2003/REC-soap12-part1-20030624>.

[SOAP1.2/2] Gudgin, M., Hadley, M., Mendelsohn, N., Moreau, J., and Nielsen, H.F., "SOAP Version 1.2 Part 2: Adjuncts", W3C Recommendation, June 2003, <http://www.w3.org/TR/2003/REC-soap12-part2-20030624>.

[WSDL] Christensen, E., Curbera, F., Meredith, G., and Weerawarana, S., "Web Services Description Language (WSDL) 1.1", W3C Note, March 2001, <http://www.w3.org/TR/2001/NOTE-wsdl-20010315>

[XML10] World Wide Web Consortium, "Extensible Markup Language (XML) 1.0 (Third Edition)", February 2004, <http://www.w3.org/TR/REC-xml>

[XMLNS] World Wide Web Consortium, "Namespaces in XML 1.0 (Second Edition)", August 2006, <http://www.w3.org/TR/REC-xml-names/>

[XMLSCHEMA1] Thompson, H.S., Ed., Beech, D., Ed., Maloney, M., Ed., and Mendelsohn, N., Ed., "XML Schema Part 1: Structures", W3C Recommendation, May 2001, <http://www.w3.org/TR/2001/REC-xmlschema-1-20010502/>

[XMLSCHEMA2] Biron, P.V., Ed. and Malhotra, A., Ed., "XML Schema Part 2: Datatypes", W3C Recommendation, May 2001, <http://www.w3.org/TR/2001/REC-xmlschema-2-20010502/>

[W3C-XSD] World Wide Web Consortium, "XML Schema Part 2: Datatypes Second Edition", October 2004, <http://www.w3.org/TR/2004/REC-xmlschema-2-20041028/>

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997, <http://www.ietf.org/rfc/rfc2119.txt>

1.2.2 Informative References

[MSDN-ASSL] Microsoft Corporation, "RefreshInterval Element (ASSL)", <http://msdn.microsoft.com/en-us/library/ms126689.aspx>

[MSDN-DDRXSD] Microsoft Corporation, "Deriving DataSet Relational Structure from XML Schema (XSD)", <http://msdn.microsoft.com/en-us/library/bfdchewb.aspx>.

[MSDN-FSCMDX] Microsoft Corporation, "FORMAT_STRING Contents (MDX)", <http://msdn.microsoft.com/en-us/library/ms146084.aspx>.

[MSDN-LCASMD] Microsoft Corporation, "Languages and Collations (Analysis Services - Multidimensional Data)", <http://msdn.microsoft.com/en-us/library/ms174872.aspx>.

[MSDN-MDXR] Microsoft Corporation, "Multidimensional Expressions (MDX) Reference", <http://msdn.microsoft.com/en-us/library/ms145506.aspx>

[MSDN-OLEDB] Microsoft Corporation, "Microsoft OLE DB", <http://msdn.microsoft.com/en-us/library/ms722784.aspx>

[MSDN-SLNL] Microsoft Corporation, "Support Level for Named Levels", [http://msdn.microsoft.com/en-us/library/ms714938\(VS.85\).aspx](http://msdn.microsoft.com/en-us/library/ms714938(VS.85).aspx)

[MSDN-SSAS] Microsoft Corporation, "Analysis Services Concepts and Objects", <http://msdn2.microsoft.com/en-us/library/ms174578.aspx>.

[MSDN-SQLXML] Microsoft Corporation, "SQLXML", <http://msdn2.microsoft.com/en-us/library/aa286527.aspx>.

[XMLA] Microsoft Corporation, Hyperion Solutions Corporation, SAS Institute Inc., "XML for Analysis", <http://www.xmla.org/xmla1.1.doc>.

1.3 Protocol Overview (Synopsis)

The [MS-SSAS]: SQL Server Analysis Services Protocol Specification provides methods for a client to communicate with, and perform operations on, an **analysis server**. This protocol is based on Simple Object Access Protocol (SOAP) and XML for Analysis (XMLA) [XMLA]. This protocol supports TCP/IP as an underlying transport mechanism in addition to HTTP/HTTPS.

The SQL Server Analysis Services Protocol Specification defines the following operations: **Authenticate**, **Discover**, and **Execute**.

Authenticate is used by the client and server to exchange UTF-8 [RFC2279] encoded **security token data blocks** as part of the authentication process. For more information on authentication, see section 4.1.2.

Discover is used to obtain information from an analysis server, such as a list of catalogs on a server. Properties are used to control what data is obtained. This generic interface and the use of properties allow extensibility without rewriting existing functions. For more information, see section 3.1.4.2.

Execute is used to execute commands against a particular analysis server and optionally get back a result set either in a tabular or multidimensional form. For more information, see section 3.1.4.3.

By using the **Authenticate**, **Discover**, and **Execute** operations, the transfer of data between a client and an analysis server can be achieved.

The following diagram illustrates this concept:

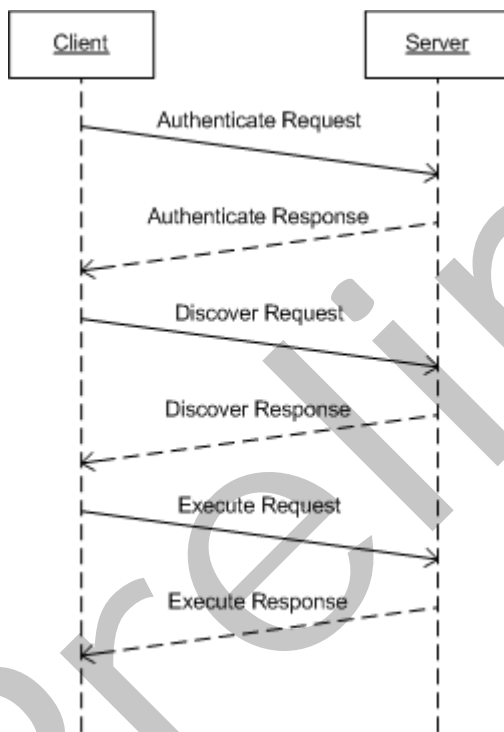


Figure 1: Data transfer between client and analysis server via Authenticate, Discover, and Execute operations

1.4 Relationship to Other Protocols

The SQL Server Analysis Services Protocol Specification uses the SOAP messaging protocol for formatting requests and responses as specified either in [\[SOAP1.1\]](#) or in [\[SOAP1.2-1/2007\]](#) and [\[SOAP1.2-2/2007\]](#). It transmits these messages using HTTP [\[RFC2616\]](#), HTTPS [\[RFC2818\]](#), or TCP [\[RFC793\]](#).

This protocol uses SOAP over HTTP, as shown in the following layering diagram:

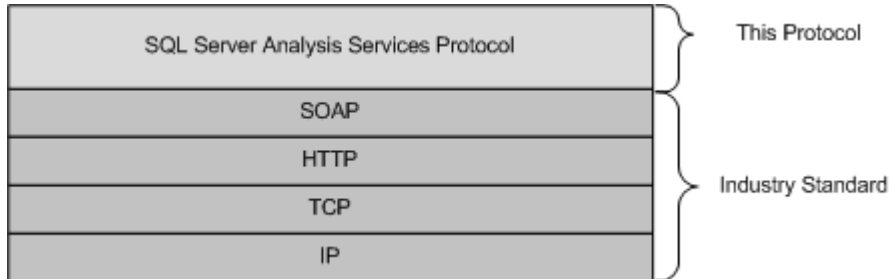


Figure 2: SOAP over HTTP

The Microsoft® SQL Server® 2008 Analysis Services protocol uses SOAP over HTTPS, as shown in the following diagram:

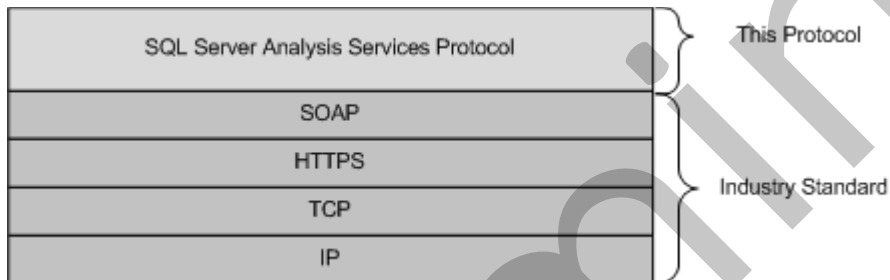


Figure 3: SOAP over HTTPS

The SQL Server 2008 Analysis Services protocol uses SOAP over Direct Internet Message Encapsulation [\[DIME\]](#) and TCP/IP, as shown in the following diagram:

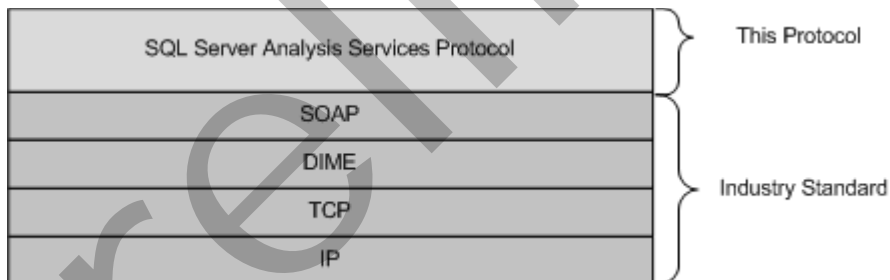


Figure 4: SOAP over DIME and TCP/IP

1.5 Prerequisites/Preconditions

None.

1.6 Applicability Statement

This protocol supports the exchange of messages between a client and an analysis server.

1.7 Versioning and Capability Negotiation

1.7.1 Versioning

This protocol includes capabilities for a client and a server to exchange versioning information by indicating whether XML elements which are sent or received must be understood, or, if not understood, may be ignored. This is specified in section [2.2.4.2.1.3](#).

1.7.2 Capability Negotiation

This protocol does explicit negotiation between the client and server for use of binary XML and compression, as specified in section [2.3.1](#).

1.8 Vendor-Extensible Fields

None.

1.9 Standards Assignments

None.

2 Messages

2.1 Transport

The communication between a client and a server MUST be performed either over TCP or HTTP/HTTPS. The message format is a clear text XML [XML10] or binary XML [MS-BINXML] that MAY be compressed. The message MAY also be encrypted by using GSS-API [RFC4178] over TCP or SSL over HTTPS.

In addition, DIME [DIME] is used for messages transmitted using TCP, and all data transferred between client and server is encoded by using UTF-8 [RFC2279]. Section 2.2 specifies the **SOAP message** syntax, regardless of the underlying transport. Section 2.3 describes message details specific to the underlying transport.

2.2 Common Message Syntax

This section contains common definitions used by this protocol. The syntax of the definitions uses **XML Schema** as defined in [XMLSCHEMA1] and [XMLSCHEMA2], and Web Services Description Language as defined in [WSDL].

2.2.1 Namespaces

This specification defines and references various **XML namespaces** using the mechanisms specified in [XMLNS]. Although this specification associates a specific XML namespace prefix for each XML namespace that is used, the choice of any particular XML namespace prefix is implementation-specific and not significant for interoperability.

This section contains common definitions used by this protocol. The syntax of the definitions uses XML Schema as defined in [XMLSCHEMA1] and [XMLSCHEMA2], and Web Services Description Language as defined in [WSDL].

Prefix	Namespace URI	Reference
xsd	http://www.w3.org/2001/XMLSchema	[XMLSCHEMA1] [XMLSCHEMA2]
xsi	http://www.w3.org/2001/XMLSchema-instance	[XMLSCHEMA1] [XMLSCHEMA2]
Sql	urn:schemas-microsoft-com:xml-sql	[MSDN-SQLXML]
xmla	urn:schemas-microsoft-com:xml-analysis	[XMLA]
xmla-ds	urn:schemas-microsoft-com:xml-analysis:mddataset	[XMLA]
xmla-rs	urn:schemas-microsoft-com:xml-analysis:rowset	[XMLA]
xmla-e	urn:schemas-microsoft-com:xml-analysis:empty	[XMLA]
xmla-x	urn:schemas-microsoft-com:xml-analysis:exception	[XMLA]
xmla-m	http://schemas.microsoft.com/analysisservices/2003/xmla-multipleresults	

Prefix	Namespace URI	Reference
eng	http://schemas.microsoft.com/analysisservices/2003/engine	
eng2	http://schemas.microsoft.com/analysisservices/2003/engine/2	
eng2_2	http://schemas.microsoft.com/analysisservices/2003/engine/2/2	
eng100	http://schemas.microsoft.com/analysisservices/2008/engine/100	
eng100_100	http://schemas.microsoft.com/analysisservices/2008/engine/100/100	
eng200	http://schemas.microsoft.com/analysisservices/2010/engine/200	
eng200_200	http://schemas.microsoft.com/analysisservices/2010/engine/200/200	

2.2.2 Messages

This specification does not define any common XML schema message definitions.

2.2.3 Elements

This specification does not define any common XML schema element definitions.

2.2.4 Complex Types

The following table summarizes the set of common XML schema **complex type** definitions defined by this specification. XML schema complex type definitions that are specific to a particular operation are described with the operation.

Complex Type	Description
xmla-mddataset	Describes data from a cube in a representation consisting of information about the origin of the data, the axes of the cube and the data cells.
xmla-emptyresult	Describes a response to an exception that has occurred at the server during the process of the client request and no further data is available to the client.
xmla-rowset	Describes data from a cube in a tabular representation.
xmla-x:messages	Describes the structure of error and warning messages sent by the server to the client.

2.2.4.1 Return Value Complex Types

2.2.4.1.1 xmla-ds:mddataset Complex Type

An **xmla-ds:mddataset** type is the type that is returned by commands that return an **mddataset** as the return result.

The XSD complex type definition for the **xmla-ds:mddataset** complex type is as follows.

```
<xsd:complexType name="mddataset" >
  <xsd:sequence>
```

```

<xsd:element ref="xs:Schema" />
<xsd:element name="OlapInfo" minOccurs="0" type="OlapInfo" />
<xsd:element name="Axes" minOccurs="0" type="Axes" />
<xsd:element name="CellData" minOccurs="0" type="CellData" />
<xsd:element name="Exception" minOccurs="0" type="Exception" />
<xsd:element name="Messages" minOccurs="0" type="Messages" />
</xsd:sequence>
</xsd:complexType>

```

Element	Description
Schema	An XSD schema that describes the rest of the result.
OlapInfo	Describes the structure of the OLAP elements of this result.
Axes	Contains the axes of the result.
CellData	Contains the cell data of the result.
Exception	This optional element is returned if there are exceptions that accompany the result. See section 2.2.4.1.4 .
Messages	This optional element is returned if there are messages that accompany the result. See section 2.2.4.1.4 .

An Example of the **mddataset** return type is shown in section [4.13](#).

2.2.4.1.1.1 xmla-ds:OlapInfo Complex Type

The **OlapInfo** type contains information describing the multidimensional data being sent in a specific response. It MUST contain information about the cube or cubes from which these results were extracted, information about all axes involved and data for the cells returned.

The **xmla-ds:OlapInfo** complex type describes the current schema definition for the result set requested by the client. The **OlapInfo** complex type contains the description of the specific structure of the data being returned. The result set is described in three major sections:

- **CubeInfo**: Describes the source of the result set.
- **AxesInfo**: Describes the data structure of all axes in the result set, including the **slicer axis**.
- **CellInfo**: Describes the data structure for the cells.

The complex type definition for **OlapInfo** is as follows. The **OlapInfo** element, and all its contained elements, are in the namespace **xmla-ds**.

```

<xsd:complexType name="OlapInfo">
  <xsd:sequence>
    <xsd:element name="CubeInfo" type="CubeInfo" />
    <xsd:element name="AxesInfo" type="AxesInfo" />
    <xsd:element name="CellInfo" type="CellInfo" />
  </xsd:sequence>
</xsd:complexType>

```

Element	Description
---------	-------------

Element	Description
CubeInfo	Contains information about the cubes for this result.
AxesInfo	Describes the axes that will be in the Axes element of this response.
CellInfo	Describes the cells that will be in the CellData element of this response.

2.2.4.1.1.1.1 xmla-ds:CubeInfo

The **CubeInfo** complex type describes all sources involved in providing the current result set.

```
<xsd:complexType name="CubeInfo">
  <xsd:sequence>
    <xsd:element name="Cube" maxOccurs="unbounded" type="OlapInfoCube" />
  </xsd:sequence>
</xsd:complexType>
```

Element	Description
Cube	A collection of elements of type OlapInfoCube , which contains information about the cubes for this result.

2.2.4.1.1.1.1.1 OlapInfoCube

This complex type contains information about the cubes returned in an **mddataset** result.

```
<xsd:complexType name="OlapInfoCube" >
  <xsd:sequence>
    <xsd:element name="CubeName" type="xsd:string" />
    <xsd:element ref="eng:LastDataUpdate" minOccurs="0" />
    <xsd:element ref="eng:LastSchemaUpdate" minOccurs="0" />
  </xsd:sequence>
</xsd:complexType>
```

The **Dimension** XSD depends upon element definitions in namespaces other than the default namespace. The following elements are defined in the namespace **eng**:

```
<xsd:element name="LastSchemaUpdate" type="xsd:dateTime" />
<xsd:element name="LastDataUpdate" type="xsd:dateTime" />
```

Element	Description
CubeName	The name of the cube.
LastDataUpdate	Last date and time that the cube data was updated.
LastSchemaupdate	Last date and time that the cube schema was updated.

2.2.4.1.1.1.2 xmla-ds:AxesInfo

The **AxesInfo** complex type describes the axes that will be contained in the **Axes** element of the **mddataset** result.

```
<xsd:complexType name="AxesInfo">
  <xsd:sequence>
    <xsd:element name="AxisInfo" maxOccurs="unbounded" type="AxisInfo">
    </xsd:element>
  </xsd:sequence>
</xsd:complexType>
```

Element	Description
AxisInfo	Contains the description of the axes that will appear in the Axes element of this mddataset .

2.2.4.1.1.1.2.1 xmla-ds:AxisInfo

The **AxisInfo** type describes a single axis that will appear in the **Axes** section of a particular **mddataset** return result.

```
<xsd:complexType name="AxisInfo">
  <xsd:sequence>
    <xsd:element name="HierarchyInfo" type="HierarchyInfo"
      minOccurs="0" maxOccurs="unbounded" />
  </xsd:sequence>
  <xsd:attribute name="name" type="xsd:string" />
</xsd:complexType>
```

Element	Description
HierarchyInfo	A collection of HierarchyInfo elements is returned.

Attribute	Description
Name	The Name of the axis that is being described.

2.2.4.1.1.1.2.1.1 xmla-ds:HierarchyInfo

The **HierarchyInfo** type contains information about the hierarchies that appear on an axis of an **mddataset** return result.

```
<xsd:complexType name="HierarchyInfo">
  <xsd:sequence>
    <xsd:any namespace="##targetNamespace" minOccurs="0"
      maxOccurs="unbounded" processContents="skip" />
  </xsd:sequence>
  <xsd:attribute name="name" type="xsd:string" use="required" />
</xsd:complexType>
```


Element	Description
xs:any	The contents of the HierarchyInfo element varies according to the contents of the axis that is being described. There will be one child element within HierarchyInfo for each property that is returned on the axis being described. The number of properties returned is variable and depends upon the query that has been executed.

Attribute	Description
Name	The Name of the hierarchy that is being described.

2.2.4.1.1.1.3 xmla-ds:CellInfo Complex Type

The **CellInfo** complex type describes the properties of a data cell that will appear in the **CellData** section of a specific **mddataset** return result.

```
<xsd:complexType name="CellInfo">
  <xsd:sequence>
    <xsd:any namespace="##targetNamespace" minOccurs="0"
      maxOccurs="unbounded" processContents="skip" />
  </xsd:sequence>
</xsd:complexType>
```

Element	Description
(any)	This complex type is a variable number of elements of type xsd:any . There will be one element for each property that is returned in the CellData section of this mddataset result. The number of elements present depends upon the number of properties that were requested in the query that was executed.

The elements returned also have the following XML attributes, with the following interpretations.

Attribute	Description
Name	The Name of the property on the server. This name may not be the same as the element name.
Type	The type that the element in the CellData section of the mddataset result will have.

2.2.4.1.1.2 xmla-ds:Axes Complex Type

The **xmla-ds:Axes** complex type contains the values and properties of each member in the hierarchy of an axis in the **mddataset** result.

```
<xsd:complexType name="Axes">
  <xsd:sequence>
    <xsd:element name="Axis" type="Axis" maxOccurs="unbounded" />
  </xsd:sequence>
</xsd:complexType>
```

Element	Description
Axis	An Axis element contains the values for one axis of an mddataset result.

2.2.4.1.1.2.1 Axis

An **Axis** element contains the values for one axis of an **mddataset** result.

```
<xs:complexType name="Axis">
  <xs:group ref="SetType" minOccurs="0" maxOccurs="unbounded" />
  <xs:attribute name="name" type="xs:string" />
</xs:complexType>
```

The **SetType** model group is described in the next section.

Attribute	Description
Name	The name of the axis.

2.2.4.1.1.2.1.1 SetType Model Group

The **SetType** model group describes the possible types of sets that belong to the group. For more information about model groups, see [\[XMLSCHEMA1\]](#).

```
<xsd:group name="SetType">
  <xsd:choice>
    <xsd:element name="Members" type="MembersType" />
    <xsd:element name="Tuples" type="TuplesType" />
    <xsd:element name="CrossProduct" type="SetListType" />
    <xsd:element name="Union">
      <xsd:complexType>
        <xs:group ref="SetType" minOccurs="0" maxOccurs="unbounded" />
      </xsd:complexType>
    </xsd:element>
  </xsd:choice>
</xsd:group>
```

Each set type in the group is described independently in its own section:

- [MembersType complex type](#)
- [TuplesType complex type](#)
- [SetListType complex Type](#)

The **Union** subelement is an invocation of the **SetType** model group defined in section [2.2.4.1.3.1.1.<1>](#)

2.2.4.1.1.2.1.1.1 MembersType Complex Type

The **MembersType** complex type is a collection of **MemberType** elements. For more information, see [MemberType complex type](#).

```

<xsd:complexType name="MembersType">
  <xsd:sequence>
    <xsd:element name="Member" type="MemberType" minOccurs="0" maxOccurs="unbounded" />
  </xsd:sequence>
  <xsd:attribute name="Hierarchy" type="xsd:string" use="required" />
</xsd:complexType>

```

2.2.4.1.1.2.1.1.2 MemberType Complex Type

The **MemberType** type describes the properties of a simple element in the axis hierarchy. For example, in the Year:Quarter:Month:MonthDay axis **dimension**, the member type describes the Year, the Quarter, the Month, or the MonthDay member of the hierarchy.

The schema definition of the **MemberType** type is defined in the **AxisInfo** specification of this message.

```

<xsd:complexType name="MemberType">
  <xsd:sequence>
    <xsd:any namespace="##targetNamespace" minOccurs="0" maxOccurs="unbounded"
processContents="skip" />
  </xsd:sequence>
  <xsd:attribute name="Hierarchy" type="xsd:string" />
</xsd:complexType>

```

Element	Description
xs:any	The memberType will contain one element for each property of the member that was requested in the query. Therefore, both the content and the count of elements in the MemberType are variable.

Attribute	Description
Hierarchy	The Hierarchy of the member.

2.2.4.1.1.2.1.1.3 TuplesType Complex Type

The **TuplesType** complex type is a collection of **TupleType** elements. For more information, see section [2.2.4.1.1.2.1.1.4](#).

```

<xsd:complexType name="TuplesType">
  <xsd:sequence>
    <xsd:element name="Tuple" type="TupleType" minOccurs="0" maxOccurs="unbounded" />
  </xsd:sequence>
</xsd:complexType>

```

2.2.4.1.1.2.1.1.4 TupleType Complex Type

The **TupleType** type describes the set of members that identifies a point in the axis hierarchy. A **TupleType** type is a collection of **MemberType** objects.

```
<xsd:complexType name="TupleType">
  <xsd:sequence>
    <xsd:element name="Member" type="MemberType" maxOccurs="unbounded" />
  </xsd:sequence>
</xsd:complexType>
```

Element	Description
Member	A collection of MemberType elements that form the tuples along this axis of the mddataset result.

2.2.4.1.1.2.1.1.5 SetListType Complex Type

A **SetListType** type describes a complex type composed of elements that belong to the **SetType** group.

```
<xsd:complexType name="SetListType">
  <xsd:group ref="SetType" minOccurs="0" maxOccurs="unbounded" />
  <xsd:attribute name="Size" type="xsd:unsignedInt" />
</xsd:complexType>
```

2.2.4.1.1.3 xmla-ds:CellData Complex Type

The **CellData** type describes a collection of **Cell** elements. The **Cell** element describes the properties of a single cell of data.

The schema definition for the **Cell** element is defined in the **CellInfo** element specification of the current instance of this message.

```
<xsd:complexType name="CellData">
  <xsd:sequence>
    <xsd:element name="Cell" minOccurs="0" maxOccurs="unbounded">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Value" minOccurs="0" maxOccurs="1">
            <xsd:complexType>
              <xsd:sequence>
                <xsd:element name="Error" minOccurs="0" maxOccurs="unbounded">
                  <xsd:element name="ErrorCode" minOccurs="0" maxOccurs="1" />
                  <xsd:element name="Description" minOccurs="0" maxOccurs="1" />
                  <xsd:any namespace="##targetNamespace" minOccurs="0" maxOccurs="unbounded" />
                </xsd:sequence>
              </xsd:complexType>
            </xsd:element>
          </xsd:sequence>
        </xsd:complexType>
      </xsd:element>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
```

```

    <xsd:any namespace="##targetNamespace" minOccurs="0" maxOccurs="unbounded"
processContents="skip" />
  </xsd:sequence>
  <xsd:attribute name="CellOrdinal" type="xsd:unsignedInt" use="required" />
</xsd:complexType>
</xsd:element>
</xsd:sequence>
</xsd:complexType>

```

2.2.4.1.1.3.1 CellOrdinal Attribute

The **CellOrdinal** attribute MUST be specified and indicates the ordinal of the cell. **CellOrdinal** is numbered 0 to n-1, for n cells.

The axis reference for a cell can be calculated based on **CellOrdinal**. Conceptually, cells are numbered in a dataset as if the dataset were a p-dimensional array, where p is the number of axes. Cells are addressed in row-major order. The following illustration shows the formula for calculating the ordinal number of a cell.

If axis k has U_k members, the ordinal number of a cell whose tuple ordinals are $(S_0, S_1, S_2, \dots, S_{p-1})$ is

$$\sum_{i=0}^{p-1} S_i \times E_i \text{ where } E_0 = 1 \text{ and } E_i = \prod_{k=0}^{i-1} U_k$$

Σ represents the sum of the terms in the series and Π the product.

Figure 5: Calculating ordinal number of a cell

The preceding formula will be applied to the result set shown in the following table. The query asked for four **measures** on columns and a crossjoin of two states with four quarters on rows. In following the dataset result, the **CellOrdinal** property for the part of the dataset result shown in the box is the set {9, 10, 11, 13, 14, 15, 17, 18, 19}. This is because the cells are numbered in row major order, starting with a **CellOrdinal** of zero for the upper left cell.

Next, the preceding formula is applied to the cell that is {CA, Q3, Store Cost}. Axis k=0 has $U_k=4$ members and axis k=1 has $U_k=8$ tuples. P is the total number of axes in the query, here equal to 2. S_0 , the initial summation is i=0 to 1. For i=0, the tuple ordinal on axis 0 of {Store Cost} is 1. For i = 1, the tuple ordinal of {CA, Q3} is 2.

For i=0, $E_i = 1$, so for i = 0 the sum is $1 * 1 = 1$ and for i=1, the sum is 2 (tuple ordinal) * 4 (the value of E_i , computed as $1 * 4$), or 8, and so the sum is equal to $1 + 8 = 9$, the cell ordinal for that cell.

		Unit Sales	Store Cost	Store Sales	Sales Count
CA	Q1	16,890.00	14,431.09	\$36,175.20	5498
	Q2	18,052.00	15,332.02	\$38,396.75	5915
	Q3	18,370.00	15,672.83	\$39,394.05	6014
	Q4	21,436.00	18,094.50	\$45,201.84	7015

		Unit Sales	Store Cost	Store Sales	Sales Count
OR	Q1	19,287.00	16,081.07	\$40,170.29	6184
	Q2	15,079.00	12,678.96	\$31,772.88	4799
	Q3	16,940.00	14,273.78	\$35,880.46	5432
	Q4	16,353.00	13,738.68	\$34,453.44	5196

2.2.4.1.1.3.2 Cell Value Errors

Whenever an error occurs trying to return the value of a cell, the server sends an **Error** element, inside the **Value** element of the cell, describing the error. For more information about the corresponding grammar, see section [2.2.4.1.1.3](#).

The following sample shows a security error when the user tried to get results from a cell to which he or she has restricted access.

```
<CellData>
...
  <Cell CellOrdinal="10">
    <Value>
      <Error>
        <ErrorCode>2148497527</ErrorCode>
        <Description>Security Error.</Description>
      </Error>
    </Value>
  </Cell>
...
</CellData>
</root>
```

2.2.4.1.2 xmla-e:emptyresult Complex Type

The **xmla-e:emptyresult** complex type is returned if the return result is empty.

The XSD for the **xmla-e:emptyresult** complex type is as follows.

```
<xsd:complexType name="emptyresult" >
  <xsd:sequence>
    <xsd:element name="Exception" minOccurs="0" type="Exception" />
    <xsd:element name="Messages" minOccurs="0" type="Messages" />
  </xsd:sequence>
</xsd:complexType>
```

Element	Description
Exception	This optional element is returned if there are exceptions that accompany the empty result. See section 2.2.4.1.5.1 .
Messages	This optional element is returned if there are messages that accompany the empty result. See section 2.2.4.1.5.2 .

2.2.4.1.3 xmla-rs:rowset Complex Type

The **xmla-rs:rowset** complex type is returned by commands whose return result is a rowset. The XSD for the **xmla-rs:rowset** complex type is as follows.

```
<xsd:complexType name="rowset" >
  <xsd:sequence>
    <xsd:element ref="xs:Schema" />
    <xsd:element name="row" minOccurs="0" maxOccurs="unbounded" type="row" />
    <xsd:element name="Exception" minOccurs="0" type="Exception" />
    <xsd:element name="Messages" minOccurs="0" type="Messages" />
  </xsd:sequence>
</xsd:complexType>
```

Element	Description
Schema	An XSD schema that describes the rest of the result.
row	Contains the rows with the results.
Exception	This optional element is returned if there are exceptions that accompany the empty result. See section 2.2.4.1.3 .
Messages	This optional element is returned if there are messages that accompany the empty result. See section 2.2.4.1.3 .

2.2.4.1.3.1 xmla-rs:row Complex Type

Each row element represents a row of tabular data.

```
<xsd:complexType name="row">
  <xsd:sequence>
    <xsd:any namespace="##any" minOccurs="0" maxOccurs="unbounded" />
  </xsd:sequence>
</xsd:complexType>
```

Element	Description
xs:any	The content of each row is variable. Each element within each row can be thought of as a column in a tabular return result. There will be one element in each row to represent one column in a tabular presentation. The Schema element within the rs:root element can be used to obtain a dictionary of elements that will appear within each row, and the types of the elements. Additional rows may be nested within a row result, to a single level. See section 2.2.4.1.3.1.1 for information on nested rows.

2.2.4.1.3.1.1 Nested Rowsets

A special case of the row element is where it is part of a nested rowset, and therefore contains the contents of an additional row. This can be thought of as "a row within a row." However, the nested row does not contain a new Row element. The limit of nesting is to one level. That is, nested rows cannot contain additional nested rows.

The nested rowset does not have a specific XSD. That is because the XSD definition for the **xmla-rs:row** element is **xs:any**, and therefore, the concept of nested rows is included within the XSD definition of **xmla-rs:row**. However, the restriction is imposed that nesting is limited to one level.

This concept is best illustrated by a fragment of an example. The following code shows the return result of one row from the DISCOVER_SCHEMA_ROWSETS **Discover**.

```
<row>
  <SchemaName>DBSCHEMA_CATALOGS</SchemaName>
  <SchemaGuid>C8B52211-5CF3-11CE-ADE5-00AA0044773D</SchemaGuid>
  <Restrictions>
    <Name>CATALOG_NAME</Name>
    <Type>xsd:string</Type>
  </Restrictions>
  <RestrictionsMask>1</RestrictionsMask>
</row>
```

Note that the **Restrictions** column of the above row contains a nested row within it. The nested row itself contains two elements, **Name** and **Type**. If a return result of **xmla-rs:root** contains a rowset with nested rows, this will be reflected in the **Schema** element of the particular **xmla-rs:rowset** return result.

2.2.4.1.4 xmla-m:results Complex Type

The **xmla-m:multipleresults** complex type is returned only as a response to a **Batch** command. The results element contains one or more root elements, one that corresponds to each command that was executed within the **Batch** command. See section [3.1.4.3.3.1](#) for a description of the root element and of the different types for the root element.

```
<xsd:complexType name="results" >
  <xsd:sequence>
    <xsd:element ref="xmla-e:root" minOccurs="0" maxOccurs="unbounded" />
  </xsd:sequence>
</xsd:complexType>
```

Element	Description
Root	One or more xmla-e:root elements are contained by the results element. One xmla-e:root element is returned for each command result in the Batch command stream.

2.2.4.1.5 Error and Warning Complex Types

2.2.4.1.5.1 xmla-x:Exception

The **xmla-x:Exception** complex type is used when the server encounters an error during execution. This element **MUST** be empty. The XSD for the **xmla-x:Exception** type is as follows.

```
<xsd:complexType name="Exception">
  <xsd:sequence>
    <!--The Exception type MUST be empty-->
  </xsd:sequence>
```



```
</xsd:complexType>
```

2.2.4.1.5.2 xmla-x:Messages

Any of the root elements may contain a messages element.

```
<xsd:complexType name="Messages">
  <xsd:choice minOccurs="1" maxOccurs="2">
    <xsd:element name="Warning" type="WarningType" />
    <xsd:element name="Error" type="WarningType" />
  </xsd:choice>
</xsd:complexType>
```

Element	Description
Warning	Information about the Warning .
Error	Information about the Error .

2.2.4.1.5.2.1 WarningType

The XSD for the **WarningType** complex type is as follows.

```
<xsd:complexType name="WarningType">
  <xsd:all>
    <xsd:element name="Location" type="MessageLocation" minOccurs="0" />
  </xsd:all>
  <xsd:attribute name="WarningCode" type="xsd:int" />
  <xsd:attribute name="Description" type="xsd:string" />
  <xsd:attribute name="Source" type="xsd:string" />
  <xsd:attribute name="HelpFile" type="xsd:string" />
</xsd:complexType>
```

Element	Description
Location	Location information for the Warning or Error .

Attribute	Description
WarningCode	The Warning Code for the Warning .
Description	A description of the Warning .
Source	The source of the Warning , such as a product name.
HelpFile	A help file that contains information about the Warning .

2.2.4.1.5.2.1.1 MessageLocation

The **MessageLocation** type is used to identify the line and column location of a warning or an error within a **Statement** element.

The XSD for the **MessageLocation** complex type is as follows.

```
<xsd:complexType name="MessageLocation">
  <xsd:all>
    <xsd:element name="Start" >
      <xsd:complexType>
        <xsd:all>
          <xsd:element name="Line" type="xsd:int" />
          <xsd:element name="Column" type="xsd:int" />
        </xsd:all>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="End" >
      <xsd:complexType>
        <xsd:all>
          <xsd:element name="Line" type="xsd:int" />
          <xsd:element name="Column" type="xsd:int" />
        </xsd:all>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>
```

Element	Description
Start	The Start element contains a Line element (integer) and a Column element (integer) that indicates the starting point of the Warning or Error .
End	The End element contains a Line element (integer) and a Column element (integer) that indicates the ending point of the Warning or Error .

2.2.4.2 Object Definition Complex Types

An XML payload is sent to the server within the **Create** command (see section [3.1.4.3.2.1.1.3](#)) or the **Alter** command (see section [3.1.4.3.2.1.1.3](#)) to describe the objects on a server to be created or altered. Each server object is represented by a complex type in the commands that are sent to the server. The entire hierarchy of the complex types that comprise the available hierarchy of objects is described in this section.

All types defined in this section are in the namespace **eng:** unless otherwise specified.

2.2.4.2.1 Rules that Apply to All Complex Types

There are some rules that apply to all of the complex types enumerated in this section. This subsection enumerates rules that apply across all of the complex types.

2.2.4.2.1.1 Names, IDs, and References

Every structural object contains the following properties, as described in the subsequent sections under each complex type description.

- A *Name*. Names of sibling objects MUST be unique, within some scope. The scope is generally within the parent collection. Any exceptions to this are stated below, under the description for the complex type. Name is what is exposed to client programmers in the schema rowsets.
- An *ID*. The same restrictions on uniqueness apply to IDs. In addition, they are not changeable. They are assigned upon creation, either by the user/tool, or automatically by the engine (if not specified) to the initial name of the object. ID is considered a management property. ID is not exposed in the schema rowset for client programming.
- A *Description*.

SQL Server Analysis Services has additional rules that apply to names and IDs. <2>

2.2.4.2.1.2 String Elements

In addition to restrictions on Name and ID string elements, SQL Server Analysis Services imposes additional restrictions upon handling of all string elements. <3>

2.2.4.2.1.3 Versioning

The protocol defined in this specification uses the [XML namespace `http://schemas.microsoft.com/analysisservices/2003/engine`](http://schemas.microsoft.com/analysisservices/2003/engine). Forward/backward compatibility is an important issue with the protocol described in this document because new elements MAY be added in any release. When new elements are added in a release, with regard to all previously released releases, the new element can be considered as:

- Ignorable
- Not ignorable

Ignorable elements are those that MAY be safely ignored by any release for which the element is deemed to be harmless if it is ignored. That release will have been released before the element in question existed, so it will not know anything about it. Therefore, that element will be an unexpected element to the component that receives a command containing that element. But the receiving component MAY safely ignore the presence of this unknown element and MAY proceed to process the rest of the elements as if the unknown element were not present, if the new element is not breaking.

If an element is deemed to be not ignorable to the release, that release MUST NOT successfully process a command containing the unknown element. It MUST issue an error message because it has encountered an unknown XML element that it cannot process, and that it cannot safely ignore.

This protocol does not include a mechanism to negotiate element version compatibility between a client and a server. The only mechanism supplied is one that transmits information indicating when elements may be ignored and when elements may not be ignored.

Information about element ignorability is achieved by using the namespace. The target namespace for this protocol consists of the following format:

[http://schemas.microsoft.com/analysisservices/YYYY/engine\[M/N\]](http://schemas.microsoft.com/analysisservices/YYYY/engine[M/N])

The versioning described in this section refers only to the above namespace and its derivatives. Other namespaces referenced in this protocol definition are not versioned in the way described in this section.

We will refer to <http://schemas.microsoft.com/analysisservices> as "root." It is this root namespace for which the following rules apply:

- 'YYYY' is the year of a major protocol release. This protocol was initially released in 2003, and since that time, the only subsequent major release was in 2008. Therefore, YYYY will equal "2003" or "2008" at this time. Subsequent protocol releases will have additional, future YYYY tagging. The YYYY element of the namespace MUST NOT change in minor releases, such as service packs and hotfixes. However, this component is not critical to compatibility issues, and other users of this protocol may use any desired designation for YYYY.
- 'M' is the sequence number of the XML element. For every protocol release that introduces new XML elements or new enumeration values for existing elements, a new sequence number for M MUST be used. M MUST always be incremented, that is, every new M must be greater than any previously used M. The very first version of this protocol did not use any value for M, and therefore it is treated as if it were 0.
- 'N' is the smallest/earliest protocol version number, so that a client or a server originally released with this sequence number or higher would be safe to ignore this XML element. If N is unspecified, it is assumed to be 0, that is, the XML element is nonbreaking to the initial protocol release, and to all subsequent protocol releases since. If N is specified, a component MUST compare N to M for its own release. If N is greater than M for its own release, then this element MUST NOT be ignored, and an error MUST be raised, instead of continuing to process the rest of the elements received with the command.

The namespace for an element is specified by using the "xmlns" attribute within the instance XML. For enumeration values, an XML attribute called "valuens" is used. Clients and servers MUST look for those attributes in order to evaluate whether an element may be ignored or not.

For example, if a particular component that utilized this protocol were released and built to protocol version 2, the namespace that it would know about would be root/2003/engine/2, and therefore, for itself, M = 2. If it receives an XML element with an xmlns attribute or a valuens attribute that has an N component, and that N component is greater than 2, then this component MUST issue an error. If it receives an XML element with an N component less than or equal to 2, or with the N component absent (which means implicitly that N=0), then it MAY safely process the request.

This protocol also uses elements that do not have a namespace base format of the form: <http://schemas.microsoft.com/analysiservices/YYYY/engine/M/N>. For those elements, this protocol does not provide any versioning capability, and does not provide a mechanism for determining whether an element is ignorable or not.

2.2.4.2.2 Complex Type Definitions for Server Object Hierarchy

Each type described in this section will have an XSD fragment that describes the required XML syntax for the type, and a table of additional information about the elements that comprise the type. In addition to a brief description of each element of each type, the table has columns for "Read-Only" and "Default." The Read-Only column indicates whether this property is returned by the server in DISCOVER_XML_METADATA but may not be set by the contents of a **Create** or **Alter** command executed on the server. The Default column indicates what value the Server will instantiate for the object if a **Create** or **Alter** command omits that particular element from the definition that is being sent to the server.

Unless noted otherwise, all types described in this section are in the namespace <http://schemas.microsoft.com/analysiservices/2003/engine>.

2.2.4.2.2.1 MajorObject

Many types in the type hierarchy inherit from the base abstract type **MajorObject**. Any type that inherits from the abstract type **MajorObject** is one that can be created or altered directly in a

Create or **Alter** command. In contrast, minor objects cannot be directly created or altered, and can be created or altered only as part of the create/alter of the **MajorObject** in which they are included.

The XSD for **MajorObject** indicates only that it is a base, abstract class. All of the elements common to all major objects are enumerated within the XSD for each derived class, in its own XSD section. However, the table in this section presents the elements common to all of the derived classes, and the descriptions of the elements are omitted from the tabular sections for the derived classes.

```
<xsd:complexType name="MajorObject" abstract="true" />
```

The following elements are common to all classes derived from **MajorObject**.

Element	Read-Only	Default	Description
Name		[Required]	The object name.
ID		Defaults to Name.	The object ID string.
CreatedTimestamp	Yes		A timestamp for the time object was created.
LastSchemaUpdate	Yes		A timestamp for the time that the schema was last updated.
Description		Empty	The object description.
Annotations	Yes	Empty	A collection of Annotation objects.

2.2.4.2.2.2 Server

This complex type represents a **Server** instance.

```
<xsd:complexType name="Server">
  <xsd:complexContent>
    <xsd:extension base="MajorObject">
      <xsd:all>
        <!--These elements are common to each MajorObject-->
        <xsd:element name="Name" type="xsd:string" />
        <xsd:element name="ID" type="xsd:string" minOccurs="0" />
        <xsd:element name="CreatedTimestamp" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="LastSchemaUpdate" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="Description" type="xsd:string" minOccurs="0" />
        <xsd:element name="Annotations" minOccurs="0" >
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Annotation" type="Annotation" minOccurs="0"
                maxOccurs="unbounded" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <!--Extended elements for Server object-->
        <xsd:element name="ProductName" type="xsd:string" minOccurs="0" />
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>
```

```

<xsd:element name="Edition" minOccurs="0" >
  <xsd:simpleType>
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="Standard"/>
      <xsd:enumeration value="Standard64"/>
      <xsd:enumeration value="Enterprise"/>
      <xsd:enumeration value="Enterprise64"/>
      <xsd:enumeration value="Developer"/>
      <xsd:enumeration value="Developer64"/>
      <xsd:enumeration value="Evaluation"/>
      <xsd:enumeration value="Evaluation64"/>
      <xsd:enumeration value="Local"/>
      <xsd:enumeration value="Local64"/>
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="EditionID" type="xsd:long" minOccurs="0" />
<xsd:element name="Version" type="xsd:string" minOccurs="0" />
<xsd:element name="ProductLevel" type="xsd:string" minOccurs="0" />
<xsd:element name="Databases " minOccurs="0" >
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Database" type="Database" minOccurs="0"
        maxOccurs="unbounded" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="Assemblies" minOccurs="0" >
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Assembly" type="Assembly" minOccurs="0"
        maxOccurs="unbounded" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="Traces" minOccurs="0" >
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Trace" type="Trace" minOccurs="0"
        maxOccurs="unbounded" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="Roles" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Role" type="Role" minOccurs="0"
        maxOccurs="unbounded" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="ServerProperties" minOccurs="0" >
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="ServerProperty" type="ServerProperty"
        minOccurs="0" maxOccurs="unbounded" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>

```

```

    </xsd:all>
  </xsd:extension >
</xsd:complexContent>
</xsd:complexType>

```

Also included in the **Server** object are all of the elements from **MajorObject**. For more information, see section [2.2.4.2.2.1](#)

Element	Read-Only	Default	Description
ProductName	Yes		The product name.
Edition	Yes		The product edition.
EditionID	Yes		The ID for the edition. <4>
Version	Yes		The product version. <5>
ProductLevel	Yes		The product level.
Databases		Empty	A collection of Database objects.
Assemblies		Empty	A collection of Assembly objects.
Traces		Empty	A collection of Trace objects.
Roles		Empty	A collection of Role objects.
ServerProperties		Empty	A collection of ServerProperty objects.

2.2.4.2.2.2.1 ServerProperty

A **ServerProperty** is a Name-Value pair that contains values for setting Server Properties.

```

<xsd:complexType name="ServerProperty" >
  <xsd:all>
    <xsd:element name="Name" type="xsd:string" />
    <xsd:element name="Value" type="xsd:string" />
    <xsd:element name="RequiresRestart" type="xsd:boolean" minOccurs="0" />
    <xsd:element name="PendingValue" type="xsd:anySimpleType" minOccurs="0" />
    <xsd:element name="DefaultValue" type="xsd:anySimpleType" minOccurs="0" />
    <xsd:element name="DisplayFlag" type="xsd:boolean" minOccurs="0" />
    <xsd:element name="Type" minOccurs="0" type="xsd:string" />
  </xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
Name		[Required]	The name of the property.
Value		[Required]	The value of the property.
RequiresRestart	Yes		A Boolean that determines whether the server must be restarted before the new value takes effect.

Element	Read-Only	Default	Description
PendingValue	Yes		A value that will be instantiated at next server restart.
DefaultValue	Yes		The default value when the server is installed.
DisplayFlag	Yes		A Boolean that is a hint provided by the server to the client that indicates whether it is recommended to display this property in the user interface.
Type	Yes		The type of the server property. This is expressed as an XSD type.

Server properties supported by SQL Server Analysis Services can be found here: [6](#)

2.2.4.2.2.3 Assembly

This complex type represents a function library that can be invoked from within an MDX, DMX, or SQL query.

Assembly is an abstract type, and will require an instance to identify the type of **Assembly** being sent, **ComAssembly** or **ClrAssembly**.

```
<xsd:complexType name="Assembly" abstract="true" >
  <xsd:complexContent>
    <xsd:extension base="MajorObject">
      <xsd:all>
        <!--These elements are common to each MajorObject-->
        <xsd:element name="Name" type="xsd:string" />
        <xsd:element name="ID" type="xsd:string" minOccurs="0" />
        <xsd:element name="CreatedTimestamp" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="LastSchemaUpdate" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="Description" type="xsd:string" minOccurs="0" />
        <xsd:element name="Annotation" minOccurs="0" >
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Annotation" type="Annotation" minOccurs="0"
                maxOccurs="unbounded" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <!--Extended elements for Assembly object-->
        <xsd:element name="ImpersonationInfo" type="ImpersonationInfo"
          minOccurs="0" />
      </xsd:all>
    </xsd:extension >
  </xsd:complexContent>
</xsd:complexType>
```

Also included in the **Assembly** object are all of the elements from **MajorObject**. For more information, see section [2.2.4.2.2.1](#).

Element	Read-Only	Default	Description
---------	-----------	---------	-------------

Element	Read-Only	Default	Description
ImpersonationInfo		Empty	User credentials under which to invoke assembly.

2.2.4.2.2.3.1 ComAssembly

This complex type represents a **Component Object Model (COM)** library.

ComAssembly is derived from **Assembly**.

COM assemblies treat ImpersonationMode=Default as ImpersonateCurrentUser. COM assemblies do not support impersonation modes other than ImpersonateCurrentUser.

```
<xsd:complexType name="ComAssembly">
  <xsd:complexContent>
    <xsd:extension base="Assembly">
      <xsd:all>
        <xsd:element name="Source" type="xsd:string" minOccurs="0" />
      </xsd:all>
    </xsd:extension >
  </xsd:complexContent>
</xsd:complexType>
```

Also included in **ComAssembly** are all of the elements from **Assembly**. For more information, see section [2.2.4.2.2.3](#).

Element	Read-Only	Default	Description
Source		Empty	MUST contain either a file name or a PROG ID (program ID).

2.2.4.2.2.3.2 ClrAssembly

This complex type represents a CLR assembly. CLR assemblies treat ImpersonationMode=Default as ImpersonateServiceAccount for Safe permission set and ImpersonateCurrentUser for ExternalAccess and Unrestricted permission sets. CLR assemblies support all impersonation modes.

ClrAssembly is derived from **Assembly**.

```
<xsd:complexType name="ClrAssembly">
  <xsd:complexContent>
    <xsd:extension base="Assembly" >
      <xsd:sequence>
        <xsd:element name="Files" >
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="File" type="ClrAssemblyFile" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <xsd:element name="PermissionSet" minOccurs="0">
          <xsd:simpleType>
            <xsd:restriction base="xsd:string">
              <xsd:enumeration value="Safe" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
      </xsd:sequence>
    </xsd:extension >
  </xsd:complexContent>
</xsd:complexType>
```

```

        <xsd:enumeration value="ExternalAccess" />
        <xsd:enumeration value="Unrestricted" />
    </xsd:restriction>
</xsd:simpleType>
</xsd:element>
</xsd:sequence>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>

```

Also included in **ClrAssembly** are all the elements from **Assembly**. For more information, see section [2.2.4.2.2.3](#).

Element	Read-Only	Default	Description
File		[Required]	The contents of the Assembly file.
PermissionSet		"Safe"	<p>The access permission level that the server will apply to this Assembly object.</p> <p>The enumeration values are:</p> <p>Safe - Only internal computation and local data access is allowed. <i>Safe</i> is the most restrictive permission set. Code executed by an assembly with <i>Safe</i> permissions cannot access external system resources such as files, the network, environment variables, or the registry.</p> <p>ExternalAccess - <i>Safe</i>, with the additional ability to access external system resources such as files, networks, environmental variables, and the registry.</p> <p>Unrestricted - <i>Safe</i>, with the additional ability to access external system resources such as files, networks, environmental variables, and the registry.</p>

2.2.4.2.2.3.2.1 ClrAssemblyFile

The actual contents of a CLR assembly file.

```

<xsd:complexType name="ClrAssemblyFile">
  <xsd:all>
    <xsd:element name="Name" type="xsd:string" />
    <xsd:element name="Type" >
      <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
          <xsd:enumeration value="Main" />
          <xsd:enumeration value="Dependent" />
          <xsd:enumeration value="Debug" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="Data" type="DataBlock" minOccurs="0" />
  </xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
Name		[Required]	The name of the file.
Type		[Required]	The type of the file.
Data		Empty	A collection of DataBlock elements constituting the file contents.

2.2.4.2.2.3.2.2 DataBlock

The binary contents of each block of **Assembly** code.

```
<xsd:complexType name="DataBlock">
  <xsd:sequence>
    <xsd:element name="Block" type="xsd:base64Binary"
      minOccurs="0" maxOccurs="unbounded"/>
  </xsd:sequence>
</xsd:complexType>
```

Element	Read-Only	Default	Description
Block		Empty	A block of data representing a portion of the file contents.

2.2.4.2.2.4 Trace

This complex type represents a trace object. A trace consists of a set of server events that a client can subscribe to by using the **Subscribe** command.

```
<xsd:complexType name="Trace">
  <xsd:complexContent>
    <xsd:extension base="MajorObject">
      <xsd:all>
        <!--These elements are common to each MajorObject-->
        <xsd:element name="Name" type="xsd:string" />
        <xsd:element name="ID" type="xsd:string" minOccurs="0" />
        <xsd:element name="CreatedTimestamp" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="LastSchemaUpdate" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="Description" type="xsd:string" minOccurs="0" />
        <xsd:element name="Annotation" minOccurs="0" >
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Annotation" type="Annotation" minOccurs="0"
                maxOccurs="unbounded" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <!--Extended elements for Trace object-->
        <xsd:element name="LogFileName" type="xsd:string" minOccurs="0"/>
        <xsd:element name="LogFileAppend" type="xsd:boolean" minOccurs="0"/>
        <xsd:element name="LogFileSize" type="xsd:long" minOccurs="0" />
        <xsd:element name="Audit" type="xsd:boolean" minOccurs="0"/>
        <xsd:element name="LogFileRollover" type="xsd:boolean" minOccurs="0"/>
        <xsd:element name="AutoRestart" type="xsd:boolean" minOccurs="0"/>
        <xsd:element name="StopTime" type="xsd:dateTime" minOccurs="0"/>
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>
```

```

<xsd:element name="Filter" type="TraceFilter" minOccurs="0" />
<xsd:element name="Events" >
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Event" type="Event" minOccurs="0"
        maxOccurs="unbounded" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:extension >
</xsd:complexContent>
</xsd:complexType>

```

Element	Read-Only	Default	Description
LogFileName		Empty	The file name for the log file.
LogFileAppend		True	A Boolean that indicates whether to append to existing log file.
LogFileSize		0	An integer that sets maximum file size in MB. If zero, it means no maximum size.
Audit		False	A Boolean that indicates, if true, that a Trace element cannot drop any events, even if this results in degraded performance on the server.
LogFileRollover		False	A Boolean that indicates what to do if LogFileSize is exceeded. If true, a new file is started; if false, logging stops.
AutoRestart		False	Does Trace auto restart with service stop/start.
StopTime		No stop time	The time that the server will stop logging to Trace log file.
Filter		Empty	A complex XML type that specifies a logical condition that will determine whether or not the event is included in Trace output. <?>
Events		Empty	A collection of Event objects.

2.2.4.2.2.4.1 Event

```

<xsd:complexType name="Event">
  <xsd:all>
    <xsd:element name="EventID" type="xsd:string"/>
    <xsd:element name="Columns" >
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="ColumnID" type="EventColumnID" maxOccurs="unbounded" />
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
EventID		[Required]	The ID string for the Event .
Columns		[Required]	A collection of objects of type EventColumn .

2.2.4.2.2.4.1.1 EventColumn

Describes the columns for this **Event**.

```
<xsd:complexType name="EventColumnID">
  <xsd:all>
    <xsd:element name="ColumnID" type="xsd:string"/>
  </xsd:all>
</xsd:complexType>
```

Element	Read-Only	Default	Description
ColumnID		[Required]	The ID of the column used for this event.

2.2.4.2.2.4.2 TraceFilter

The **Filter** for a trace is expressed as an XML structure. This structure amounts to a logical expression.

```
<xsd:complexType name="TraceFilter" >
  <xsd:choice minOccurs="1" maxOccurs="1">
    <xsd:element name="Not" type="not_type" minOccurs="0" />
    <xsd:element name="Or" type="and_or_type" minOccurs="0" />
    <xsd:element name="And" type="and_or_type" minOccurs="0" />
    <xsd:element name="Equal" type="bool_binop" minOccurs="0" />
    <xsd:element name="NotEqual" type="bool_binop" minOccurs="0" />
    <xsd:element name="Less" type="bool_binop" minOccurs="0" />
    <xsd:element name="LessOrEqual" type="bool_binop" minOccurs="0" />
    <xsd:element name="Greater" type="bool_binop" minOccurs="0" />
    <xsd:element name="GreaterOrEqual" type="bool_binop" minOccurs="0" />
    <xsd:element name="Like" type="bool_binop" minOccurs="0" />
    <xsd:element name="NotLike" type="bool_binop" minOccurs="0" />
  </xsd:choice>
</xsd:complexType>
<xsd:complexType name="not_type" >
  <xsd:choice maxOccurs="1" minOccurs="1">
    <xsd:element name="Not" type="not_type" minOccurs="0" />
    <xsd:element name="Or" type="and_or_type" minOccurs="0" />
    <xsd:element name="And" type="and_or_type" minOccurs="0" />
    <xsd:element name="Equal" type="bool_binop" minOccurs="0" />
    <xsd:element name="NotEqual" type="bool_binop" minOccurs="0" />
    <xsd:element name="Less" type="bool_binop" minOccurs="0" />
    <xsd:element name="LessOrEqual" type="bool_binop" minOccurs="0" />
    <xsd:element name="Greater" type="bool_binop" minOccurs="0" />
    <xsd:element name="GreaterOrEqual" type="bool_binop" minOccurs="0" />
    <xsd:element name="Like" type="bool_binop" minOccurs="0" />
    <xsd:element name="NotLike" type="bool_binop" minOccurs="0" />
  </xsd:choice>
```

```

</xsd:complexType>
<xsd:complexType name="and_or_type" >
  <xsd:choice maxOccurs="2" minOccurs="2">
    <xsd:element name="Not" type="not_type" minOccurs="0" />
    <xsd:element name="Or" type="and_or_type" minOccurs="0" />
    <xsd:element name="And" type="and_or_type" minOccurs="0" />
    <xsd:element name="Equal" type="bool_binop" minOccurs="0" />
    <xsd:element name="NotEqual" type="bool_binop" minOccurs="0" />
    <xsd:element name="Less" type="bool_binop" minOccurs="0" />
    <xsd:element name="LessOrEqual" type="bool_binop" minOccurs="0" />
    <xsd:element name="Greater" type="bool_binop" minOccurs="0" />
    <xsd:element name="GreaterOrEqual" type="bool_binop" minOccurs="0" />
    <xsd:element name="Like" type="bool_binop" minOccurs="0" />
    <xsd:element name="NotLike" type="bool_binop" minOccurs="0" />
  </xsd:choice>
</xsd:complexType>
<xsd:complexType name="bool_binop" >
  <xsd:all>
    <xsd:element name="ColumnID" type="xsd:string"/>
    <xsd:element name="Value" type="xsd:string" />
  </xsd:all>

```

2.2.4.2.2.5 Database

This complex type represents a database.

```

</xsd:complexType>
<xsd:complexType name="Database">
  <xsd:complexContent>
    <xsd:extension base="MajorObject">
      <xsd:all>
        <!--These elements are common to each MajorObject-->
        <xsd:element name="Name" type="xsd:string" />
        <xsd:element name="ID" type="xsd:string" minOccurs="0" />
        <xsd:element name="CreatedTimestamp" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="LastSchemaUpdate" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="Description" type="xsd:string" minOccurs="0" />
        <xsd:element name="Annotation" minOccurs="0" >
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Annotation" type="Annotation" minOccurs="0"
                maxOccurs="unbounded" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <!--Extended elements for Database object-->
        <xsd:element name="State" minOccurs="0">
          <xsd:simpleType>
            <xsd:restriction base="xsd:string" >
              <xsd:enumeration value="Processed" />
              <xsd:enumeration value="PartiallyProcessed" />
              <xsd:enumeration value="Unprocessed" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
        <xsd:element ref="eng100:ReadWriteMode" minOccurs="0" />
        <xsd:element ref="eng100_100:DbStorageLocation" minOccurs="0"/>
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>

```

```

<xsd:element name="AggregationPrefix" type="xsd:string" />
<xsd:element name="ProcessingPriority" type="xsd:integer" minOccurs="0"/>
<xsd:element name="EstimatedSize" type="xsd:long" minOccurs="0"/>
<xsd:element name="LastProcessed" type="xsd:dateTime" minOccurs="0"/>
<xsd:element name="Language" type="xsd:integer" minOccurs="0"/>
<xsd:element name="Collation" type="xsd:string" minOccurs="0"/>
<xsd:element name="Visible" type="xsd:boolean" minOccurs="0"/>
<xsd:element name="MasterDataSourceID" type="xsd:string" minOccurs="0"/>
<xsd:element name="DataSourceImpersonationInfo" type="ImpersonationInfo"
  minOccurs="0" />
<xsd:element name="Accounts" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Account" type="Account" minOccurs="0"
        maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="DataSources" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="DataSource" type="DataSource" minOccurs="0"
        maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="DataSourceViews" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="DataSourceView" type="DataSourceView"
        minOccurs="0" maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="Dimensions" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Dimension" type="Dimension"
        minOccurs="0" maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="Cubes" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Cube" type="Cube" minOccurs="0"
        maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="MiningStructures" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="MiningStructure" type="MiningStructure"
        minOccurs="0" maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="Roles" minOccurs="0">

```

```

    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="Role" type="Role" minOccurs="0"
          maxOccurs="unbounded" />
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
  <xsd:element name="Assemblies" minOccurs="0">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="Assembly" type="Assembly" minOccurs="0"
          maxOccurs="unbounded" />
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
  <xsd:element name="DatabasePermissions" minOccurs="0">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="DatabasePermission" type="DatabasePermission"
          minOccurs="0" maxOccurs="unbounded" />
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
  <xsd:element name="Translations" minOccurs="0">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="Translation" type="Translation" minOccurs="0"
          maxOccurs="unbounded" />
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
  <xsd:element ref="eng200_200:StorageEngineUsed" minOccurs="0" />
  <xsd:element ref="eng200_200:ImagePath" minOccurs="0" />
  <xsd:element ref="eng200_200:ImageUrl" minOccurs="0" />
  <xsd:element ref="eng200_200:ImageUniqueID" minOccurs="0" />
  <xsd:element ref="eng200_200:ImageVersion" minOccurs="0" />
</xsd:all>
</xsd:extension >
</xsd:complexContent>
</xsd:complexType>

```

The **Database** XSD depends upon the following definitions in namespaces other than the default namespace.

In the namespace **eng100**:

```

<xsd:element name="ReadWriteMode" >
  <xsd:simpleType>
    <xsd:restriction base="xsd:string" >
      <xsd:enumeration value="ReadWrite" />
      <xsd:enumeration value="ReadOnly" />
      <xsd:enumeration value="ReadOnlyExclusive" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>

```


In the namespace **eng100_100**:

```
<xsd:element name="DbStorageLocation" type="xsd:string" />
```

In the namespace **eng200_200**:

```
<xsd:element name="StorageEngineUsed" >
```

```

<xsd:simpleType>
  <xsd:restriction base="xsd:string" >
    <xsd:enumeration value="Traditional" />
    <xsd:enumeration value="InMemory" />
    <xsd:enumeration value="Mixed" />
  </xsd:restriction>
</xsd:simpleType>
</xsd:element>
<xsd:element name="ImagePath" type="xsd:string" />
<xsd:element name="ImageUrl" type="xsd:string" />
<xsd:element name="ImageUniqueID" type="xsd:string" />
<xsd:element name="ImageVersion" type="xsd:string" />

```

Element	Read-Only	Default	Description
Name		[Required]	The object name.
ID		Defaults to Name.	The object ID string.
CreatedTimestamp	Yes		A timestamp that indicates the time that object was created.
LastSchemaUpdate	Yes		A timestamp that indicates the time that the schema was last updated.
LastUpdate	Yes		A timestamp that indicates the last time the database or any of its contained major objects was altered.
Description		Empty	The object description.
State	Yes		The current state of processing within the Database objects.
ReadWriteMode	"ReadWrite"		A Boolean that indicates if the database is Read-only or allows Write operations.
DbStorageLocation		Empty	A valid UNC path for where the server will store the data for this database.
AggregationPrefix		Empty	The common prefix that can be used for aggregation names for all of the partitions in a database.
ProcessingPriority		0	An integer that indicates the priority for processing (for example, lazy aggregations, indexing, clustering).

Element	Read-Only	Default	Description
EstimatedSize	Yes		The estimated size of the database in bytes.
LastProcessed	Yes		A timestamp that indicates the date and time when the object was last processed. Updated only if the process command actually processes the database; processing all objects in the database individually will not update it.
Language		Empty	The language to use by default.
Collation		Empty	The collation sequence.
Visible		True	A Boolean that indicates if the database is visible to clients.
MasterDatasourceID		Empty	String that specifies the MasterDatasourceID of the Online Analytical Processing (OLAP) datasource that points to the master server for remote partitions.
DataSourceImpersonationInfo		Empty	The default user credentials to connect to datasource.
Accounts		Empty	A collection of objects of type Account .
DataSources		Empty	A collection of objects of type DataSource .
DataSourceViews		Empty	A collection of objects of type DataSourceView .
Dimensions		Empty	A collection of objects of Dimension objects.
Cubes		Empty	A collection of Cube objects.
MiningStructures		Empty	A collection of MiningStructure objects.
Roles		Empty	A collection of Role objects.
Assemblies		Empty	A collection of Assembly objects.
DatabasePermissions		Empty	A collection of DatabasePermission objects.
Translations		Empty	A collection of Translation objects.
Annotations		Empty	A collection of Annotation objects.
StorageEngineUsed		"Traditional"	Enumeration value that indicates which of the types of available storage engines to use.
ImagePath	Yes		The UNC path of the file from which this database was loaded. This element will be

Element	Read-Only	Default	Description
			empty if the database does not come from a local file.
ImageUrl	Yes		The URL of the file from which this database was loaded. This element will be empty if the database is not loaded from a URL.
ImageUniqueID	Yes		The Unique ID assigned to this database, if it was loaded from a URL location. This element will be empty if the database is not loaded from a URL location.
ImageVersion		Empty.	A string that represents a timestamp containing the last time that the file that contains the database was updated. The string format is MM/dd/yyyy HH:mm:ss [AM/PM]. This element will be empty if the database is not loaded from a file.

2.2.4.2.2.5.1 Account

Dimensions that are of the type **Accounts** might have an attribute marked as providing the Account Type (for example, Income, Expense, Balance, and so on). Measures can then have an aggregate function of **ByAccount**. The set of Account Types defined for a database map the valid account types to the aggregate functions that apply for measures marked with **ByAccount**.

```

<xsd:complexType name="Account">
  <xsd:all>
    <xsd:element name="AccountType" type="xsd:string" />
    <xsd:element name="AggregationFunction" minOccurs="0">
      <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
          <xsd:enumeration value="Sum" />
          <xsd:enumeration value="Count" />
          <xsd:enumeration value="Min" />
          <xsd:enumeration value="Max" />
          <xsd:enumeration value="DistinctCount" />
          <xsd:enumeration value="None" />
          <xsd:enumeration value="AverageOfChildren" />
          <xsd:enumeration value="FirstChild" />
          <xsd:enumeration value="LastChild" />
          <xsd:enumeration value="FirstNonEmpty" />
          <xsd:enumeration value="LastNoneEmpty" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="Aliases" minOccurs="0" >
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Alias" type="xsd:string" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>

```

```

<xsd:element name="Annotations" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Annotation" type="Annotation" minOccurs="0"
        maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
AccountType		[Required]	A string value that represents the name of the account type. The following list of known string values can be extended: "Income" "Expense" "Flow" "Balance" "Asset" "Liability" "Statistical"
AggregationFunction		"Sum"	The aggregation function to use for the Account Type.
Aliases		Empty	A collection of strings, each of which will be treated as an alias for the given Account Type.
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.6 DataSource

This complex type represents a source of data for cubes, dimensions, and **mining structures**. The following complex types extend this type:

- **RelationalDataSource**
- **OlapDataSource**

```

<xsd:complexType name="DataSource" abstract="true" >
  <xsd:complexContent>
    <xsd:extension base="MajorObject">
      <xsd:all>
        <!--These elements are common to each MajorObject-->
        <xsd:element name="Name" type="xsd:string" />
        <xsd:element name="ID" type="xsd:string" minOccurs="0" />
        <xsd:element name="CreatedTimestamp" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="LastSchemaUpdate" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="Description" type="xsd:string" minOccurs="0" />
        <xsd:element name="Annotation" minOccurs="0" >
          <xsd:complexType>
            <xsd:sequence>

```

```

        <xsd:element name="Annotation" type="Annotation" minOccurs="0"
            maxOccurs="unbounded" />
    </xsd:sequence>
</xsd:complexType>
</xsd:element>
<!--Extended elements for DataSource object-->
<xsd:element name="ManagedProvider" type="xsd:string" minOccurs="0"/>
<xsd:element name="ConnectionString" type="xsd:string"/>
<xsd:element name="ConnectionStringSecurity" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="PasswordRemoved" />
            <xsd:enumeration value="Unchanged" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="ImpersonationInfo" type="ImpersonationInfo"
    minOccurs="0" />
<xsd:element name="Isolation" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="ReadCommitted" />
            <xsd:enumeration value="Snapshot" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="MaxActiveConnections" type="xsd:integer"
    minOccurs="0"/>
<xsd:element name="Timeout" type="xsd:duration" minOccurs="0" />
<xsd:element name="DataSourcePermissions" minOccurs="0">
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element name="DataSourcePermission" type="DatabasePermission"
                minOccurs="0" maxOccurs="unbounded"/>
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:extension >
</xsd:complexContent>
</xsd:complexType>

```

Also included in the **DataSource** object are all of the elements from **MajorObject**. For more information, see section [2.2.4.2.2.1](#).

Element	Read-Only	Default	Description
ManagedProvider		Empty	The managed provider name.
ConnectionString		[Required]	The connection string. The password may be stripped out, depending upon the setting of the ConnectionStringSecurity element.
ConnectionStringSecurity	Yes	"Unchanged"	An enumeration value that specifies whether the user's password is stripped from the data source connection string for security purposes.

Element	Read-Only	Default	Description
ImpersonationInfo		Empty	The user credentials to connect to data source.
Isolation		"ReadCommitted"	An enumeration value that specifies the isolation level for reading data that was modified but not committed by another simultaneous transaction.
MaxActiveConnections		10	The maximum number of concurrent connections to the data source. A negative number means that there is no limit. A value of zero means the default limit.
Timeout		Server default.	An integer that specifies the time, in seconds, after which an attempt to retrieve data reports a timeout.
DataSourcePermissions		Empty	A collection of objects of type DataSourcePermission .

2.2.4.2.2.6.1 RelationalDataSource

This complex type represents a relational data source.

```
<xsd:complexType name="RelationalDataSource" >
  <xsd:complexContent>
    <xsd:extension base="DataSource" />
  </xsd:complexContent>
</xsd:complexType>
```

Element	Read-Only	Default	Description
None			

2.2.4.2.2.6.2 OlapDataSource

This complex type represents an OLAP data source.

```
<xsd:complexType name="OlapDataSource" >
  <xsd:complexContent>
    <xsd:extension base="DataSource" />
  </xsd:complexContent>
</xsd:complexType>
```

Element	Read-Only	Default	Description
None			

2.2.4.2.2.6.3 PushedDataSource

This complex type represents a chunk of tabular data being pushed into the server. This is in contrast to **RelationalDataSource** and **OlapDataSource**, where the server pulls the data by sending queries to the data source.

PushedDataSource cannot be specified in a **Create** or **Alter** command. It can be used only within a **Process** command. For more information, see section [3.1.4.3.2.1.1.6](#).

```
<xsd:complexType name="PushedDataSource" >
  <xsd:all>
    <xsd:element name="root">
      <xsd:complexType>
        <xsd:attribute name="Parameter">
          <xsd:simpleType>
            <xsd:restriction base="xsd:string">
              <xsd:enumeration value="InputRowset" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:attribute>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="EndOfData" >
      <xsd:complexType>
        <xsd:attribute name="Parameter" >
          <xsd:simpleType>
            <xsd:restriction base="xsd:string" >
              <xsd:enumeration value="EndOfInputRowset" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:attribute>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>
```

Element	Read-Only	Default	Description
root		[Required]	The XML attribute "Parameter" MUST be present, and it must be set to the value "InputRowset". When utilizing a PushedDataSource , the actual data will be contained in a "Parameter" used on the Execute method with name "InputRowset". For a description of how to use an Execute parameter, see section 3.1.4.3.2.1.3 .
EndOfData		[Required]	The XML attribute "Parameter" MUST be present with this element, and its value MUST be set to "EndOfInputRowset". When utilizing a PushedDataSource , the command must contain a parameter named "EndOfInputRowset" and its value MUST be set to "True" in order to signal an end of input data.

2.2.4.2.2.7 DataSourceView

This complex type represents a view over the schema of a data source.

```

<xsd:complexType name="DataSourceView">
  <xsd:complexContent>
    <xsd:extension base="MajorObject">
      <xsd:all>
        <!--These elements are common to each MajorObject-->
        <xsd:element name="Name" type="xsd:string" />
        <xsd:element name="ID" type="xsd:string" minOccurs="0" />
        <xsd:element name="CreatedTimestamp" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="LastSchemaUpdate" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="Description" type="xsd:string" minOccurs="0" />
        <xsd:element name="Annotation" minOccurs="0" >
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Annotation" type="Annotation" minOccurs="0"
                maxOccurs="unbounded" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <!--Extended elements for DataSourceView object-->
        <xsd:element name="DataSourceID" type="xsd:string"/>
        <xsd:element ref="xs:schema" />
      </xsd:all>
    </xsd:extension >
  </xsd:complexContent>
</xsd:complexType>

```

Also included in the **DataSourceView** object are all elements from [section \(MajorObject\)](#).

Element	Read-Only	Default	Description
DataSourceID		[Required]	The ID of the Data Source for which this is a DataSourceView .
Schema		[Required]	The schema of the Data Source , for example, the contents of the Data Source view. This is defined using the "Schema" element from XMLSchema (XSD), as used in the persistence format of Data Sets . For more information, see [MSDN-DDRXSD].

2.2.4.2.2.8 Dimension

This complex type represents a dimension object.

```

<xsd:complexType name="Dimension">
  <xsd:complexContent>
    <xsd:extension base="MajorObject">
      <xsd:all>
        <!--These elements are common to each MajorObject-->
        <xsd:element name="Name" type="xsd:string" />
        <xsd:element name="ID" type="xsd:string" minOccurs="0" />
        <xsd:element name="CreatedTimestamp" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="LastSchemaUpdate" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="Description" type="xsd:string" minOccurs="0" />
        <xsd:element name="Annotation" minOccurs="0" >
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Annotation" type="Annotation" minOccurs="0"
                maxOccurs="unbounded" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
      </xsd:all>
    </xsd:extension >
  </xsd:complexContent>
</xsd:complexType>

```



```

        <xsd:sequence>
            <xsd:element name="Annotation" type="Annotation" minOccurs="0"
                maxOccurs="unbounded" />
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>
<!--Extended elements for Dimension object-->
<xsd:element name="Source" minOccurs="0" type="Binding" />
<xsd:element name="MiningModelID" type="xsd:string" minOccurs="0"/>
<xsd:element name="Type" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string">
            <xsd:enumeration value="Regular"/>
            <xsd:enumeration value="Time"/>
            <xsd:enumeration value="Geography"/>
            <xsd:enumeration value="Organization"/>
            <xsd:enumeration value="BillofMaterials"/>
            <xsd:enumeration value="Accounts"/>
            <xsd:enumeration value="Customers"/>
            <xsd:enumeration value="Products"/>
            <xsd:enumeration value="Scenario"/>
            <xsd:enumeration value="Quantitative"/>
            <xsd:enumeration value="Utility"/>
            <xsd:enumeration value="Currency"/>
            <xsd:enumeration value="Rates"/>
            <xsd:enumeration value="Channel"/>
            <xsd:enumeration value="Promotion"/>
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="UnknownMember" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string">
            <xsd:enumeration value="Visible"/>
            <xsd:enumeration value="Hidden"/>
            <xsd:enumeration value="None"/>
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="MdxMissingMemberMode" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string">
            <xsd:enumeration value="Ignore"/>
            <xsd:enumeration value="Error"/>
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="ErrorConfiguration" type="ErrorConfiguration"
    minOccurs="0" />
<xsd:element ref="eng200_200:StorageMode" minOccurs="0" />
<xsd:element name="WriteEnabled" type="xsd:boolean" minOccurs="0"/>
<xsd:element name="ProcessingPriority" type="xsd:integer" minOccurs="0"/>
<xsd:element name="LastProcessed" type="xsd:dateTime" minOccurs="0"/>
<xsd:element name="DimensionPermissions" minOccurs="0">
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element name="DimensionPermission" type="DimensionPermission"
                minOccurs="0" maxOccurs="unbounded"/>
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>

```

```

    </xsd:complexType>
</xsd:element>
<xsd:element name="DependsOnDimensionID" type="xsd:string" minOccurs="0"/>
<xsd:element name="Language" type="xsd:integer" minOccurs="0"/>
<xsd:element name="Collation" type="xsd:string" minOccurs="0"/>
<xsd:element name="UnknownMemberName" type="xsd:string" minOccurs="0"/>
<xsd:element name="UnknownMemberTranslations" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="UnknownMemberTranslation" type="Translation"
        minOccurs="0" maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="State" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="Processed"/>
      <xsd:enumeration value="Unprocessed"/>
      <xsd:enumeration value="PartiallyProcessed"/>
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="ProactiveCaching" type="ProactiveCaching"
  minOccurs="0" />
<xsd:element name="ProcessingMode" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="Regular"/>
      <xsd:enumeration value="LazyAggregations"/>
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="ProcessingGroup" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="ByAttribute"/>
      <xsd:enumeration value="ByTable"/>
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="CurrentStorageMode" minOccurs="0">
  <xsd:complexType>
    <xsd:simpleContent>
      <xsd:extension base="DimensionCurrentStorageModeEnumType">
        <xsd:attribute name="valuens" />
        <xsd:simpleType>
          <xsd:restriction base="xsd:string">
            <xsd:enumeration
              value=
                "http://schemas.microsoft.com/analysisisservices/2010/engine/200/200" />
          </xsd:restriction>
        </xsd:simpleType>
      </xsd:attribute>
    </xsd:extension>
  </xsd:simpleContent>
</xsd:complexType>
</xsd:element>
<xsd:element name="Translations" minOccurs="0">

```

```

    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="Translation" type="Translation"
          minOccurs="0" maxOccurs="unbounded"/>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
  <xsd:element name="Attributes" minOccurs="0">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="Attribute" type="Attribute" minOccurs="0"
          maxOccurs="unbounded"/>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
  <xsd:element name="AttributeAllMemberName" type="xsd:string" minOccurs="0"/>
  <xsd:element name="AttributeAllMemberTranslations" minOccurs="0">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="MemberAllMemberTranslation" type="Translation"
          minOccurs="0" maxOccurs="unbounded"/>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
  <xsd:element name="Hierarchies" minOccurs="0">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="Hierarchy" type="Hierarchy" minOccurs="0"
          maxOccurs="unbounded"/>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
  <xsd:element ref="eng200_200:ProcessingRecommendation" minOccurs="0" />
</xsd:all>
</xsd:extension >
</xsd:complexContent>
</xsd:complexType>
<xsd:simpleType name="DimensionCurrentStorageModeEnumType" >
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="Molap"/>
    <xsd:enumeration value="InMemory"/>
    <xsd:enumeration value="Rolap"/>
  </xsd:restriction>
</xsd:simpleType>

```

The **Dimension** XSD depends upon element definitions in namespaces other than the default namespace.

The following elements are defined in the namespace **eng200_200**:

```

<xsd:element name="StorageMode" >
  <xsd:simpleType>
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="Molap"/>
      <xsd:enumeration value="Rolap"/>
      <xsd:enumeration value="InMemory"/>
    </xsd:restriction>
  </xsd:simpleType>

```

```

    </xsd:simpleType>
  </xsd:element>
  <xsd:element name="ProcessingRecommendation" >
    <xsd:simpleType>
      <xsd:restriction base="xsd:string">
        <xsd:enumeration value="None"/>
        <xsd:enumeration value="Stale"/>
      </xsd:restriction>
    </xsd:simpleType>
  </xsd:element>

```

Also included in the **Dimension** object are all elements from **MajorObject**. For more information, see section [2.2.4.2.2.1](#)

Element	Read-Only	Default	Description
Source		Empty	Source is of the type Binding . However, one of the following derived types MUST be used: DataSourceViewBinding , DimensionBinding , CubeDimensionBinding , TimeBinding .
MiningModelID		Empty	The ID of a MiningModel . Used by data mining dimensions.
Type		"Regular"	An enumeration value that provides both the server and client applications with information about the contents of the dimension. Some values—for example, Accounts — MAY determine a specific behavior for the Dimension .
UnknownMember		"None"	An enumeration value that defines whether and how the UnknownMember is visible.
MdxMissingMemberMode		"Ignore"	Determines how missing members are handled for multidimensional expression (MDX) statements. For more information, see [MSDN-MDXR] .
ErrorConfiguration		Empty	Allows configuration of processing errors.
StorageMode		"Molap"	Determines the storage mode for the dimension. Applies to all attributes of the dimension.
WriteEnabled		False	Indicates whether dimension writebacks are available (subject to security permissions).
ProcessingPriority		Zero	An integer that determines the priority for processing.
LastProcessed	Yes		The date and time when the dimension was last processed.
DimensionPermissions		Empty	A collection of objects of type

Element	Read-Only	Default	Description
			DimensionPermission.
DependsOnDimensionID		Empty	Provides the ID of any other dimension that this dimension is dependent upon.
Language		Empty	The language to use by default.
Collation		Empty	The collation sequence.
UnknownMemberName		"Unknown"	The caption for UnknownMember in DefaultLanguage.
UnknownMemberTranslation		Empty	A collection of objects of type Translation that represents the translation for the UnknownMember in different languages.
State	Yes		Contains the current processing state of the dimension.
ProactiveCaching		Empty	Defines Proactive Caching parameters.
ProcessingMode		"Regular"	Indicates whether the instance should index and aggregate during or after processing. The enumeration values are: Regular - The instance indexes and performs aggregations during processing. LazyAggregations - The instance indexes and performs aggregations after processing.
ProcessingGroup		"ByAttribute"	Indicates how the dimension is grouped during processing. Controls what kind of SQL queries are sent to the source data repository.
CurrentStorageMode	Yes		The actual current storage mode for dimension.
Translations		Empty	A collection of Translation objects.
Attributes		Empty	A collection of Attribute objects.
AttributeAllMemberName		Empty	Contains the caption in the default language for the All member of a Hierarchy element.
AttributeAllMemberTranslations		Empty	A collection of Translation objects for the AttributeAllMemberName.
Hierarchies		Empty	A collection of Hierarchy objects.
ProcessingRecommendation	Yes		An enumeration value that the system uses to indicate whether the Dimension is stale and needs to be processed.

2.2.4.2.2.8.1 DimensionAttribute

This complex type represents an attribute of a dimension.

```

<xsd:complexType name="DimensionAttribute">
  <xsd:all>
    <xsd:element name="Name" type="xsd:string"/>
    <xsd:element name="ID" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Description" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Type" minOccurs="0">
      <xsd:complexType>
        <xsd:simpleContent>
          <xsd:extension base="DimensionAttributeTypeEnumType">
            <xsd:attribute name="valuens" >
              <xsd:simpleType>
                <xsd:restriction base="xsd:string">
                  <xsd:enumeration value=
                    "http://schemas.microsoft.com/analysisservices/2010/engine/200/200" />
                </xsd:restriction>
              </xsd:simpleType>
            </xsd:attribute>
          </xsd:extension>
        </xsd:simpleContent>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="Usage" minOccurs="0">
      <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
          <xsd:enumeration value="Regular" />
          <xsd:enumeration value="Key" />
          <xsd:enumeration value="Parent" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="Source" type="Binding" minOccurs="0" />
    <xsd:element name="EstimatedCount" type="xsd:long" minOccurs="0"/>
    <xsd:element name="KeyColumns" >
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="KeyColumn" type="DataItem" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="NameColumn" type="DataItem" minOccurs="0" />
    <xsd:element name="ValueColumn" type="DataItem" minOccurs="0" />
    <xsd:element name="Translations" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Translation" type="AttributeTranslation" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="AttributeRelationships" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="AttributeRelationship" type="AttributeRelationship"
            minOccurs="0" maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>

```

```

<xsd:element name="DiscretizationMethod" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string" >
      <xsd:enumeration value="None" />
      <xsd:enumeration value="Automatic" />
      <xsd:enumeration value="EqualAreas" />
      <xsd:enumeration value="Clusters" />
      <xsd:enumeration value="Thresholds" />
      <xsd:enumeration value="UserDefined" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="DiscretizationBucketCount" type="xsd:integer" minOccurs="0"/>
<xsd:element name="RootMemberIf" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string" >
      <xsd:enumeration value="ParentIsBlankSelfOrMissing" />
      <xsd:enumeration value="ParentIsBlank" />
      <xsd:enumeration value="ParentIsSelf" />
      <xsd:enumeration value="ParentIsMissing" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="OrderBy" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string" >
      <xsd:enumeration value="Key" />
      <xsd:enumeration value="Name" />
      <xsd:enumeration value="AttributeKey" />
      <xsd:enumeration value="AttributeName" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="DefaultMember" type="xsd:string" minOccurs="0"/>
<xsd:element name="OrderByAttributeID" type="xsd:string" minOccurs="0"/>
<xsd:element name="SkippedLevelsColumn" type="DataItem" minOccurs="0" />
<xsd:element name="NamingTemplate" type="xsd:string" minOccurs="0"/>
<xsd:element name="MembersWithData" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string" >
      <xsd:enumeration value="NonLeafDataHidden" />
      <xsd:enumeration value="NonLeafDataVisible" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="MembersWithDataCaption" type="xsd:string" minOccurs="0"/>
<xsd:element name="NamingTemplateTranslations" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="NamingTemplateTranslation" type="Translation"
        minOccurs="0" maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="CustomRollupColumn" type="DataItem" minOccurs="0" />
<xsd:element name="CustomRollupPropertiesColumn" type="DataItem"
  minOccurs="0" />
<xsd:element name="UnaryOperatorColumn" type="DataItem" minOccurs="0" />
<xsd:element name="AttributeHierarchyOrdered" type="xsd:boolean"

```

```

        minOccurs="0"/>
<xsd:element name="MemberNamesUnique" type="xsd:boolean" minOccurs="0"/>
<xsd:element name="IsAggregatable" type="xsd:boolean" minOccurs="0"/>
<xsd:element name="AttributeHierarchyEnabled" type="xsd:boolean"
    minOccurs="0"/>
<xsd:element name="AttributeHierarchyOptimizedState" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="FullyOptimized" />
            <xsd:enumeration value="NotOptimized" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="AttributeHierarchyVisible" type="xsd:boolean"
    minOccurs="0"/>
<xsd:element name="AttributeHierarchyDisplayFolder" type="xsd:string"
    minOccurs="0"/>
<xsd:element name="KeyUniquenessGuarantee" type="xsd:boolean"
    minOccurs="0"/>
<xsd:element name="GroupingBehavior" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="EncourageGrouping" />
            <xsd:enumeration value="DiscourageGrouping" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="InstanceSelection" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="None" />
            <xsd:enumeration value="DropDown" />
            <xsd:enumeration value="List" />
            <xsd:enumeration value="FilteredList" />
            <xsd:enumeration value="MandatoryFilter" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="Annotations" minOccurs="0">
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element name="Annotation" type="Annotation" minOccurs="0"
                maxOccurs="unbounded"/>
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>
<xsd:element name="ProcessingState" minOccurs="0" >
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="Processed" />
            <xsd:enumeration value="Unprocessed" />
            <xsd:enumeration value="InvalidExpression" />
            <xsd:enumeration value="CalculationError" />
            <xsd:enumeration value="DependencyError" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
</xsd:all>
</xsd:complexType>

```



```

<xsd:simpleType name="DimensionAttributeTypeEnumType">
  <xsd:restriction base="xsd:string" >
    <xsd:enumeration value="Account" />
    <xsd:enumeration value="AccountName" />
    <xsd:enumeration value="AccountNumber" />
    <xsd:enumeration value="AccountType" />
    <xsd:enumeration value="Address" />
    <xsd:enumeration value="AddressBuilding" />
    <xsd:enumeration value="AddressCity" />
    <xsd:enumeration value="AddressCountry" />
    <xsd:enumeration value="AddressFax" />
    <xsd:enumeration value="AddressFloor" />
    <xsd:enumeration value="AddressHouse" />
    <xsd:enumeration value="AddressPhone" />
    <xsd:enumeration value="AddressQuarter" />
    <xsd:enumeration value="AddressRoom" />
    <xsd:enumeration value="AddressStateOrProvince" />
    <xsd:enumeration value="AddressStreet" />
    <xsd:enumeration value="AddressZip" />
    <xsd:enumeration value="BomResource" />
    <xsd:enumeration value="Caption" />
    <xsd:enumeration value="CaptionAbbreviation" />
    <xsd:enumeration value="CaptionDescription" />
    <xsd:enumeration value="Channel" />
    <xsd:enumeration value="City" />
    <xsd:enumeration value="Company" />
    <xsd:enumeration value="Continent" />
    <xsd:enumeration value="Country" />
    <xsd:enumeration value="County" />
    <xsd:enumeration value="CurrencyDestination" />
    <xsd:enumeration value="CurrencyIsoCode" />
    <xsd:enumeration value="CurrencyName" />
    <xsd:enumeration value="CurrencySource" />
    <xsd:enumeration value="CustomerGroup" />
    <xsd:enumeration value="CustomerHousehold" />
    <xsd:enumeration value="Customers" />
    <xsd:enumeration value="Date" />
    <xsd:enumeration value="DateCanceled" />
    <xsd:enumeration value="DateDuration" />
    <xsd:enumeration value="DateEnded" />
    <xsd:enumeration value="DateModified" />
    <xsd:enumeration value="DateStart" />
    <xsd:enumeration value="DayOfHalfYear" />
    <xsd:enumeration value="DayOfMonth" />
    <xsd:enumeration value="DayOfQuarter" />
    <xsd:enumeration value="DayOfTenDays" />
    <xsd:enumeration value="DayOfTrimester" />
    <xsd:enumeration value="DayOfWeek" />
    <xsd:enumeration value="DayOfYear" />
    <xsd:enumeration value="Days" />
    <xsd:enumeration value="DeletedFlag" />
    <xsd:enumeration value="FiscalDate" />
    <xsd:enumeration value="FiscalDayOfHalfYear" />
    <xsd:enumeration value="FiscalDayOfMonth" />
    <xsd:enumeration value="FiscalDayOfQuarter" />
    <xsd:enumeration value="FiscalDayOfTrimester" />
    <xsd:enumeration value="FiscalDayOfWeek" />
    <xsd:enumeration value="FiscalDayOfYear" />
    <xsd:enumeration value="FiscalHalfYears" />
  </xsd:restriction>
</xsd:simpleType>

```

```
<xsd:enumeration value="FiscalHalfYearOfYear" />
<xsd:enumeration value="FiscalMonths" />
<xsd:enumeration value="FiscalMonthOfHalfYear" />
<xsd:enumeration value="FiscalMonthOfQuarter" />
<xsd:enumeration value="FiscalMonthOfTrimester" />
<xsd:enumeration value="FiscalMonthOfYear" />
<xsd:enumeration value="FiscalQuarters" />
<xsd:enumeration value="FiscalQuarterOfHalfYear" />
<xsd:enumeration value="FiscalQuarterOfYear" />
<xsd:enumeration value="FiscalTrimesters" />
<xsd:enumeration value="FiscalTrimesterOfYear" />
<xsd:enumeration value="FiscalWeeks" />
<xsd:enumeration value="FiscalWeekOfHalfYear" />
<xsd:enumeration value="FiscalWeekOfMonth" />
<xsd:enumeration value="FiscalWeekOfQuarter" />
<xsd:enumeration value="FiscalWeekOfTrimester" />
<xsd:enumeration value="FiscalWeekOfYear" />
<xsd:enumeration value="FiscalYears" />
<xsd:enumeration value="FormattingColor" />
<xsd:enumeration value="FormattingFont" />
<xsd:enumeration value="FormattingFontEffects" />
<xsd:enumeration value="FormattingFontSize" />
<xsd:enumeration value="FormattingOrder" />
<xsd:enumeration value="FormattingSubtotal" />
<xsd:enumeration value="GeoBoundaryBottom" />
<xsd:enumeration value="GeoBoundaryFront" />
<xsd:enumeration value="GeoBoundaryLeft" />
<xsd:enumeration value="GeoBoundaryPolygon" />
<xsd:enumeration value="GeoBoundaryRear" />
<xsd:enumeration value="GeoBoundaryRight" />
<xsd:enumeration value="GeoBoundaryTop" />
<xsd:enumeration value="GeoCentroidX" />
<xsd:enumeration value="GeoCentroidY" />
<xsd:enumeration value="GeoCentroidZ" />
<xsd:enumeration value="HalfYears" />
<xsd:enumeration value="HalfYearOfYear" />
<xsd:enumeration value="Hours" />
<xsd:enumeration value="ID" />
<xsd:enumeration value="Image" />
<xsd:enumeration value="ImageBmp" />
<xsd:enumeration value="ImageGif" />
<xsd:enumeration value="ImageJpg" />
<xsd:enumeration value="ImagePng" />
<xsd:enumeration value="ImageTiff" />
<xsd:enumeration value="IsHoliday" />
<xsd:enumeration value="Iso8601Date" />
<xsd:enumeration value="Iso8601DayOfWeek" />
<xsd:enumeration value="Iso8601DayOfYear" />
<xsd:enumeration value="Iso8601Weeks" />
<xsd:enumeration value="Iso8601WeekOfYear" />
<xsd:enumeration value="Iso8601Years" />
<xsd:enumeration value="IsPeakDay" />
<xsd:enumeration value="IsWeekDay" />
<xsd:enumeration value="IsWorkingDay" />
<xsd:enumeration value="ManufacturingDate" />
<xsd:enumeration value="ManufacturingDayOfHalfYear" />
<xsd:enumeration value="ManufacturingDayOfMonth" />
<xsd:enumeration value="ManufacturingDayOfQuarter" />
<xsd:enumeration value="ManufacturingDayOfWeek" />
```

```
<xsd:enumeration value="ManufacturingDayOfYear" />
<xsd:enumeration value="ManufacturingHalfYears" />
<xsd:enumeration value="ManufacturingHalfYearOfYear" />
<xsd:enumeration value="ManufacturingMonths" />
<xsd:enumeration value="ManufacturingMonthOfHalfYear" />
<xsd:enumeration value="ManufacturingMonthOfQuarter" />
<xsd:enumeration value="ManufacturingMonthOfYear" />
<xsd:enumeration value="ManufacturingQuarters" />
<xsd:enumeration value="ManufacturingQuarterOfHalfYear" />
<xsd:enumeration value="ManufacturingQuarterOfYear" />
<xsd:enumeration value="ManufacturingWeeks" />
<xsd:enumeration value="ManufacturingWeekOfHalfYear" />
<xsd:enumeration value="ManufacturingWeekOfMonth" />
<xsd:enumeration value="ManufacturingWeekOfQuarter" />
<xsd:enumeration value="ManufacturingWeekOfYear" />
<xsd:enumeration value="ManufacturingYears" />
<xsd:enumeration value="Minutes" />
<xsd:enumeration value="Months" />
<xsd:enumeration value="MonthOfHalfYear" />
<xsd:enumeration value="MonthOfQuarter" />
<xsd:enumeration value="MonthOfTrimester" />
<xsd:enumeration value="MonthOfYear" />
<xsd:enumeration value="OrganizationalUnit" />
<xsd:enumeration value="OrgTitle" />
<xsd:enumeration value="PercentOwnership" />
<xsd:enumeration value="PercentVoteRight" />
<xsd:enumeration value="Person" />
<xsd:enumeration value="PersonContact" />
<xsd:enumeration value="PersonDemographic" />
<xsd:enumeration value="PersonFirstName" />
<xsd:enumeration value="PersonFullName" />
<xsd:enumeration value="PersonLastName" />
<xsd:enumeration value="PersonMiddleName" />
<xsd:enumeration value="PhysicalColor" />
<xsd:enumeration value="PhysicalDensity" />
<xsd:enumeration value="PhysicalDepth" />
<xsd:enumeration value="PhysicalHeight" />
<xsd:enumeration value="PhysicalSize" />
<xsd:enumeration value="PhysicalVolume" />
<xsd:enumeration value="PhysicalWeight" />
<xsd:enumeration value="PhysicalWidth" />
<xsd:enumeration value="Point" />
<xsd:enumeration value="PostalCode" />
<xsd:enumeration value="Product" />
<xsd:enumeration value="ProductBrand" />
<xsd:enumeration value="ProductCategory" />
<xsd:enumeration value="ProductGroup" />
<xsd:enumeration value="ProductSKU" />
<xsd:enumeration value="Project" />
<xsd:enumeration value="ProjectCode" />
<xsd:enumeration value="ProjectCompletion" />
<xsd:enumeration value="ProjectEndDate" />
<xsd:enumeration value="ProjectName" />
<xsd:enumeration value="ProjectStartDate" />
<xsd:enumeration value="Promotion" />
<xsd:enumeration value="QtyRangeHigh" />
<xsd:enumeration value="QtyRangeLow" />
<xsd:enumeration value="Quantitative" />
<xsd:enumeration value="Quarters" />
```

```

<xsd:enumeration value="QuarterOfHalfYear" />
<xsd:enumeration value="QuarterOfYear" />
<xsd:enumeration value="Rate" />
<xsd:enumeration value="RateType" />
<xsd:enumeration value="Region" />
<xsd:enumeration value="Regular" />
<xsd:enumeration value="RelationToParent" />
<xsd:enumeration value="ReportingDate" />
<xsd:enumeration value="ReportingDayOfHalfYear" />
<xsd:enumeration value="ReportingDayOfMonth" />
<xsd:enumeration value="ReportingDayOfQuarter" />
<xsd:enumeration value="ReportingDayOfTrimester" />
<xsd:enumeration value="ReportingDayOfWeek" />
<xsd:enumeration value="ReportingDayOfYear" />
<xsd:enumeration value="ReportingHalfYears" />
<xsd:enumeration value="ReportingHalfYearOfYear" />
<xsd:enumeration value="ReportingMonths" />
<xsd:enumeration value="ReportingMonthOfHalfYear" />
<xsd:enumeration value="ReportingMonthOfQuarter" />
<xsd:enumeration value="ReportingMonthOfTrimester" />
<xsd:enumeration value="ReportingMonthOfYear" />
<xsd:enumeration value="ReportingQuarters" />
<xsd:enumeration value="ReportingQuarterOfHalfYear" />
<xsd:enumeration value="ReportingQuarterOfYear" />
<xsd:enumeration value="ReportingTrimesters" />
<xsd:enumeration value="ReportingTrimesterOfYear" />
<xsd:enumeration value="ReportingWeeks" />
<xsd:enumeration value="ReportingWeekOfHalfYear" />
<xsd:enumeration value="ReportingWeekOfMonth" />
<xsd:enumeration value="ReportingWeekOfQuarter" />
<xsd:enumeration value="ReportingWeekOfTrimester" />
<xsd:enumeration value="ReportingWeekOfYear" />
<xsd:enumeration value="ReportingYears" />
<xsd:enumeration value="Representative" />
<xsd:enumeration value="RowNumber" />
<xsd:enumeration value="ScdEndDate" />
<xsd:enumeration value="ScdOriginalID" />
<xsd:enumeration value="ScdStartDate" />
<xsd:enumeration value="ScdStatus" />
<xsd:enumeration value="Scenario" />
<xsd:enumeration value="Seconds" />
<xsd:enumeration value="Sequence" />
<xsd:enumeration value="ShortCaption" />
<xsd:enumeration value="StateOrProvince" />
<xsd:enumeration value="TenDay" />
<xsd:enumeration value="TenDayOfHalfYear" />
<xsd:enumeration value="TenDayOfMonth" />
<xsd:enumeration value="TenDayOfQuarter" />
<xsd:enumeration value="TenDayOfTrimester" />
<xsd:enumeration value="TenDayOfYear" />
<xsd:enumeration value="Trimesters" />
<xsd:enumeration value="TrimesterOfYear" />
<xsd:enumeration value="UndefinedTime" />
<xsd:enumeration value="Utility" />
<xsd:enumeration value="Version" />
<xsd:enumeration value="WebHtml" />
<xsd:enumeration value="WebMailAlias" />
<xsd:enumeration value="WebUrl" />
<xsd:enumeration value="WebXmlOrXsl" />

```

```

<xsd:enumeration value="WeekOfYear" />
<xsd:enumeration value="Weeks" />
<xsd:enumeration value="WinterSummerSeason" />
<xsd:enumeration value="Years" />
<xsd:enumeration value="RowNumber" />
</xsd:restriction>
</xsd:simpleType>

```

Element	Read-Only	Default	Description
Name		[Required]	The object name.
ID		Defaults to Name .	The object ID string.
Description		Empty	The object description.
Type		"Regular"	The Type of the Attribute.
Usage		"Regular"	An enumeration value that indicates whether the Attribute is a key, parent, or regular.
Source		Empty	Source is of type Binding . However, one of the following types MUST be used: AttributeBinding UserDefinedGroupBinding MeasureBinding CalculatedMeasureBinding CubeAttributeBinding TimeAttributeBinding
EstimatedCount		Empty	The estimated number of distinct values of the attribute.
KeyColumns		[Required]	A collection of objects of type DataItem . Every attribute must have at least one KeyColumn collection that defines the KeyColumn(s) for this Attribute's data. The Source element within the DataItem MUST be one of the following types: AttributeBinding MeasureBinding CalculatedMeasureBinding CubeAttributeBinding TimeAttributeBinding RowNumberBinding CubeDimensionBinding ColumnBinding RowBinding

Element	Read-Only	Default	Description
			InheritedBinding ExpressionBinding
NameColumn		Defaults to KeyColumn (if non-composite) with String data type.	A collection of objects of type DataItem . Defines column(s) that will be used for the Names of Attribute members. The Source element within the DataItem MUST be one of the following types: AttributeBinding MeasureBinding CalculatedMeasureBinding CubeAttributeBinding TimeAttributeBinding RowNumberBinding CubeDimensionBinding ColumnBinding RowBinding InheritedBinding
ValueColumn		Defaults to NameColumn (if specified), or else KeyColumn (if non-composite)	A collection of objects of type DataItem . Defines column(s) that will be used for the Names of Attribute members. The Source element within the DataItem MUST be one of the following types: AttributeBinding MeasureBinding CalculatedMeasureBinding CubeAttributeBinding TimeAttributeBinding RowNumberBinding CubeDimensionBinding ColumnBinding RowBinding InheritedBinding
Translations		Empty	A collection of Translation objects.
AttributeRelationships		Empty	A collection of AttributeRelationship objects.
DiscretizationMethod		"None"	The discretization method that will be applied to the attribute.
DiscretizationBucketCount		Empty	The number of buckets in

Element	Read-Only	Default	Description
			which to discretize.
RootMemberIf		"ParentIsBlankSelfOrMissing"	<p>Defines the means of indicating the topmost members of a parent-child hierarchy. Applicable only if Usage = Parent. The enumeration values are as follows:</p> <p>ParentIsBlankSelfOrMissing - Only members that meet one or more of the conditions described for ParentIsBlank, ParentIsSelf, or ParentIsMissing are treated as root members.</p> <p>ParentIsBlank - Only members with a null, a zero, or an empty string in the key columns represented by the KeyColumns collection of DimensionAttribute are treated as root members.</p> <p>ParentIsSelf - Only members with themselves as parents are treated as root members.</p> <p>ParentIsMissing - Only members with parents that cannot be found are treated as root members.</p>
OrderBy		"Name"	The column by which the attribute will be ordered.
DefaultMember		Empty	An MDX expression describing the Default Member.
OrderByAttributeID		Empty	The ID of another attribute by which to order this attribute (only allowed if OrderBy = AttributeKey or AttributeName).
SkippedLevelsColumns		Empty	<p>A collection of objects of type DataItem that provides the details of column(s) that stores the number of skipped (empty) levels between each member and its parent. The Source element within the DataItem MUST be one of the following types:</p> <p>ColumnBinding AttributeBinding</p>

Element	Read-Only	Default	Description
NamingTemplate		Empty	A string that defines a template for how levels in a parent-child hierarchy are named. Applicable only if Usage = Parent .
MembersWithData		"NonLeafDataVisible"	Used only by parent attributes to determine whether to display data members for nonleaf members in the parent attribute. Applicable only if Usage = Parent .
MembersWithDataCaption		Empty	Provides a template string that is used to create captions for system-generated data members. Applicable only if Usage = Parent .
NamingTemplateTranslations		Empty	Provides a template for naming levels of a parent-child hierarchy. Applicable only if Usage = Parent .
CustomRollupColumn		Empty	An object of type DataItem that defines the details of a column that provides a custom rollup formula. The Source element within the DataItem MUST be one of the following types: ColumnBinding AttributeBinding
CustomRollupPropertiesColumns		Empty	A collection of objects of type DataItem . Collection that defines the details of column(s) providing properties of the custom rollup. The Source element within the DataItem MUST be one of the following types: ColumnBinding AttributeBinding
UnaryOperatorColumn		Empty	An object of type DataItem that defines the details of a column that provides a unary operator. Applicable only if Usage = Parent . The Source element within the DataItem MUST be one of the following types:

Element	Read-Only	Default	Description
			ColumnBinding AttributeBinding
AttributeHierarchyOrdered		True	Indicates whether AttributeHierarchies are ordered.
MemberNamesUnique		False	Indicates whether Member names are unique.
IsAggregatable		True	Indicates whether this Attribute is aggregatable.
AttributeHierarchyEnabled		True	Indicates whether an AttributeHierarchy is enabled for this attribute.
AttributeHierarchyOptimizedState		"FullyOptimized"	Indicates the type of optimization for this AttributeHierarchy .
AttributeHierarchyVisible		False	Indicates whether an AttributeHierarchy is visible.
AttributeHierarchyDisplayFolder		Empty	Indicates the name of the AttributeHierarchy display folder.
KeyUniquenessGuarantee		False	Indicates whether the relationship between the attribute key and its name, and the relationship to related attributes, is guaranteed to be valid.
GroupingBehavior		"EncourageGrouping"	Indicates which type of GroupingBehavior will be applied to this Attribute.
InstanceSelection		"None"	Provides a hint to client applications to suggest how a list of items should be displayed, based on the expected number of items in the list.
Annotations		Empty	Collection of Annotation objects.
ProcessingState	Yes		Represents the processing state of the attribute. For calculated columns, any of the five available enumeration values may appear. Attributes that are not calculated columns can have only the values Processed or

Element	Read-Only	Default	Description
			Unprocessed. <8>

2.2.4.2.2.8.1.1 AttributeRelationship

This complex type represents a relationship between two attributes in a dimension.

```

<xsd:complexType name="AttributeRelationship">
  <xsd:all>
    <xsd:element name="AttributeID" type="xsd:string" />
    <xsd:element name="RelationshipType" minOccurs="0">
      <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
          <xsd:enumeration value="Rigid" />
          <xsd:enumeration value="Flexible" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="Cardinality" minOccurs="0">
      <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
          <xsd:enumeration value="Many" />
          <xsd:enumeration value="One" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="Optionality" minOccurs="0">
      <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
          <xsd:enumeration value="Mandatory" />
          <xsd:enumeration value="Optional" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="OverrideBehavior" minOccurs="0">
      <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
          <xsd:enumeration value="None" />
          <xsd:enumeration value="Strong" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="Annotations" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Annotation" type="Annotation" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="Name" type="xsd:string" minOccurs="0" />
    <xsd:element name="Visible" type="xsd:boolean" minOccurs="0" />
    <xsd:element name="Translations" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>

```

```

        <xsd:element name="Translation" type="Translation" minOccurs="0"
            maxOccurs="unbounded"/>
    </xsd:sequence>
</xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
AttributeID		[Required]	The ID for the object.
RelationshipType		"Flexible"	Whether the attribute relationship is Flexible or Rigid. Flexible and rigid relationships are enforced. Flexible relationships can change over time. Rigid relationships cannot.
Cardinality		"Many"	Indicates if related attribute has a many-to-one or one-to-one relationship with this attribute.
Optionality		"Mandatory"	Indicates if each member in a related attribute is associated with at least one member in this attribute.
OverrideBehavior		"Strong"	Indicates the override behavior of the relationship described by an AttributeRelationship element. Dictates how positioning on one attribute affects the position of the other.
Annotation		Empty	A collection of Annotation objects.
Name		Default is to use Attribute name.	The name of the AttributeRelationship .
Visible		True	Whether the relationship is visible to clients.
Translations		Empty	A collection of Translation objects.

2.2.4.2.2.8.2 Hierarchy

This complex type represents a hierarchy in a dimension.

```

<xsd:complexType name="Hierarchy">
  <xsd:all>
    <xsd:element name="Name" type="xsd:string"/>
    <xsd:element name="ID" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Description" type="xsd:string" minOccurs="0"/>
    <xsd:element name="DisplayFolder" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Translations" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Translation" type="Translation" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="AllMemberName" type="xsd:string" minOccurs="0"/>
    <xsd:element name="AllMemberTranslations" minOccurs="0"/>
  </xsd:all>
</xsd:complexType>

```

```

<xsd:complexType>
  <xsd:sequence>
    <xsd:element name="AllMemberTranslation" type="Translation"
      minOccurs="0" maxOccurs="unbounded" />
  </xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="MemberNamesUnique" type="xsd:boolean" minOccurs="0" />
<xsd:element ref="eng2:MemberKeysUnique" minOccurs="0" />
<xsd:element name="AllowDuplicateNames" type="xsd:boolean" minOccurs="0"/>
<xsd:element name="Levels" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Level" type="Level" minOccurs="0"
        maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="Annotations" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Annotation" type="Annotation" minOccurs="0"
        maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:complexType>

```

The **Dimension** XSD depends upon element definitions in namespaces other than the default namespace. The following elements are defined in the namespace **eng2**:

```

<xsd:element name="MemberKeysUnique" >
  <xsd:simpleType>
    <xsd:restriction base="xsd:string" >
      <xsd:enumeration value="NotUnique" />
      <xsd:enumeration value="Unique" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="Version">
  <xsd:complexType>
    <xsd:attribute name="Sequence" type="xsd:int" />
  </xsd:complexType>
</xsd:element>

```

Element	Read-Only	Default	Description
Name		[Required]	The object name.
ID		Defaults to Name .	The object ID string.
Description		Empty	The object description.

Element	Read-Only	Default	Description
DisplayFolder		Empty	Defines the display folder for the hierarchy, for use by clients.
Translations		Empty	A collection of Translation objects.
AllMemberName		Empty	The caption for AllMember in DefaultLanguage .
AllMemberTranslations		Empty	A collection of Translation objects for the All Member.
MemberNamesUnique		False	Whether MemberNames are required to be unique.
MemberKeysUnique		"NotUnique"	Whether Member Keys are required to be unique. <9>
AllowDuplicateNames		True	Determines whether duplicate names are allowed in a Hierarchy element.
Levels		Empty	A collection of Level objects.
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.8.2.1 Level

Defines a **level** in a **Hierarchy**.

```

<xsd:complexType name="Level">
  <xsd:all>
    <xsd:element name="Name" type="xsd:string" minOccurs="0"/>
    <xsd:element name="ID" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Description" type="xsd:string" minOccurs="0"/>
    <xsd:element name="SourceAttributeID" type="xsd:string" minOccurs="0"/>
    <xsd:element name="HideMemberIf" minOccurs="0">
      <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
          <xsd:enumeration value="Never" />
          <xsd:enumeration value="OnlyChildWithNoName" />
          <xsd:enumeration value="OnlyChildWithParentName" />
          <xsd:enumeration value="NoName" />
          <xsd:enumeration value="ParentName" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="Translations" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Translation" type="Translation" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="Annotations" minOccurs="0">

```

```

<xsd:complexType>
  <xsd:sequence>
    <xsd:element name="Annotation" type="Annotation" minOccurs="0"
      maxOccurs="unbounded"/>
  </xsd:sequence>
</xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
Name		Defaults to name of the Attribute.	The object name.
ID		Defaults to Name .	The object ID string.
Description		Empty	The object description.
SourceAttributeID		Default is for Level to be based on the containing Attribute.	The ID of the source attribute on which the level is based. This can be an attribute from a referenced dimension.
HideMemberIf		"Never"	Indicates whether and when a level member should be hidden from client applications. The enumeration values are: <ul style="list-style-type: none"> ▪ Never - Members are never hidden. ▪ OnlyChildWithNoName - A member is hidden when it is the only child of its parent and its name is empty. ▪ OnlyChildWithParentName - A member is hidden when it is the only child of its parent and its name is identical to that of its parent. ▪ NoName - A member is hidden when its name is empty. ▪ ParentName - A member is hidden when its name is identical to that of its parent.
Translations		Empty	A collection of Translation objects.
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.9 Cube

This complex type represents a cube.

```

<xsd:complexType name="Cube">
  <xsd:complexContent>
    <xsd:extension base="MajorObject">
      <xsd:all>

```

```

<!--These elements are common to each MajorObject-->
<xsd:element name="Name" type="xsd:string" />
<xsd:element name="ID" type="xsd:string" minOccurs="0" />
<xsd:element name="CreatedTimestamp" type="xsd:dateTime" minOccurs="0" />
<xsd:element name="LastSchemaUpdate" type="xsd:dateTime" minOccurs="0" />
<xsd:element name="Description" type="xsd:string" minOccurs="0" />
<xsd:element name="Annotation" minOccurs="0" >
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Annotation" type="Annotation" minOccurs="0"
        maxOccurs="unbounded" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<!--Extended elements for Cube object-->
<xsd:element name="Language" type="xsd:integer" minOccurs="0"/>
<xsd:element name="Collation" type="xsd:string" minOccurs="0"/>
<xsd:element name="Translations" minOccurs="0" >
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Translation" type="Translation" minOccurs="0"
        maxOccurs="unbounded" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="Dimensions" minOccurs="0" >
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Dimension" type="CubeDimension" minOccurs="0"
        maxOccurs="unbounded" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="CubePermissions" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="CubePermission" minOccurs="0"
        maxOccurs="unbounded" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="MdxScripts" minOccurs="0" >
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="MdxScript" type="MdxScript" minOccurs="0"
        maxOccurs="unbounded" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="Perspectives" minOccurs="0" >
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Perspective" type="Perspective" minOccurs="0"
        maxOccurs="unbounded" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="State" minOccurs="0">
  <xsd:simpleType>

```

```

    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="Processed" />
      <xsd:enumeration value="PartiallyProcessed" />
      <xsd:enumeration value="Unprocessed" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="DefaultMeasure" type="xsd:string" minOccurs="0"/>
<xsd:element name="Visible" type="xsd:boolean" minOccurs="0"/>
<xsd:element name="MeasureGroups" minOccurs="0" >
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="MeasureGroup" type="MeasureGroup" minOccurs="0"
        maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="Source" type="DataSourceViewBinding" minOccurs="0"/>
<xsd:element name="AggregationPrefix" type="xsd:string" minOccurs="0"/>
<xsd:element name="ProcessingPriority" type="xsd:integer" minOccurs="0"/>
<xsd:element name="StorageMode" minOccurs="0">
  <xsd:complexType>
    <xsd:simpleContent>
      <xsd:extension base="CubeStorageModeEnumType">
        <xsd:attribute name="valuens" >
          <xsd:simpleType>
            <xsd:restriction base="xsd:string">
              <xsd:enumeration value="http://schemas.microsoft.com/analysiservices/2010/engine/200/200" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:attribute>
      </xsd:extension>
    </xsd:simpleContent>
  </xsd:complexType>
</xsd:element>
<xsd:element name="ProcessingMode" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="Regular" />
      <xsd:enumeration value="LazyAggregations" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="ScriptCacheProcessingMode" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="Regular" />
      <xsd:enumeration value="Lazy" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="ScriptErrorHandlingMode" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="IgnoreNone" />
      <xsd:enumeration value="IgnoreAll" />
    </xsd:restriction>
  </xsd:simpleType>

```



```

</xsd:element>
<xsd:element name="ProactiveCaching" type="ProactiveCaching"
  minOccurs="0" />
<xsd:element name="Kpis" minOccurs="0" >
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Kpi" type="Kpi" minOccurs="0"
        maxOccurs="unbounded" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="ErrorConfiguration" type="ErrorConfiguration"
  minOccurs="0"/>
<xsd:element name="Actions" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Action" minOccurs="0" maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="StorageLocation" type="xsd:string" minOccurs="0"/>
<xsd:element name="EstimatedRows" type="xsd:long" minOccurs="0"/>
<xsd:element name="LastProcessed" type="xsd:dateTime" minOccurs="0"/>
</xsd:all>
</xsd:extension >
</xsd:complexContent>
</xsd:complexType>
<xsd:simpleType name="CubeStorageModeEnumType">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="Molap" />
    <xsd:enumeration value="Rolap" />
    <xsd:enumeration value="Holap" />
    <xsd:enumeration value="InMemory" />
  </xsd:restriction>
</xsd:simpleType>

```

Also included in the Cube object are all elements from [MajorObject](#).

Element	Read-Only	Default	Description
Language		Empty	The language to use by default.
Collation		Empty	The collation to use by default. <10>
Translations		Empty	A collection of Translation objects.
Dimensions		Empty	A collection of CubeDimension objects. A Dimension MUST NOT have same name as a MeasureGroup.
CubePermissions		Empty	A collection of CubePermission objects.
MdxScripts		Empty	A collection of MdxScript objects.
Perspectives		Empty	A collection of Perspective objects. A perspective is a subset of the features of a cube. A perspective contains subsets of objects

Element	Read-Only	Default	Description
			from a cube.
State	Yes		Represents the Cube state on the server.
DefaultMeasure		Empty	The MDX expression that defines the default measure.
Visible		True	Indicates whether the cube is visible to a client.
MeasureGroups		Empty	A collection of MeasureGroup objects.
Source		Empty	A reference to the source data for the cube. Only for a cube with a relational data source. For a cube with an OLAP data source, this element MUST be empty.
AggregationPrefix		Empty	A text prefix used on tables used for aggregation.
ProcessingPriority		Zero	Priority for processing.
StorageMode		"Molap"	Determines the default storage mode for the cube. MAY be overridden per measure group and partition.
ProcessingMode		"Regular"	Indicates whether the server indexes and aggregates during processing or afterward. Provides the default for the cube, and can be overridden per partition.
ScriptCacheProcessingMode		"Regular"	Indicates whether the server should build the script cache during processing or afterwards.
ScriptErrorHandlingMode		"IgnoreNone"	Indicates how MDX Script errors are handled by the server.
ProactiveCaching		Empty	This object sets parameters to control proactive caching.
Kpis		Empty	A collection of key performance indicator (KPI) objects, A KPI is a quantifiable measurement for gauging business success.
ErrorConfiguration		Empty	This object sets parameters to control error handling.
Actions		Empty	A collection of Action objects.
StorageLocation		Empty	The file system storage location for the cube. Provides the default for the cube. The default MAY be overridden for each partition.
EstimatedRows			Contains the estimated number of rows.
LastProcessed	Yes		A timestamp indicating the date and time when the object was last processed.

2.2.4.2.2.9.1 CubeDimension

This complex type defines the dimensions that are part of a cube.

```
<xsd:complexType name="CubeDimension">
  <xsd:all>
    <xsd:element name="ID" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Name" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Description" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Translations" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Translation" type="Translation" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="DimensionID" type="xsd:string"/>
    <xsd:element name="Visible" type="xsd:boolean" minOccurs="0"/>
    <xsd:element name="AllMemberAggregationUsage" minOccurs="0">
      <xsd:simpleType>
        <xsd:restriction base="xsd:string">
          <xsd:enumeration value="Full" />
          <xsd:enumeration value="None" />
          <xsd:enumeration value="UnRestricted" />
          <xsd:enumeration value="Default" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="HierarchyUniqueNameStyle" minOccurs="0">
      <xsd:simpleType>
        <xsd:restriction base="xsd:string">
          <xsd:enumeration value="IncludeDimensionName" />
          <xsd:enumeration value="ExcludeDimensionName" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="MemberUniqueNameStyle" minOccurs="0">
      <xsd:simpleType>
        <xsd:restriction base="xsd:string">
          <xsd:enumeration value="Native" />
          <xsd:enumeration value="NamePath" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="Attributes" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Attribute" type="CubeAttribute" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="Hierarchies" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Hierarchy" type="CubeHierarchy" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>
```

```

    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="Annotations" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Annotation" type="Annotation" minOccurs="0"
        maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
ID		Defaults to Name.	The object ID.
Name		Defaults to Dimension Name pointed to by DimensionID.	The object name.
Description		Empty	The object description.
Translations		Empty	A collection of Translation objects.
DimensionID		[Required]	The ID of the dimension to which this CubeDimension points.
Visible		True	Whether this object is visible.
AllMemberAggregationUsage		"Default"	Specifies how aggregations should be designed for the All member. The enumeration values are: <ul style="list-style-type: none"> ▪ Full - Every aggregation for the cube must include the All member. ▪ None - No aggregation for the cube should include the All member. ▪ Unrestricted - No restrictions are placed on the Aggregation Designer. ▪ Default - Same as Unrestricted.
HierarchyUniqueNameStyle		"IncludeDimensionName"	Determines how the system will generate unique names for dimensions.
MemberUniqueNameStyle		"Native"	Determines how system will generate unique names for

Element	Read-Only	Default	Description
			Members. Enumeration values are: <ul style="list-style-type: none"> Native – The instance automatically determines the unique names of members. NamePath - The instance generates a compound name consisting of each level and the caption of the member.
Attributes		Empty	A collection of CubeAttribute objects.
Hierarchies		Empty	A collection of CubeHierarchy objects.
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.9.2 CubeAttribute

This complex type defines details for an attribute on a cube. The server SHOULD implicitly include any attributes not specified in the collection with their default values. [<11>](#)

```

<xsd:complexType name="CubeAttribute">
  <xsd:all>
    <xsd:element name="AttributeID" type="xsd:string"/>
    <xsd:element name="AggregationUsage" minOccurs="0">
      <xsd:simpleType>
        <xsd:restriction base="xsd:string">
          <xsd:enumeration value="Full" />
          <xsd:enumeration value="None" />
          <xsd:enumeration value="UnRestricted" />
          <xsd:enumeration value="Default" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="AttributeHierarchyOptimizedState" minOccurs="0">
      <xsd:simpleType>
        <xsd:restriction base="xsd:string">
          <xsd:enumeration value="FullyOptimized" />
          <xsd:enumeration value="NotOptimized" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="AttributeHierarchyEnabled" type="xsd:boolean" minOccurs="0"/>
    <xsd:element name="AttributeHierarchyVisible" type="xsd:boolean" minOccurs="0"/>
    <xsd:element name="Annotations" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>

```

```

        <xsd:element name="Annotation" type="Annotation" minOccurs="0"
            maxOccurs="unbounded"/>
    </xsd:sequence>
</xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
AttributeID		[Required]	The ID of the attribute pointed to by this object.
AggregationUsage		"Default"	A string that specifies how aggregations should be designed for this attribute. Enumeration values are the same as for AllMemberAggregationUsage.
AttributeHierarchyOptimizedSta		"FullyOptimized"	Specifies optimization for AttributeHierarchy.
AttributeHierarchyEnabled		True	This Boolean determines whether an Attributehierarchy is enabled for this attribute. This value is ignored if AttributeHierarchyEnabled=False on the DimensionAttribute.
AttributeHierarchyVisible		True	Controls visibility of this CubeAttribute. This value is ignored if the AttributeHierarchyVisible=False on the DimensionAttribute that is pointed to by AttributeID.
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.9.3 CubeHierarchy

This complex type defines details for a hierarchy on a cube.

The server SHOULD implicitly include any hierarchies not specified in the collection with their default values. [<12>](#)

```

<xsd:complexType name="CubeHierarchy">
  <xsd:all>
    <xsd:element name="HierarchyID" type="xsd:string"/>
    <xsd:element name="OptimizedState" minOccurs="0">
      <xsd:simpleType>
        <xsd:restriction base="xsd:string">
          <xsd:enumeration value="FullyOptimized" />
          <xsd:enumeration value="NotOptimized" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="Visible" type="xsd:boolean" minOccurs="0"/>
    <xsd:element name="Enabled" type="xsd:boolean" minOccurs="0"/>
    <xsd:element name="Annotations" minOccurs="0">

```

```

<xsd:complexType>
  <xsd:sequence>
    <xsd:element name="Annotation" type="Annotation" minOccurs="0"
      maxOccurs="unbounded"/>
  </xsd:sequence>
</xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
HierarchyID		[Required]	The ID of the hierarchy that this hierarchy points to.
OptimizedState		"FullyOptimized"	Specifies the degree of optimization for this object.
Visible		True	Boolean which determines whether this CubeHierarchy is visible.
Enabled		True	Boolean which determines whether this CubeHierarchy is enabled.
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.9.4 Kpi

This complex type represents a KPI.

```

<xsd:complexType name="Kpi">
  <xsd:all>
    <xsd:element name="Name" type="xsd:string"/>
    <xsd:element name="ID" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Description" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Translations" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Translation" type="Translation" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="DisplayFolder" type="xsd:string" minOccurs="0"/>
    <xsd:element name="AssociatedMeasureGroupID" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Value" type="xsd:string"/>
    <xsd:element name="Goal" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Status" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Trend" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Weight" type="xsd:string" minOccurs="0"/>
    <xsd:element name="TrendGraphic" type="xsd:string" minOccurs="0"/>
    <xsd:element name="StatusGraphic" type="xsd:string" minOccurs="0"/>
    <xsd:element name="CurrentTimeMember" type="xsd:string" minOccurs="0"/>
    <xsd:element name="ParentKpiID" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Annotations" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>

```

```

        <xsd:element name="Annotation" type="Annotation" minOccurs="0"
            maxOccurs="unbounded"/>
    </xsd:sequence>
</xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
Name		[Required]	The object name.
ID		Defaults to Name.	The ID string for object.
Description		Empty	The object description.
Translations		Empty	A collection of Translation objects.
DisplayFolder		Empty	The folder in which to display the object.
AssociatedMeasureGroupID		Empty	The MeasureGroup that the object refers to.
Value		[Required]	The value for this KPI. An MDX expression that evaluates to a number.
Goal		Empty	The Goal for this KPI. An MDX expression that evaluates to a number.
Status		Empty	The Status for this KPI. An MDX expression that evaluates to a number.
Trend		Empty	The Trend for this KPI. An MDX expression that evaluates to a number.
Weight		Empty	The Weight for this KPI. An MDX numeric expression that assigns a relative importance to a KPI.
TrendGraphic		Empty	The recommended graphic to represent the trend of this KPI. <13>
StatusGraphic		Empty	The recommended graphic to represent the status of this KPI. <14>
CurrentTimeMember		Empty	The CurrentTimeMember that applies to this Kpi. An MDX expression that returns the member that identifies the temporal context of the KPI.
ParentKpiID		Empty	The ID for a parent KPI (if any) for this KPI.
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.9.5 Action

This complex type represents an action.

Action is an abstract type, and types for derived Action types are derived from it. Therefore, the XSD for action does not show the elements; instead they are shown within the XSD of each of the derived types. However, all the elements in the base type are explained in the table in this section.

```
<xsd:complexType name="Action" abstract="true" />
```

Element	Read-Only	Default	Description
Name		[Required]	The object name.
ID		Defaults to Name	The object ID string.
Caption		Empty	The caption displayed for the action. Can be an MDX expression.
CaptionIsMdx		False	Defines whether the caption is an MDX expression.
Translations		Empty	A collection of Translation objects.
TargetType		[Required]	The type of OLAP object to which this Action applies.
Target		Empty	Identifies the target for this Action. The specified Target MUST be an object of type TargetType.
Condition		Empty	An MDX expression That determines if the action applies. If false, the action does not apply.
Type		[Required]	The type of action. The Drillthrough type can only be defined with actions where the target type is Cells. The Drillthrough type is referenced in the MDSCHEMA_ACTIONS schema rowset, Action_Type column, as a Rowset action (0x010). The report action is exposed in the MDSCHEMA_ACTIONS schema rowset, Action_Type column, as a URL action(0x01). Note that for the derived types ReportAction and the DrillthroughAction, this value MUST be set to "Report" and "Drillthrough", respectively.
Invocation		Empty	An enumeration value that determines how the action is invoked.
Application		Empty	Identifies the application associated with an Action element.
Description		Empty	The object description.
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.9.5.1 StandardAction

This complex type represents a standard action.

The StandardAction type extends the Action type and also includes all elements of Action. The XSD includes all the elements from the base class and the additional elements in the derived class.

```
<xsd:complexType name="StandardAction">
  <xsd:complexContent>
    <xsd:extension base="Action">
```

```

<xsd:all>
  <!--These elements are inherited from Action-->
  <xsd:element name="Name" type="xsd:string"/>
  <xsd:element name="ID" type="xsd:string" minOccurs="0"/>
  <xsd:element name="Caption" type="xsd:string" minOccurs="0"/>
  <xsd:element name="CaptionIsMdx" type="xsd:boolean" minOccurs="0"/>
  <xsd:element name="Translations" minOccurs="0">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="Translation" type="Translation" minOccurs="0"
          maxOccurs="unbounded"/>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
  <xsd:element name="TargetType" >
    <xsd:simpleType>
      <xsd:restriction base="xsd:string" >
        <xsd:enumeration value="Cube" />
        <xsd:enumeration value="Cells" />
        <xsd:enumeration value="Set" />
        <xsd:enumeration value="Hierarchy" />
        <xsd:enumeration value="Level" />
        <xsd:enumeration value="DimensionMembers" />
        <xsd:enumeration value="HierarchyMembers" />
        <xsd:enumeration value="LevelMembers" />
        <xsd:enumeration value="AttributeMembers" />
      </xsd:restriction>
    </xsd:simpleType>
  </xsd:element>
  <xsd:element name="Target" type="xsd:string" minOccurs="0"/>
  <xsd:element name="Condition" type="xsd:string" minOccurs="0"/>
  <xsd:element name="Type" >
    <xsd:simpleType>
      <xsd:restriction base="xsd:string" >
        <xsd:enumeration value="Url" />
        <xsd:enumeration value="Html" />
        <xsd:enumeration value="Statement" />
        <xsd:enumeration value="Drillthrough" />
        <xsd:enumeration value="Dataset" />
        <xsd:enumeration value="Rowset" />
        <xsd:enumeration value="CommandLine" />
        <xsd:enumeration value="Proprietary" />
        <xsd:enumeration value="Report" />
      </xsd:restriction>
    </xsd:simpleType>
  </xsd:element>
  <xsd:element name="Invocation" minOccurs="0">
    <xsd:simpleType>
      <xsd:restriction base="xsd:string" >
        <xsd:enumeration value="Interactive" />
        <xsd:enumeration value="OnOpen" />
        <xsd:enumeration value="Batch" />
      </xsd:restriction>
    </xsd:simpleType>
  </xsd:element>
  <xsd:element name="Application" type="xsd:string" minOccurs="0"/>
  <xsd:element name="Description" type="xsd:string" minOccurs="0"/>
  <xsd:element name="Annotations" minOccurs="0" >
    <xsd:complexType>

```

```

        <xsd:sequence>
            <xsd:element name="Annotation" type="Annotation" minOccurs="0"
                maxOccurs="unbounded" />
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>
<!--Extended elements for StandardAction object-->
<xsd:element name="Expression" type="xsd:string" />
</xsd:all>
</xsd:extension >
</xsd:complexContent>
</xsd:complexType>

```

The following table only includes the elements in StandardAction that are in addition to those in the base Action class.

Element	Read-Only	Default	Description
Expression		[Required]	An MDX expression that determines the content of the action. If the expression is blank, there is no action on the target.

2.2.4.2.2.9.5.2 ReportAction

This complex type represents an action that invokes a report.

ReportAction extends Action, and includes all the elements in Action. The XSD includes all the elements from the base class and the additional elements in the derived class.

```

<xsd:complexType name="ReportAction">
  <xsd:complexContent>
    <xsd:extension base="Action">
      <xsd:all>
        <!--These elements are inherited from Action-->
        <xsd:element name="Name" type="xsd:string"/>
        <xsd:element name="ID" type="xsd:string" minOccurs="0"/>
        <xsd:element name="Caption" type="xsd:string" minOccurs="0"/>
        <xsd:element name="CaptionIsMdx" type="xsd:boolean" minOccurs="0"/>
        <xsd:element name="Translations" minOccurs="0">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Translation" type="Translation" minOccurs="0"
                  maxOccurs="unbounded" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <xsd:element name="TargetType" >
          <xsd:simpleType>
            <xsd:restriction base="xsd:string" >
              <xsd:enumeration value="Cube" />
              <xsd:enumeration value="Cells" />
              <xsd:enumeration value="Set" />
              <xsd:enumeration value="Hierarchy" />
              <xsd:enumeration value="Level" />
              <xsd:enumeration value="DimensionMembers" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

```

```

        <xsd:enumeration value="HierarchyMembers" />
        <xsd:enumeration value="LevelMembers" />
        <xsd:enumeration value="AttributeMembers" />
    </xsd:restriction>
</xsd:simpleType>
</xsd:element>
<xsd:element name="Target" type="xsd:string" minOccurs="0"/>
<xsd:element name="Condition" type="xsd:string" minOccurs="0"/>
<xsd:element name="Type" >
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="Url" />
            <xsd:enumeration value="Html" />
            <xsd:enumeration value="Statement" />
            <xsd:enumeration value="Drillthrough" />
            <xsd:enumeration value="Dataset" />
            <xsd:enumeration value="Rowset" />
            <xsd:enumeration value="CommandLine" />
            <xsd:enumeration value="Proprietary" />
            <xsd:enumeration value="Report" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="Invocation" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="Interactive" />
            <xsd:enumeration value="OnOpen" />
            <xsd:enumeration value="Batch" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="Application" type="xsd:string" minOccurs="0"/>
<xsd:element name="Description" type="xsd:string" minOccurs="0"/>
<xsd:element name="Annotations" minOccurs="0" >
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element name="Annotation" type="Annotation" minOccurs="0"
                maxOccurs="unbounded"/>
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>
<!--Extended elements for ReportAction object-->
<xsd:element name="ReportServer" type="xsd:string"/>
<xsd:element name="Path" type="xsd:string" minOccurs="0"/>
<xsd:element name="ReportParameters" minOccurs="0">
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element name="ReportParameter" type="ReportParameter"
                minOccurs="0" maxOccurs="unbounded"/>
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>
<xsd:element name="ReportFormatParameters" minOccurs="0">
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element name="ReportFormatParameter"
                type="ReportFormatParameter"
                minOccurs="0" maxOccurs="unbounded"/>
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>

```

```

        </xsd:sequence>
    </xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:extension >
</xsd:complexContent>
</xsd:complexType>

```

ReportAction inherits all elements from Action. The following table shows only the elements that are in addition to those contained in the Action base class.

Element	Read-Only	Default	Description
ReportServer		[Required]	The name of the computer on which the report server is running.
Path			The path pointing to the report in the report server.
ReportParameters			A collection of type ReportParameter, which is passed to a specific report and handled according to the specification in that report for that parameter.
ReportFormatParameters			A collection of type ReportFormatParameter which is passed to a specific report to affect the formatting of the report. The parameter is handled according to the specification in that report for that parameter.

2.2.4.2.2.9.5.2.1 ReportParameter

Each ReportParameter is a name-value pair. As a collection it is the parameters needed for a report.

```

<xsd:complexType name="ReportParameter">
  <xsd:all>
    <xsd:element name="Name" type="xsd:string"/>
    <xsd:element name="Value" type="xsd:string"/>
  </xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
Name			The name of the report parameter.
Value			An MDX expression that represents the parameter value.

2.2.4.2.2.9.5.2.2 ReportFormatParameter

Parameter for formatting a report.

```

<xsd:complexType name="ReportFormatParameter">
  <xsd:all>
    <xsd:element name="Name" type="xsd:string"/>
    <xsd:element name="Value" type="xsd:string"/>
  </xsd:all>
</xsd:complexType>

```

```
</xsd:all>
</xsd:complexType>
```

Element	Read-Only	Default	Description
Name			The name of the report format parameter.
Value			The parameter value. (This is not an MDX expression, as it is in the ReportParameter object.)

2.2.4.2.2.9.5.3 DrillThroughAction

This complex type represents an action that returns the underlying detail data associated with a cell.

DrillThroughAction inherits all elements from Action.

```
<xsd:complexType name="DrillThroughAction">
  <xsd:complexContent>
    <xsd:extension base="Action">
      <xsd:all>
        <!--These elements are inherited from Action-->
        <xsd:element name="Name" type="xsd:string"/>
        <xsd:element name="ID" type="xsd:string" minOccurs="0"/>
        <xsd:element name="Caption" type="xsd:string" minOccurs="0"/>
        <xsd:element name="CaptionIsMdx" type="xsd:boolean" minOccurs="0"/>
        <xsd:element name="Translations" minOccurs="0">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Translation" type="Translation"
                minOccurs="0" maxOccurs="unbounded"/>
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <xsd:element name="TargetType" >
          <xsd:simpleType>
            <xsd:restriction base="xsd:string" >
              <xsd:enumeration value="Cube" />
              <xsd:enumeration value="Cells" />
              <xsd:enumeration value="Set" />
              <xsd:enumeration value="Hierarchy" />
              <xsd:enumeration value="Level" />
              <xsd:enumeration value="DimensionMembers" />
              <xsd:enumeration value="HierarchyMembers" />
              <xsd:enumeration value="LevelMembers" />
              <xsd:enumeration value="AttributeMembers" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
        <xsd:element name="Target" type="xsd:string" minOccurs="0"/>
        <xsd:element name="Condition" type="xsd:string" minOccurs="0"/>
        <xsd:element name="Type" >
          <xsd:simpleType>
            <xsd:restriction base="xsd:string" >
              <xsd:enumeration value="Url" />
              <xsd:enumeration value="Html" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>
```

```

        <xsd:enumeration value="Statement" />
        <xsd:enumeration value="Drillthrough" />
        <xsd:enumeration value="Dataset" />
        <xsd:enumeration value="Rowset" />
        <xsd:enumeration value="CommandLine" />
        <xsd:enumeration value="Proprietary" />
        <xsd:enumeration value="Report" />
    </xsd:restriction>
</xsd:simpleType>
</xsd:element>
<xsd:element name="Invocation" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="Interactive" />
            <xsd:enumeration value="OnOpen" />
            <xsd:enumeration value="Batch" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="Application" type="xsd:string" minOccurs="0"/>
<xsd:element name="Description" type="xsd:string" minOccurs="0"/>
<xsd:element name="Annotations" minOccurs="0" >
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element name="Annotation" type="Annotation" minOccurs="0"
                maxOccurs="unbounded"/>
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>
<!--Extended elements for DrillThroughAction object-->
<xsd:element name="Default" type="xsd:boolean" minOccurs="0"/>
<xsd:element name="Columns" minOccurs="0">
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element name="Column" type="Binding" minOccurs="0"
                maxOccurs="unbounded"/>
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>
<xsd:element name="MaximumRows" type="xsd:integer" minOccurs="0"/>
</xsd:all>
</xsd:extension >
</xsd:complexContent>
</xsd:complexType>

```

DrillThroughAction inherits all elements from Action. The elements shown in this table are in addition to those contained in the Action base class.

Element	Read-Only	Default	Description
Default		False	Boolean, which, when set to True, sets this DrillThroughAction as the default DrillThroughAction.
Columns			A collection of Column objects that define the results to be returned in the drillthrough. Each column object is of type "Binding". However, one of the following derived classes MUST be

Element	Read-Only	Default	Description
			<p>used:</p> <ul style="list-style-type: none"> ▪ MeasureBinding ▪ CubeAttributeBinding <p>If no columns are defined, all are returned.</p>
MaximumRows			The maximum number of rows that should be returned in the resulting rowset.

2.2.4.2.2.10 MdxScript

This complex type represents a script containing MDX calculations.

```

<xsd:complexType name="MdxScript">
  <xsd:complexContent>
    <xsd:extension base="MajorObject">
      <xsd:all>
        <!--These elements are common to each MajorObject-->
        <xsd:element name="Name" type="xsd:string" />
        <xsd:element name="ID" type="xsd:string" minOccurs="0" />
        <xsd:element name="CreatedTimestamp" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="LastSchemaUpdate" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="Description" type="xsd:string" minOccurs="0" />
        <xsd:element name="Annotation" minOccurs="0" >
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Annotation" type="Annotation" minOccurs="0"
                maxOccurs="unbounded" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <!--Extended elements for MdxScript object-->
        <xsd:element name="Commands" minOccurs="0">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Command" type="Command" minOccurs="0"
                maxOccurs="unbounded" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <xsd:element name="DefaultScript" type="xsd:boolean" minOccurs="0"/>
        <xsd:element name="CalculationPropertyies" minOccurs="0">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="CalculationProperty" type="CalculationProperty"
                minOccurs="0" maxOccurs="unbounded"/>
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
      </xsd:all>
    </xsd:extension >
  </xsd:complexContent>

```



```
</xsd:complexType>
```

Also included in the MdxScript object are all elements from MajorObject.

Element	Read-Only	Default	Description
Commands		Empty	A collection of command objects.
DefaultScript		True	A Boolean that indicates if this script is the default script.
CalculationProperties		Empty	A collection of CalculationProperty objects.

2.2.4.2.2.10.1 CalculationProperty

This complex type represents properties associated with a calculation in the MDX script.

```
<xsd:complexType name="CalculationProperty">
  <xsd:all>
    <xsd:element name="CalculationReference" type="xsd:string"/>
    <xsd:element name="CalculationType">
      <xsd:simpleType>
        <xsd:restriction base="xsd:string">
          <xsd:enumeration value="Member" />
          <xsd:enumeration value="Set" />
          <xsd:enumeration value="Cells" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="Translations" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Translation" type="Translation" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="Description" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Visible" type="xsd:boolean" minOccurs="0"/>
    <xsd:element name="SolveOrder" type="xsd:integer" minOccurs="0"/>
    <xsd:element name="FormatString" type="xsd:string" minOccurs="0"/>
    <xsd:element name="ForeColor" type="xsd:string" minOccurs="0"/>
    <xsd:element name="BackColor" type="xsd:string" minOccurs="0"/>
    <xsd:element name="FontName" type="xsd:string" minOccurs="0"/>
    <xsd:element name="FontSize" type="xsd:string" minOccurs="0"/>
    <xsd:element name="FontFlags" type="xsd:string" minOccurs="0"/>
    <xsd:element name="NonEmptyBehavior" type="xsd:string" minOccurs="0"/>
    <xsd:element name="AssociatedMeasureGroupID" type="xsd:string" minOccurs="0"/>
    <xsd:element name="DisplayFolder" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Language" type="xsd:integer" minOccurs="0"/>
  </xsd:all>
</xsd:complexType>
```

Element	Read-Only	Default	Description
CalculationReference		[Required]	The name of the object that the CalculationProperty applies to.
CalculationType		[Required]	Specifies the type of calculation the CalculationProperty applies to.
Translations		Empty	A collection of objects of type Translation.
Description		Empty	The object description.
Visible		True	Indicates whether this object is visible to the user. Applies to Set and Member.
SolveOrder		Empty	Indicates the solve order in which the CalculationProperty element is applied to a calculated member or calculated cell definition. Applies to Member and Cell CalculationType.
FormatString		Empty	An MDX expression that defines the FormatString to be used in display. Applies to Member and Cell CalculationType.
ForeColor		Empty	An MDX expression that defines the ForeColor to be used in display. Applies to Member and Cell CalculationType.
BackColor		Empty	An MDX expression that defines the BackColor to be used in display. Applies to Member and Cell CalculationType.
FontName		Empty	An MDX expression that defines the FontName to be used in display. Applies to Member and Cell CalculationType.
FontSize		Empty	An MDX expression that defines the FontSize to be used in display. Applies to Member and Cell CalculationType.
FontFlags		Empty	An MDX expression that defines the FontFlags to be used in display. Applies to Member and Cell CalculationType.
NonEmptyBehavior		Empty	A valid MDX Set expression that only applies when CalculationType is set to "Member".
AssociatedMeasureGroupID		Empty	The ID of the measure group that this calculation is associated with.
DisplayFolder		Empty	The folder in which to list the parent CalculationProperty object. Applies to Member and Set CalculationType.
Language		Empty	The default language for the object.

2.2.4.2.2.10.2 Command

This complex type represents command in the MDX script.

```
<xsd:complexType name="Command">
  <xsd:all>
    <xsd:element name="Text" type="xsd:string"/>
  </xsd:all>
</xsd:complexType>
```

Element	Read-Only	Default	Description
Text		[Required]	The MDX command text.

2.2.4.2.2.11 MeasureGroup

This complex type represents a measure group in the cube.

```
<xsd:complexType name="MeasureGroup">
  <xsd:complexContent>
    <xsd:extension base="MajorObject">
      <xsd:all>
        <!--These elements are common to each MajorObject-->
        <xsd:element name="Name" type="xsd:string" />
        <xsd:element name="ID" type="xsd:string" minOccurs="0" />
        <xsd:element name="CreatedTimestamp" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="LastSchemaUpdate" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="Description" type="xsd:string" minOccurs="0" />
        <xsd:element name="Annotation" minOccurs="0" >
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Annotation" type="Annotation" minOccurs="0"
                maxOccurs="unbounded" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <!--Extended elements for MeasureGroup object-->
        <xsd:element name="LastProcessed" type="xsd:dateTime" minOccurs="0"/>
        <xsd:element name="Translations" minOccurs="0">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Translation" type="Translation" minOccurs="0"
                maxOccurs="unbounded"/>
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <xsd:element name="Type" minOccurs="0">
          <xsd:simpleType>
            <xsd:restriction base="xsd:string" >
              <xsd:enumeration value="Regular" />
              <xsd:enumeration value="ExchangeRate" />
              <xsd:enumeration value="Sales" />
              <xsd:enumeration value="Budget" />
              <xsd:enumeration value="FinancialReporting" />
              <xsd:enumeration value="Marketing" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>
```

```

        <xsd:enumeration value="Inventory" />
    </xsd:restriction>
</xsd:simpleType>
</xsd:element>
<xsd:element name="State" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="Processed" />
            <xsd:enumeration value="PartiallyProcessed" />
            <xsd:enumeration value="Unprocessed" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="Measures" minOccurs="0">
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element name="Measure" type="Measure" minOccurs="0"
                maxOccurs="unbounded" />
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>
<xsd:element name="DataAggregation" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="None" />
            <xsd:enumeration value="DataAggregatable" />
            <xsd:enumeration value="CacheAggregatable" />
            <xsd:enumeration value="DataAndCacheAggregatable" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="Source" type="MeasureGroupBinding" minOccurs="0" />
<xsd:element name="StorageMode" minOccurs="0">
    <xsd:complexType>
        <xsd:simpleContent>
            <xsd:extension base="MeasureGroupStorageModeEnumType">
                <xsd:attribute name="valuens" >
                    <xsd:simpleType>
                        <xsd:restriction base="xsd:string">
                            <xsd:enumeration value=
                                "http://schemas.microsoft.com/analysiservices/2010/engine/200/200" />
                        </xsd:restriction>
                    </xsd:simpleType>
                </xsd:attribute>
            </xsd:extension>
        </xsd:simpleContent>
    </xsd:complexType>
</xsd:element>
<xsd:element name="StorageLocation" type="xsd:string" minOccurs="0" />
<xsd:element name="IgnoreUnrelatedDimensions" type="xsd:boolean"
    minOccurs="0"/>
<xsd:element name="ProactiveCaching" type="ProactiveCaching"
    minOccurs="0" />
<xsd:element name="EstimatedRows" type="xsd:long" minOccurs="0"/>
<xsd:element name="ErrorConfiguration" type="ErrorConfiguration"
    minOccurs="0" />
<xsd:element name="EstimatedSize" type="xsd:long" minOccurs="0"/>
<xsd:element name="ProcessingMode" minOccurs="0">
    <xsd:simpleType>

```

```

    <xsd:restriction base="xsd:string" >
      <xsd:enumeration value="Regular" />
      <xsd:enumeration value="LazyAggregations" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="Dimensions" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Dimension" type="MeasureGroupDimension"
        minOccurs="0" maxOccurs="unbounded" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="Partitions" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Partition" type="Partition" minOccurs="0"
        maxOccurs="unbounded" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="AggregationPrefix" type="xsd:string" minOccurs="0" />
<xsd:element name="ProcessingPriority" type="xsd:integer" minOccurs="0" />
<xsd:element name="AggregationDesigns" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="AggregationDesign" type="AggregationDesign"
        minOccurs="0" maxOccurs="unbounded" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:extension >
</xsd:complexContent>
</xsd:complexType>
<xsd:simpleType name="MeasureGroupStorageModeEnumType">
  <xsd:restriction base="xsd:string" >
    <xsd:enumeration value="Molap" />
    <xsd:enumeration value="Rolap" />
    <xsd:enumeration value="Holap" />
    <xsd:enumeration value="InMemory" />
  </xsd:restriction>
</xsd:simpleType>

```

Also included in the MeasureGroup object are all elements from MajorObject.

Element	Read-Only	Default	Description
LastProcessed	Yes		A timestamp indicating the date and time when the MeasureGroup was last processed.
Translations		Empty	A collection of Translation objects.

Element	Read-Only	Default	Description
Type		"Regular"	Provides both the server and client applications with information about the contents of the MeasureGroup.
State	Yes		The state of processing of the object.
Measures		Empty	A collection of Measure objects.
DataAggregation		"DataAndCacheAggregatable"	Indicates whether the server can aggregate data (persisted on disk or cached in memory).
Source		Empty	The source of data for MeasureGroup. MUST NOT be used if DataSourceID for cube is not OLAP sourced DataSourceView. If present, MUST be of type MeasureGroupBinding.
StorageMode		Default is the value from the Cube	The storage mode for this object.
StorageLocation		Default is the value from the Cube	The file system storage location.
IgnoreUnrelatedDimensions		True	A Boolean that specifies whether or not to ignore dimensions unrelated to this measure group in an MDX query or expression.
ProactiveCaching		Empty	Proactive caching settings for the MeasureGroup.
EstimatedRows		Empty	The estimated number of rows in the MeasureGroup.
ErrorConfiguration		Empty	Error configuration settings for this MeasureGroup.
EstimatedSize	Yes		The estimated size of the MeasureGroup in bytes.
ProcessingMode		"Regular"	The processing mode for the object.
Dimensions		Empty	A collection of type MeasureGroupDimension. None are allowed if there is a MeasureGroupBinding at create time. When returned by DISCOVER_XML_METADATA, at least one Dimension is always returned.

Element	Read-Only	Default	Description
Partitions		Empty	A collection of Partition objects.
AggregationPrefix		Empty	A prefix used on tables that are used for aggregation. This serves as default for partitions in this MeasureGroup.
ProcessingPriority		Zero	An integer that determines the priority for processing.
AggregationDesigns		Empty	A collection of objects of type AggregationDesign.

2.2.4.2.2.11.1 MeasureGroupDimension

This complex type represents the relationship between a CubeDimension and a MeasureGroup. MeasureGroupDimension is an abstract class and has derived types for different MeasureGroupDimension types. An XML Instance will always have one of the derived types.

This section does not include the common elements in the XSD; those elements are included within the XSDs for the derived types. However, the table in this section includes the common elements, and those common elements are not included in the tables for the derived types.

```
<xsd:complexType name="MeasureGroupDimension" abstract="true" />
```

Element	Read-Only	Default	Description
CubeDimensionID		[Required]	The ID of the cube dimension for this MeasureGroupDimension.
Annotations		Empty	A collection of Annotation objects.
Source		Empty	The source of data for this MeasureGroupDimension.

2.2.4.2.2.11.1.1 ManyToManyMeasureGroupDimension

This complex type represents a many-to-many relationship between a CubeDimension and a MeasureGroup via an intermediate MeasureGroup. The XSD is complete for this class and includes all elements from the base type and the extended type. The table includes only additional elements in the extended type.

```
<xsd:complexType name="ManyToManyMeasureGroupDimension">
  <xsd:complexContent>
    <xsd:extension base="MeasureGroupDimension">
      <xsd:all>
        <!--These elements are inherited from MeasureGroupDimension-->
        <xsd:element name="CubeDimensionID" type="xsd:string"/>
        <xsd:element name="Annotations" minOccurs="0">
          <xsd:complexType>
            <xsd:sequence>
```

```

        <xsd:element name="Annotation" type="Annotation" minOccurs="0"
            maxOccurs="unbounded" />
    </xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="Source" type="MeasureGroupDimensionBinding"
    minOccurs="0" />
<!--Extended elements for ManyToManyMeasureGroupDimension object-->
<xsd:element name="MeasureGroupID" type="xsd:string" minOccurs="0"/>
<xsd:element name="DirectSlice" type="xsd:string" minOccurs="0"/>
</xsd:all>
</xsd:extension >
</xsd:complexContent>
</xsd:complexType>

```

The following table includes only those elements in this class that are in addition to those in the base MeasureGroupDimension class.

Element	Read-Only	Default	Description
MeasureGroupID		[Required]	The ID of the intermediate MeasureGroup for the many-to-many relationship.
DirectSlice		Empty	An MDX expression that returns a dimension member that is associated with every fact record.

2.2.4.2.2.11.1.2 RegularMeasureGroupDimension

This complex type represents a direct many-to-one or one-to-one relationship between a CubeDimension and a MeasureGroup. The XSD is complete for this class and includes all elements from the base class and the derived class. The table includes only additional elements in the derived class.

```

<xsd:complexType name="RegularMeasureGroupDimension">
  <xsd:complexContent>
    <xsd:extension base="MeasureGroupDimension">
      <xsd:all>
        <!--These elements are inherited from MeasureGroupDimension-->
        <xsd:element name="CubeDimensionID" type="xsd:string" />
        <xsd:element name="Annotations" minOccurs="0">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Annotation" type="Annotation" minOccurs="0"
                maxOccurs="unbounded" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <xsd:element name="Source" type="MeasureGroupDimensionBinding" minOccurs="0" />
        <!--Extended elements for RegularMeasureGroupDimension object-->
        <xsd:element name="Cardinality" minOccurs="0">
          <xsd:simpleType>
            <xsd:restriction base="xsd:string" >
              <xsd:enumeration value="Many" />
              <xsd:enumeration value="One" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

```



```

        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="Attributes" >
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element name="Attribute" type="MeasureGroupAttribute"
                minOccurs="0" maxOccurs="unbounded"/>
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:extension >
</xsd:complexContent>
</xsd:complexType>

```

The following table has only those elements that are in addition to those in the MeasureGroupDimension abstract base class.

Element	Read-Only	Default	Description
Cardinality		"Many"	Indicates the cardinality of the relationship (many-to-one or one-to-one).
Attributes		Empty	A collection of MeasureGroupAttribute objects. The server SHOULD implicitly add any attribute that is not specified in the collection with the default element values. <15>

2.2.4.2.2.11.1.3 ReferenceMeasureGroupDimension

This complex type represents an indirect many-to-one relationship between a CubeDimension and a MeasureGroup via an intermediate CubeDimension. The XSD is complete for this class and includes all elements from the base class and the derived class. The table includes only additional elements in the derived class.

```

<xsd:complexType name="ReferenceMeasureGroupDimension">
    <xsd:complexContent>
        <xsd:extension base="MeasureGroupDimension">
            <xsd:all>
                <!--These elements are inherited from MeasureGroupDimension-->
                <xsd:element name="CubeDimensionID" type="xsd:string"/>
                <xsd:element name="Annotations" minOccurs="0">
                    <xsd:complexType>
                        <xsd:sequence>
                            <xsd:element name="Annotation" type="Annotation" minOccurs="0"
                                maxOccurs="unbounded"/>
                        </xsd:sequence>
                    </xsd:complexType>
                </xsd:element>
                <xsd:element name="Source" type="MeasureGroupDimensionBinding"
                    minOccurs="0" />
                <!--Extended elements for ReferenceMeasureGroupDimension object-->
                <xsd:element name="IntermediateCubeDimensionID" type="xsd:string"
                    minOccurs="0"/>
            </xsd:all>
        </xsd:extension>
    </xsd:complexContent>
</xsd:complexType>

```

```

<xsd:element name="IntermediateGranularityAttributeID" type="xsd:string"
  minOccurs="0"/>
<xsd:element name="Materialization" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string" >
      <xsd:enumeration value="Regular" />
      <xsd:enumeration value="Indirect" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element ref="eng200_200:ProcessingState" minOccurs="0" />
</xsd:all>
</xsd:extension >
</xsd:complexContent>
</xsd:complexType>

```

The ReferenceMeasureGroup XSD depends on the following definitions in a namespace other than the default namespace.

The following element is defined in the eng200_200 namespace.

```

<xsd:element name="ProcessingState" >
  <xsd:simpleType>
    <xsd:restriction base="xsd:string" >
      <xsd:enumeration value="Processed" />
      <xsd:enumeration value="Unprocessed" />
      <xsd:enumeration value="InvalidExpression" />
      <xsd:enumeration value="CalculationError" />
      <xsd:enumeration value="DependencyError" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>

```

The following table includes only the elements that are in addition to those contained in the MeasureGroupDimension base class.

Element	Read-Only	Default	Description
IntermediateCubeDimensionID		Empty	The ID of the intermediate CubeDimension.
IntermediateGranularityAttributeID		Empty	The ID of the attribute in the intermediate CubeDimension that relates to this CubeDimension.
Materialization		"Indirect"	Specifies how the reference dimension relationship is materialized.
ProcessingState	Yes		Represents the processing state of the attribute. For calculated columns, any of the five available enumeration values may appear. Attributes that are not calculated columns can have only the "Processed" or "Unprocessed" values.

2.2.4.2.2.11.1.4 DegenerateMeasureGroupDimension

This complex type represents a degenerate relationship between a CubeDimension and a MeasureGroup in which both are sourced from the same table. The XSD is complete for this class and includes all elements from the base class and the derived class. The table includes only additional elements in the derived class.

```
<xsd:complexType name="DegenerateMeasureGroupDimension">
  <xsd:complexContent>
    <xsd:extension base="MeasureGroupDimension">
      <xsd:all>
        <!--These elements are inherited from MeasureGroupDimension-->
        <xsd:element name="CubeDimensionID" type="xsd:string"/>
        <xsd:element name="Annotations" minOccurs="0">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Annotation" type="Annotation" minOccurs="0"
                maxOccurs="unbounded"/>
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <xsd:element name="Source" type="MeasureGroupDimensionBinding"
          minOccurs="0" />
        <!--Extended elements for DegenerateMeasureGroupDimension object-->
        <xsd:element ref="eng200_200:ShareDimensionStorage" minOccurs="0" />
      </xsd:all>
    </xsd:extension >
  </xsd:complexContent>
</xsd:complexType>
```

The Dimension XSD depends on element definitions in namespaces other than the default namespace.

The following elements are defined in the eng200_200 namespace.

```
<xsd:element name="ShareDimensionStorage" >
  <xsd:simpleType>
    <xsd:restriction base="xsd:string" >
      <xsd:enumeration value="Distinct" />
      <xsd:enumeration value="Shared" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
```

The following table shows only the additional elements in DegenerateMeasureGroupDimension that are beyond those in MeasureGroupDimension, from which it is derived.

Element	Read-Only	Default	Description
ShareDimensionStorage		"Distinct"	Specifies whether MeasureGroup and Dimension share storage or use distinct storage.

2.2.4.2.2.11.1.5 DataMiningMeasureGroupDimension

This complex type represents a relationship between a CubeDimension and a MeasureGroup via a MiningModel. The CubeDimension is built from the content that is learned by training the MiningModel on another CubeDimension.

The XSD is complete for this class and includes all elements from the base class and the derived class. The table includes only additional elements in the derived class.

```
<xsd:complexType name="DataMiningMeasureGroupDimension">
  <xsd:complexContent>
    <xsd:extension base="MeasureGroupDimension">
      <xsd:all>
        <!--These elements are inherited from MeasureGroupDimension-->
        <xsd:element name="CubeDimensionID" type="xsd:string"/>
        <xsd:element name="Annotations" minOccurs="0">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Annotation" type="Annotation" minOccurs="0"
                maxOccurs="unbounded"/>
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <xsd:element name="Source" type="MeasureGroupDimensionBinding"
          minOccurs="0" />
        <!--Extended elements for DataMiningMeasureGroupDimension object-->
        <xsd:element name="CaseCubeDimensionID" type="xsd:string" minOccurs="0"/>
      </xsd:all>
    </xsd:extension >
  </xsd:complexContent>
</xsd:complexType>
```

The following table includes only those elements that are in addition to those in the MeasureGroupDimension base abstract class.

Element	Read-Only	Default	Description
CaseCubeDimensionID		Empty	The ID of the CubeDimension from which the MiningModel was trained.

2.2.4.2.2.11.2 MeasureGroupAttribute

This complex type represents an attribute in a MeasureGroupDimension.

```
<xsd:complexType name="MeasureGroupAttribute">
  <xsd:all>
    <xsd:element name="AttributeID" type="xsd:string"/>
    <xsd:element name="KeyColumns" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="KeyColumn" type="DataItem" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>
```

```

    </xsd:complexType>
  </xsd:element>
  <xsd:element name="Type" minOccurs="0">
    <xsd:simpleType>
      <xsd:restriction base="xsd:string" >
        <xsd:enumeration value="Regular" />
        <xsd:enumeration value="Granularity" />
      </xsd:restriction>
    </xsd:simpleType>
  </xsd:element>
  <xsd:element name="Annotations" minOccurs="0">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="Annotation" type="Annotation" minOccurs="0"
          maxOccurs="unbounded"/>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
</xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
AttributeID		[Required]	The ID of the attribute.
KeyColumns		KeyColumns from the corresponding DimensionAttribute	A collection of KeyColumn elements that have type DataItem. The Source element within the DataItem MUST be one of the following types: ColumnBinding, AttributeBiding, or InheritedBinding.
Type		Regular	Specifies the type of the MeasureGroupAttribute. It indicates whether the MeasureGroupAttribute is a granularity attribute or a regular attribute. There can be only one granularity attribute in a MeasureGroupDimension.
Annotations			A collection of Annotation objects.

2.2.4.2.2.11.3 Measure

This complex type represents a measure.

```

<xsd:complexType name="Measure">
  <xsd:all>
    <xsd:element name="Name" type="xsd:string"/>
    <xsd:element name="ID" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Description" type="xsd:string" minOccurs="0"/>
    <xsd:element name="AggregateFunction" minOccurs="0">
      <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
          <xsd:enumeration value="Sum" />
          <xsd:enumeration value="Count" />
          <xsd:enumeration value="Min" />
          <xsd:enumeration value="Max" />
          <xsd:enumeration value="DistinctCount" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>

```

```

        <xsd:enumeration value="None" />
        <xsd:enumeration value="ByAccount" />
        <xsd:enumeration value="AverageOfChildren" />
        <xsd:enumeration value="FirstChild" />
        <xsd:enumeration value="LastChild" />
        <xsd:enumeration value="FirstNonEmpty" />
        <xsd:enumeration value="LastNonEmpty" />
    </xsd:restriction>
</xsd:simpleType>
</xsd:element>
<xsd:element name="DataType" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="WChar" />
            <xsd:enumeration value="Integer" />
            <xsd:enumeration value="BigInt" />
            <xsd:enumeration value="Single" />
            <xsd:enumeration value="Double" />
            <xsd:enumeration value="Date" />
            <xsd:enumeration value="Currency" />
            <xsd:enumeration value="UnsignedTinyInt" />
            <xsd:enumeration value="UnsignedSmallInt" />
            <xsd:enumeration value="UnsignedInt" />
            <xsd:enumeration value="UnsignedBigInt" />
            <xsd:enumeration value="Bool" />
            <xsd:enumeration value="Smallint" />
            <xsd:enumeration value="Tinyint" />
            <xsd:enumeration value="Variant" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="Source" type="DataItem" />
<xsd:element name="Visible" type="xsd:boolean" minOccurs="0"/>
<xsd:element name="MeasureExpression" type="xsd:string" minOccurs="0"/>
<xsd:element name="DisplayFolder" type="xsd:string" minOccurs="0"/>
<xsd:element name="FormatString" type="xsd:string" minOccurs="0"/>
<xsd:element name="BackColor" type="xsd:string" minOccurs="0"/>
<xsd:element name="ForeColor" type="xsd:string" minOccurs="0"/>
<xsd:element name="FontName" type="xsd:string" minOccurs="0"/>
<xsd:element name="FontSize" type="xsd:string" minOccurs="0"/>
<xsd:element name="FontFlags" type="xsd:string" minOccurs="0"/>
<xsd:element name="Translations" minOccurs="0">
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element name="Translation" type="Translation" minOccurs="0"
                maxOccurs="unbounded"/>
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>
<xsd:element name="Annotations" minOccurs="0">
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element name="Annotation" type="Annotation" minOccurs="0"
                maxOccurs="unbounded"/>
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>
</xsd:all>

```

</xsd:complexType>

Element	Read-Only	Default	Description
Name		[Required]	The object name. The name of the measure MUST be unique within the Cube, not only within the MeasureGroup.
ID		Defaults to Name	The object ID string.
Description		Empty	The object description.
AggregateFunction		"Sum"	A string that specifies the type of aggregate function used by the measure.
DataType		Empty	The data type.
Source		[Required]	The source of the measure data. Type is DataItem. The Source element within the DataItem MUST be one of the following types: RowBinding, ColumnBinding, MeasureBinding, or CubeDimensionBinding.
Visible		True	A Boolean that indicates to the client whether the Measure should be visible.
MeasureExpression		Empty	Contains an MDX expression that specifies how the measure value is computed.
DisplayFolder		Empty	Defines the display folder for the measure.
FormatString		Empty	A string that specifies how to format measure values to produce a formatted value. For a description of the content of the string, see [MSDN-FSCMDX] .
BackColor		Empty	Specifies the background color of a cell in the red-green-blue (RGB) format of the Microsoft Windows® operating system. The valid range for an ordinary RGB color is from zero (&H00000000) to 16,777,215 (&H00FFFFFF). The high byte of a number in this range always equals zero. The lower 3 bytes, from least to most significant byte, determine the amount of red, green, and blue, respectively. The red, green, and blue components are each represented by a number between 0 and 255 (&HFF).
ForeColor		Empty	Specifies the foreground color of a cell in the red-green-blue (RGB) format of the Windows operating system The valid range for an ordinary RGB color is from zero (&H00000000) to 16,777,215 (&H00FFFFFF). The high byte of a number in this range always equals zero. The lower 3 bytes, from least to most significant byte, determine the amount of red, green, and blue, respectively. The red, green, and blue components are each represented by a number between 0 and 255 (&HFF).
FontName		Empty	The font to be used to display the value or formatted value of this measure.

Element	Read-Only	Default	Description
FontSize		Empty	The font size to be used to display the value of formatted value of this measure.
FontFlags		Empty	A bitmask that details effects on the font. The value is the result of a bitwise OR operation of one or more of the following constants: BOLD = 1 ITALIC = 2 UNDERLINE = 4 STRIKEOUT = 8
Translations		Empty	A collection of Translation objects.
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.12 AggregationDesign

This complex type represents a group of aggregations for the MeasureGroup.

```

<xsd:complexType name="AggregationDesign">
  <xsd:complexContent>
    <xsd:extension base="MajorObject">
      <xsd:all>
        <!--These elements are common to each MajorObject-->
        <xsd:element name="Name" type="xsd:string" />
        <xsd:element name="ID" type="xsd:string" minOccurs="0" />
        <xsd:element name="CreatedTimestamp" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="LastSchemaUpdate" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="Description" type="xsd:string" minOccurs="0" />
        <xsd:element name="Annotation" minOccurs="0">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Annotation" type="Annotation" minOccurs="0"
                maxOccurs="unbounded" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <!--Extended elements for AggregationDesign object-->
        <xsd:element name="EstimatedRows" type="xsd:long" minOccurs="0"/>
        <xsd:element name="Dimensions" minOccurs="0">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Dimension" type="Dimension" minOccurs="0"
                maxOccurs="unbounded"/>
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <xsd:element name="Aggregations" minOccurs="0">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Aggregation" type="Aggregation" minOccurs="0"
                maxOccurs="unbounded"/>
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

```



```

    </xsd:complexType>
  </xsd:element>
  <xsd:element name="EstimatedPerformanceGain" type="xsd:integer"
    minOccurs="0"/>
</xsd:all>
</xsd:extension >
</xsd:complexContent>
</xsd:complexType>

```

Element	Read-Only	Default	Description
EstimatedRows		0	The estimated average number of rows in the partition for the partitions that share this design.
Dimensions		Empty	A collection of Dimension objects.
Aggregations		Empty	A collection of Aggregation objects.
EstimatedPerformanceGain	Yes		The estimated performance gain of the partition, expressed as a percentage.

2.2.4.2.2.12.1 AggregationDesignDimension

This complex type represents a CubeDimension within an AggregationDesign.

```

<xsd:complexType name="AggregationDesignDimension">
  <xsd:all>
    <xsd:element name="CubeDimensionID" type="xsd:string"/>
    <xsd:element name="Attributes" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Attribute" type="AggregationDesignAttribute"
            minOccurs="0" maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="Annotations" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Annotation" type="Annotation" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
CubeDimensionID		[Required]	The ID of the CubeDimension.
Attributes		Empty	A collection of AggregationDesignAttribute objects.
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.12.1.1 AggregationDesignAttribute

This complex type represents an attribute in the AggregationDesignDimension.

```
<xsd:complexType name="AggregationDesignAttribute">
  <xsd:all>
    <xsd:element name="AttributeID" type="xsd:string"/>
    <xsd:element name="EstimatedCount" type="xsd:long" minOccurs="0"/>
  </xsd:all>
</xsd:complexType>
```

Element	Read-Only	Default	Description
AttributeID		[Required]	The ID of the attribute.
EstimatedCount		Empty	The estimated number of members for the attribute.

2.2.4.2.2.12.2 Aggregation

This complex type represents an aggregation in the AggregationDesign.

```
<xsd:complexType name="Aggregation">
  <xsd:all>
    <xsd:element name="ID" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Name" type="xsd:string"/>
    <xsd:element name="Dimensions" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Dimension" type="AggregationDimension"
            minOccurs="0" maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="Annotations" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Annotation" type="Annotation" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="Description" type="xsd:string" minOccurs="0"/>
  </xsd:all>
</xsd:complexType>
```

Element	Read-Only	Default	Description
ID		Defaults to Name	The object ID string.
Name		[Required]	The object name.
Dimensions		Empty	A collection of objects of type AggregationDimension.
Annotations		Empty	A collection of Annotation objects.

Element	Read-Only	Default	Description
Description		Empty	The object description.

2.2.4.2.2.12.2.1 AggregationDimension

This complex type represents a dimension in the aggregation.

```
<xsd:complexType name="AggregationDimension">
  <xsd:all>
    <xsd:element name="CubeDimensionID" type="xsd:string"/>
    <xsd:element name="Attributes" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Attribute" type="AggregationAttribute"
            minOccurs="0" maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="Annotations" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Annotation" type="Annotation" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>
```

Element	Read-Only	Default	Description
CubeDimensionID		[Required]	The ID of the cube dimension. For example, a reference to a specific dimension on the owning measure group.
Attributes		Empty	A collection of objects of type AggregationAttribute.
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.12.2.1.1 AggregationAttribute

This complex type represents the attribute in the AggregationDimension for which the fact data is aggregated.

```
<xsd:complexType name="AggregationAttribute">
  <xsd:all>
    <xsd:element name="AttributeID" type="xsd:string"/>
    <xsd:element name="Annotations" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Annotation" type="Annotation" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>
```

```

    </xsd:complexType>
  </xsd:element>
</xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
AttributeID		[Required]	The ID of the attribute.
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.13 Partition

This complex type represents a partition of a measure group.

```

<xsd:complexType name="Partition">
  <xsd:complexContent>
    <xsd:extension base="MajorObject">
      <xsd:all>
        <!--These elements are common to each MajorObject-->
        <xsd:element name="Name" type="xsd:string" />
        <xsd:element name="ID" type="xsd:string" minOccurs="0" />
        <xsd:element name="CreatedTimestamp" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="LastSchemaUpdate" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="Description" type="xsd:string" minOccurs="0" />
        <xsd:element name="Annotation" minOccurs="0" >
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Annotation" type="Annotation" minOccurs="0"
                maxOccurs="unbounded" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <!--Extended elements for Partition object-->
        <xsd:element name="Source" type="TabularBinding" minOccurs="0" />
        <xsd:element name="ProcessingPriority" type="xsd:integer" minOccurs="0"/>
        <xsd:element name="AggregationPrefix" type="xsd:string" minOccurs="0"/>
        <xsd:element name="StorageMode" minOccurs="0">
          <xsd:complexType>
            <xsd:simpleContent>
              <xsd:extension base="PartitionStorageModeEnumType">
                <xsd:attribute name="valuens" >
                  <xsd:simpleType>
                    <xsd:restriction base="xsd:string">
                      <xsd:enumeration value=
                        "http://schemas.microsoft.com/analysisservices/2010/engine/200/200" />
                    </xsd:restriction>
                  </xsd:simpleType>
                </xsd:attribute>
              </xsd:extension>
            </xsd:simpleContent>
          </xsd:complexType>
        </xsd:element>
        <xsd:element name="ProcessingMode" minOccurs="0">
          <xsd:simpleType>
            <xsd:restriction base="xsd:string">

```

```

        <xsd:enumeration value="Regular" />
        <xsd:enumeration value="LazyAggregations" />
    </xsd:restriction>
</xsd:simpleType>
</xsd:element>
<xsd:element name="ErrorConfiguration" type="ErrorConfiguration"
    minOccurs="0" />
<xsd:element name="StorageLocation" type="xsd:string" minOccurs="0"/>
<xsd:element name="RemoteDataSourceID" type="xsd:string" minOccurs="0"/>
<xsd:element name="Slice" type="xsd:string" minOccurs="0"/>
<xsd:element name="ProactiveCaching" type="ProactiveCaching"
    minOccurs="0" />
<xsd:element name="Type" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="Data" />
            <xsd:enumeration value="Writeback" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="EstimatedSize" type="xsd:long" minOccurs="0"/>
<xsd:element name="EstimatedRows" type="xsd:long" minOccurs="0"/>
<xsd:element name="CurrentStorageMode" minOccurs="0">
    <xsd:complexType>
        <xsd:simpleContent>
            <xsd:extension base="PartitionCurrentStorageModeEnumType">
                <xsd:attribute name="valuens" >
                    <xsd:simpleType>
                        <xsd:restriction base="xsd:string">
                            <xsd:enumeration value=
                                "http://schemas.microsoft.com/analysisservices/2010/engine/200/200" />
                        </xsd:restriction>
                    </xsd:simpleType>
                </xsd:attribute>
            </xsd:extension>
        </xsd:simpleContent>
    </xsd:complexType>
</xsd:element>
<xsd:element name="AggregationDesignID" type="xsd:string" minOccurs="0"/>
<xsd:element name="AggregationInstances" minOccurs="0">
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element name="AggregationInstance" type="AggregationInstance"
                minOccurs="0" maxOccurs="unbounded"/>
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>
<xsd:element name="AggregationInstanceSource" type="DataSourceViewBinding"
    minOccurs="0" />
<xsd:element name="LastProcessed" type="xsd:dateTime" minOccurs="0"/>
<xsd:element name="State" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="Processed" />
            <xsd:enumeration value="Unprocessed" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
</xsd:all>

```

```

    </xsd:extension >
  </xsd:complexContent>
</xsd:complexType>
<xsd:simpleType name="PartitionStorageModeEnumType">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="Molap"/>
    <xsd:enumeration value="Rolap"/>
    <xsd:enumeration value="Holap"/>
    <xsd:enumeration value="InMemory"/>
  </xsd:restriction>
</xsd:simpleType>
<xsd:simpleType name="PartitionCurrentStorageModeEnumType">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="Molap"/>
    <xsd:enumeration value="Rolap"/>
    <xsd:enumeration value="Holap"/>
    <xsd:enumeration value="InMemory"/>
  </xsd:restriction>
</xsd:simpleType>

```

The Partition object also includes all elements from [MajorObject](#).

Element	Read-Only	Default	Description
Source		Empty	Specifies the source of the partition data.
ProcessingPriority		Zero	Integer that determines the priority for processing.
AggregationPrefix		Empty	A prefix that is pre-pended to the names of aggregation tables/views.
StorageMode		StorageMode of the parent MeasureGroup	Determines the storage mode for the partition.
ProcessingMode		ProcessingMode of the parent Cube	A string that specifies whether aggregations and indexes should be built lazily. For more information about lazy aggregations, see section 1.1 .
ErrorConfiguration		Empty	Error configuration settings to handle issues in the source data.
StorageLocation		StorageLocation of the parent MeasureGroup	The file system storage location for the partition.
RemoteDatasourceID		Empty	Specifies the ID of the OLAP data source that points to the remote server where this partition is stored.
Slice		Empty	MDX expression that defines the slice that is contained in the partition.
ProactiveCaching		Empty	Proactive caching settings for this partition.

Element	Read-Only	Default	Description
Type		"Data"	Indicates partition type as either Data or Writeback.
EstimatedSize	Yes		The estimated size of the partition in bytes.
EstimatedRows		0	Estimated number of rows.
CurrentStorageMode	Yes		The current storage mode of the partition. Used for proactive caching when StorageMode may transiently change.
AggregationDesignID		Empty	The ID of the Aggregation Design for the partition.
AggregationInstances		Empty	A collection of AggregationInstance objects.
AggregationInstanceSource		Defaults to Source element of the cube.	The source of the aggregation instance data.
LastProcessed	Yes		The date and time when the partition was last processed.
State	Yes		A Boolean that indicates whether the partition has been processed.

2.2.4.2.2.13.1 AggregationInstance

This complex type represents an aggregation instance in a partition.

```

<xsd:complexType name="AggregationInstance">
  <xsd:all>
    <xsd:element name="ID" type="xsd:string" minOccurs="0" />
    <xsd:element name="Name" type="xsd:string" />
    <xsd:element name="AggregationType" >
      <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
          <xsd:enumeration value="IndexedView" />
          <xsd:enumeration value="Table" />
          <xsd:enumeration value="UserDefined" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="Source" type="TabularBinding" minOccurs="0" />
    <xsd:element name="Dimensions" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Dimension" type="AggregationInstanceDimension"
            minOccurs="0" maxOccurs="unbounded" />
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>

```

```

<xsd:element name="Measures" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Measure" type="AggregationInstanceMeasure"
        minOccurs="0" maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="Annotations" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Annotation" type="Annotation" minOccurs="0"
        maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="Description" type="xsd:string" minOccurs="0"/>
</xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
ID		Defaults to Name	The object ID string.
Name		[Required]	The object name.
AggregationType		[Required]	The type of aggregation stored in the partition. The enumeration values are the following: IndexedView: The aggregation is stored in an indexed view. Table: The aggregation is stored in a table. UserDefined: The aggregation is user-defined.
Source		Empty	The table name that is used if it is different than the name that is associated with column binding. This permits a single aggregation table to be defined in the DataSourceView for multiple partitions instead of one per partition.
Dimensions		Empty	A collection of objects of type AggregationInstanceDimension.
Measures		Empty	A collection of objects of type AggregationInstanceMeasure.
Annotations		Empty	A collection of Annotation objects.
Description		Empty	The object description.

2.2.4.2.2.13.1.1 AggregationInstanceDimension

This complex type represents a CubeDimension in an AggregationInstance.

```

<xsd:complexType name="AggregationInstanceDimension">
  <xsd:all>
    <xsd:element name="CubeDimensionID" type="xsd:string"/>
  </xsd:all>
</xsd:complexType>

```



```

<xsd:element name="Attributes" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Attribute" type="AggregationInstanceAttribute"
        minOccurs="0" maxOccurs="unbounded" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="Annotations" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Annotation" type="Annotation" minOccurs="0"
        maxOccurs="unbounded" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
CubeDimensionID		[Required]	The ID of the CubeDimension.
Attributes		Empty	A collection of objects of type AggregationInstanceAttribute.
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.13.1.2 AggregationInstanceAttribute

This complex type represents the attribute in the AggregationInstanceDimension for which the fact data is aggregated.

```

<xsd:complexType name="AggregationInstanceAttribute">
  <xsd:all>
    <xsd:element name="AttributeID" type="xsd:string" />
    <xsd:element name="KeyColumns" >
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="KeyColumn" type="DataItem" minOccurs="0"
            maxOccurs="unbounded" />
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="Annotations" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Annotation" type="Annotation" minOccurs="0"
            maxOccurs="unbounded" />
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
AttributeID		[Required]	The ID of the attribute.
KeyColumns		Required. However, if this element is specified as empty, the default is the binding that is specified on the attribute that is pointed to by AttributeID.	A collection of KeyColumn elements of type DataItem. This may be used to override the binding that is specified on the attribute. The Source element within the DataItem MUST be of type ColumnBinding.
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.13.1.3 AggregationInstanceMeasure

This complex type represents a Measure in an AggregationInstance.

```
<xsd:complexType name="AggregationInstanceMeasure">
  <xsd:all>
    <xsd:element name="MeasureID" type="xsd:string" />
    <xsd:element name="Source" type="ColumnBinding" />
  </xsd:all>
</xsd:complexType>
```

Element	Read-Only	Default	Description
MeasureID		[Required]	The ID of the Measure.
Source		[Required]	The source of the measure data.

2.2.4.2.2.14 Perspective

This complex type represents a perspective of a cube.

```
<xsd:complexType name="Perspective">
  <xsd:complexContent>
    <xsd:extension base="MajorObject">
      <xsd:all>
        <!--These elements are common to each MajorObject-->
        <xsd:element name="Name" type="xsd:string" />
        <xsd:element name="ID" type="xsd:string" minOccurs="0" />
        <xsd:element name="CreatedTimestamp" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="LastSchemaUpdate" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="Description" type="xsd:string" minOccurs="0" />
        <xsd:element name="Annotation" minOccurs="0" >
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Annotation" type="Annotation" minOccurs="0"
                maxOccurs="unbounded" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <!--Extended elements for Perspective object-->
        <xsd:element name="Translations" minOccurs="0">
```

```

<xsd:complexType>
  <xsd:sequence>
    <xsd:element name="Translation" type="Translation" minOccurs="0"
      maxOccurs="unbounded"/>
  </xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="DefaultMeasure" type="xsd:string" minOccurs="0"/>
<xsd:element name="Dimensions" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Dimension" type="PerspectiveDimension"
        minOccurs="0" maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="MeasureGroups" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="MeasureGroup" type="PerspectiveMeasureGroup"
        minOccurs="0" maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="Calculations" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Calculation" type="PerspectiveCalculation"
        minOccurs="0" maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="Kpis" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Kpi" type="PerspectiveKpi" minOccurs="0"
        maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="Actions" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Action" type="PerspectiveAction"
        minOccurs="0" maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:extension >
</xsd:complexContent>
</xsd:complexType>

```

The Perspective object also includes all elements from [MajorObject](#).

Element	Read-Only	Default	Description
Translations		Empty	A collection of Translation objects.
DefaultMeasure		Empty	The default measure for the perspective.
Dimensions		Empty	A collection of PerspectiveDimension objects.
MeasureGroups		Empty	A collection of PerspectiveMeasureGroup objects.
Calculations		Empty	A collection of PerspectiveCalculation objects.
Kpis		Empty	A collection of PerspectiveKpi objects.
Actions		Empty	A collection of PerspectiveAction objects.

2.2.4.2.2.14.1 PerspectiveDimension

This complex type represents a CubeDimension in a Perspective.

```

<xsd:complexType name="PerspectiveDimension">
  <xsd:all>
    <xsd:element name="CubeDimensionID" type="xsd:string"/>
    <xsd:element name="Attributes" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Attribute" type="PerspectiveAttribute"
            minOccurs="0" maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="Hierarchies" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Hierarchy" type="PerspectiveHierarchy"
            minOccurs="0" maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="Annotations" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Annotation" type="Annotation" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
CubeDimensionID		[Required]	The ID of a CubeDimension.
Attributes		If no hierarchies are included, the perspective contains all the	A collection of objects of type PerspectiveAttribute that is included in

Element	Read-Only	Default	Description
		attributes from the dimension.	this PerspectiveDimension.
Hierarchies		If no hierarchies are included, the perspective contains all the hierarchies from the dimension.	A collection of objects of type PerspectiveHierarchy that is included in this PerspectiveDimension.
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.14.1.1 PerspectiveAttribute

This complex type represents an attribute in a PerspectiveDimension.

```
<xsd:complexType name="PerspectiveAttribute">
  <xsd:all>
    <xsd:element name="AttributeID" type="xsd:string"/>
    <xsd:element name="AttributeHierarchyVisible" type="xsd:boolean"
      minOccurs="0"/>
    <xsd:element name="DefaultMember" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Annotations" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Annotation" type="Annotation" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>
```

Element	Read-Only	Default	Description
AttributeID		[Required]	The ID of the attribute.
AttributeHierarchyVisible		True	Boolean that specifies whether the AttributeHierarchy is visible.
DefaultMember		Empty	An MDX expression specifying the default member for this attribute. <16>
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.14.1.2 PerspectiveHierarchy

This complex type represents a hierarchy in a PerspectiveDimension.

```
<xsd:complexType name="PerspectiveHierarchy">
  <xsd:all>
    <xsd:element name="HierarchyID" type="xsd:string"/>
    <xsd:element name="Annotations" minOccurs="0">
      <xsd:complexType>
```

```

    <xsd:sequence>
      <xsd:element name="Annotation" type="Annotation" minOccurs="0"
        maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
HierarchyID		[Required]	The ID of the hierarchy.
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.14.2 PerspectiveMeasureGroup

This complex type represents a measure group in a Perspective.

```

<xsd:complexType name="PerspectiveMeasureGroup">
  <xsd:all>
    <xsd:element name="MeasureGroupID" type="xsd:string"/>
    <xsd:element name="Measures" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Measure" type="PerspectiveMeasure" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="Annotations" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Annotation" type="Annotation" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
MeasureGroupID		[Required]	The ID of the measure group.
Measures		Empty	A collection of objects of type PerspectiveMeasure.
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.14.2.1 PerspectiveMeasure

This complex type represents a measure in a PerspectiveMeasureGroup.

```

<xsd:complexType name="PerspectiveMeasure">

```

```

<xsd:all>
  <xsd:element name="MeasureID" type="xsd:string"/>
  <xsd:element name="Annotations" minOccurs="0">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="Annotation" type="Annotation" minOccurs="0"
          maxOccurs="unbounded"/>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
</xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
MeasureID		[Required]	The ID of the Measure.
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.14.3 PerspectiveCalculation

This complex type represents a calculation in a Perspective.

```

<xsd:complexType name="PerspectiveCalculation">
  <xsd:all>
    <xsd:element name="Name" type="xsd:string"/>
    <xsd:element name="Type" >
      <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
          <xsd:enumeration value="Member" />
          <xsd:enumeration value="Set" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="Annotations" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Annotation" type="Annotation" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
Name		[Required]	Indicates the name of the calculation. This is the UniqueName of the calculated member or set.
Type		[Required]	Indicates the type of the calculation. The enumeration values are the following: Member: Calculated member Set: Named set

Element	Read-Only	Default	Description
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.14.4 PerspectiveKpi

This complex type represents a KPI in a Perspective.

```

<xsd:complexType name="PerspectiveKpi">
  <xsd:all>
    <xsd:element name="KpiID" type="xsd:string"/>
    <xsd:element name="Annotations" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Annotation" type="Annotation" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
KpiID		[Required]	The ID of the KPI.
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.14.5 PerspectiveAction

This complex type represents an action in a Perspective.

```

<xsd:complexType name="PerspectiveAction">
  <xsd:all>
    <xsd:element name="ActionID" type="xsd:string"/>
    <xsd:element name="Annotations" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Annotation" type="Annotation" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
ActionID		[Required]	The ID of the Action.
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.15 MiningStructure

This complex type represents a mining structure.

```
<xsd:complexType name="MiningStructure">
  <xsd:complexContent>
    <xsd:extension base="MajorObject">
      <xsd:all>
        <!--These elements are common to each MajorObject-->
        <xsd:element name="Name" type="xsd:string" />
        <xsd:element name="ID" type="xsd:string" minOccurs="0" />
        <xsd:element name="CreatedTimestamp" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="LastSchemaUpdate" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="Description" type="xsd:string" minOccurs="0" />
        <xsd:element name="Annotation" minOccurs="0" >
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Annotation" type="Annotation" minOccurs="0"
                maxOccurs="unbounded" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <!--Extended elements for MiningStructure object-->
        <xsd:element name="Source" type="Binding" minOccurs="0" />
        <xsd:element name="LastProcessed" type="xsd:dateTime" minOccurs="0"/>
        <xsd:element name="Translations" minOccurs="0">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Translation" type="Translation" minOccurs="0"
                maxOccurs="unbounded"/>
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <xsd:element name="Language" type="xsd:integer" minOccurs="0"/>
        <xsd:element name="Collation" type="xsd:string" minOccurs="0"/>
        <xsd:element name="ErrorConfiguration" type="ErrorConfiguration"
          minOccurs="0" />
        <xsd:element name="CacheMode" minOccurs="0" >
          <xsd:simpleType>
            <xsd:restriction base="xsd:string" >
              <xsd:enumeration value="KeepTrainingCases" />
              <xsd:enumeration value="ClearAfterProcessing" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
        <xsd:element ref="eng100_100:HoldoutMaxPercent" minOccurs="0" />
        <xsd:element ref="eng100_100:HoldoutMaxCases" minOccurs="0" />
        <xsd:element ref="eng100_100:HoldoutSeed" minOccurs="0" />
        <xsd:element ref="eng100_100:HoldoutActualSize" minOccurs="0" />
        <xsd:element name="Columns" >
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Column" type="MiningStructureColumn"
                minOccurs="0" maxOccurs="unbounded"/>
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <xsd:element name="State" minOccurs="0">
          <xsd:simpleType>
```

```

    <xsd:restriction base="xsd:string" >
      <xsd:enumeration value="Processed" />
      <xsd:enumeration value="Unprocessed" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="MiningStructurePermissions" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="MiningStructurePermission"
        type="MiningStructurePermission" minOccurs="0"
        maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="MiningModels" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="MiningModel" type="MiningModel"
        minOccurs="0" maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:extension >
</xsd:complexContent>
</xsd:complexType>

```

The Dimension XSD depends upon element definitions in namespaces other than the default namespace. The following elements are defined in the namespace eng100_100:

```

<xsd:element name="HoldoutMaxPercent" type="xsd:int" />
<xsd:element name="HoldoutMaxCases" type="xsd:int" />
<xsd:element name="HoldoutSeed" type="xsd:int" />
<xsd:element name="HoldoutActualSize" type="xsd:int" />

```

Also included in the MiningStructure object are all elements from MajorObject.

Element	Read-Only	Default	Description
Source		Empty	The source for the MiningStructure data. Source is of type "Binding". One of the following derived classes MUST be used: DataSourceViewBinding, DimensionBinding, CubeDimensionBinding. If DimensionBinding or CubeDimensionBinding are used, then the DataSourceID for DimensionBinding and CubeDimensionBinding MUST indicate an OLAP source.
LastProcessed	Yes		The date and time when the mining

Element	Read-Only	Default	Description
			structure was last processed.
Translations		Empty	A collection of Translation objects.
Language		Empty	The language of this mining structure.
Collation		Empty	The collation of this MiningStructure.
ErrorConfiguration		Empty	Error configuration settings to deal with issues in the source data.
CacheMode		"KeepTrainingCases"	Determines caching mechanism for training data retrieved during mining structure processing.
HoldoutMaxPercent		Zero	An integer value between 0 and 99 that specifies the maximum percentage of the cases that should be held out as the test set. The remaining cases become the training data set. Zero indicates no limit.
HoldoutMaxCases		Zero	An integer value equal to or greater than zero that specifies the maximum number of cases that should be held out as the test set. The remaining cases become the training data set. Zero indicates no limit. If not zero, then the lowest of (HoldoutMaxCases, HoldoutMaxPercent) is actually used.
HoldoutSeed		Zero	Used as the seed for repeatable partitioning. If unspecified or set to zero, a hash of the mining structure name is used as the seed.
HoldoutActualSize	Yes		If the mining structure is processed, this indicates the actual size of the test data set, expressed in number of cases. Zero indicates either no test partition or that the structure is not processed.
Columns		[Required]	A collection of Column objects for MiningStructure.
State	Yes		The state of processing of the object.
MiningStructurePermissions		Empty	A collection of MiningStructurePermission objects. Each MiningStructurePermission defines the permissions a role has on this MiningStructure.
MiningModels		Empty	A collection of MiningModel objects.
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.15.1 MiningStructureColumn

This complex type represents a column in a MiningStructure. This is an abstract type for the derived types, ScalarMiningStructureColumn and TableMiningStructureColumn. The XSD in this section has no elements as the derived classes contain the XSD for the elements. However, the common elements to all derived classes are documented in the tabular part of this section.

```
<xsd:complexType name="MiningStructureColumn" abstract="true" />
```

Element	Read-Only	Default	Description
Name		[Required]	The object name.
ID		Defaults to Name	The object ID string.
Description		Empty	The object description.
Type		[Required]	Contains the data type of the element.
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.15.1.1 ScalarMiningStructureColumn

This complex type represents a scalar column in the MiningStructure. ScalarMiningStructureColumn extends the base class MiningStructureColumn.

```
<xsd:complexType name="ScalarMiningStructureColumn">  
  <xsd:all>  
    <xsd:element name="Name" type="xsd:string"/>  
    <xsd:element name="ID" type="xsd:string" minOccurs="0"/>  
    <xsd:element name="Description" type="xsd:string" minOccurs="0"/>  
    <xsd:element name="Type" >  
      <xsd:simpleType>  
        <xsd:restriction base="xsd:string" >  
          <xsd:enumeration value="LONG" />  
          <xsd:enumeration value="BOOLEAN" />  
          <xsd:enumeration value="TEXT" />  
          <xsd:enumeration value="DOUBLE" />  
          <xsd:enumeration value="DATE" />  
          <xsd:enumeration value="TABLE" />  
        </xsd:restriction>  
      </xsd:simpleType>  
    </xsd:element>  
    <xsd:element name="Annotations" minOccurs="0">  
      <xsd:complexType>  
        <xsd:sequence>  
          <xsd:element name="Annotation" type="Annotation" minOccurs="0" maxOccurs="unbounded"/>  
        </xsd:sequence>  
      </xsd:complexType>  
    </xsd:element>  
    <xsd:element name="IsKey" type="xsd:boolean" minOccurs="0"/>  
    <xsd:element name="Source" type="Binding" minOccurs="0" />  
    <xsd:element name="Distribution" type="xsd:string" minOccurs="0"/>  
    <xsd:element name="ModelingFlags" minOccurs="0" >
```

```

<xsd:complexType>
  <xsd:sequence>
    <xsd:element name="ModelingFlag" type="MiningModelingFlag"
      minOccurs="0" maxOccurs="unbounded" />
  </xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="Content" >
  <xsd:simpleType>
    <xsd:restriction base="xsd:string" >
      <!-- This list is user-extensible -->
      <xsd:enumeration value="Discrete" />
      <xsd:enumeration value="Continuous" />
      <xsd:enumeration value="Discretized" />
      <xsd:enumeration value="Ordered" />
      <xsd:enumeration value="Cyclical" />
      <xsd:enumeration value="Probability" />
      <xsd:enumeration value="Variance" />
      <xsd:enumeration value="StdDev" />
      <xsd:enumeration value="ProbabilityVariance" />
      <xsd:enumeration value="ProbabilityStdDev" />
      <xsd:enumeration value="Support" />
      <xsd:enumeration value="Key" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="ClassifiedColumnIDs" minOccurs="0" >
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="ClassifiedColumnID" type="xsd:string"
        minOccurs="0" maxOccurs="unbounded" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="DiscretizationMethod" type="xsd:string" minOccurs="0"/>
<xsd:element name="DiscretizationBucketCount" type="xsd:integer" minOccurs="0"/>
<xsd:element name="KeyColumns" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="KeyColumn" type="DataItem" minOccurs="0"
        maxOccurs="unbounded" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="NameColumn" type="DataItem" minOccurs="0" />
<xsd:element name="Translations" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Translation" type="Translation" minOccurs="0"
        maxOccurs="unbounded" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
IsKey		False	Indicates if the column provides the key of the case. One or more columns MAY be designated the key. At least one column MUST be designated as key.
Source		Empty	Data source for this column, if the mining structure is bound to OLAP objects. Source is of type "Binding". MAY be empty for mining structures based on relational data, but for OLAP-based mining structures, one of the following derived classes MUST be used: AttributeBinding, CubeAttributeBinding, MeasureBinding.
Distribution		Empty	An extensible enumeration, or example, Normal, Uniform, LogNormal, and so on. Algorithms may not support all possible distribution values.
ModelingFlags		Empty	A collection of MiningModelingFlag objects. If non-empty, the only supported string value is "NotNull".
Content		[Required]	An enumeration that describes the type of content represented by a mining structure column. All values may not necessarily be supported by all algorithms.
ClassifiedColumnIDs		Empty	A string collection of the ID for any columns classified by this column.
DiscretizationMethod		Empty (Mapped to Automatic for columns where content is discretized)	Defines the method to be used for discretization. Current values supported for this string element are: <ul style="list-style-type: none"> ▪ "Automatic" ▪ "EqualAreas" ▪ "Thresholds" ▪ "Clusters"
DiscretizationBucketCount		0	The number of buckets in which to discretize.
KeyColumns		[Required]	The data source for this column, for mining structures bound to relational data (or unbound). Collection of objects of type DataItem to bind to values of this column. The <Source> element within the DataItem MUST be of type ColumnBinding.
NameColumn		Empty	An optional column binding containing the name of the key values (in the KeyColumns element). NameColumn is of type DataItem. The <Source> element within the DataItem

Element	Read-Only	Default	Description
			MUST be of type ColumnBinding.
Translations		Empty	A collection of Translation objects.

2.2.4.2.2.15.1.2 TableMiningstructureColumn

This complex type represents a nested table column in the MiningStructure. TableMiningStructureColumn extends MiningStructureColumn.

```
<xsd:complexType name="TableMiningStructureColumn">
  <xsd:all>
    <xsd:element name="ForeignKeyColumns" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="ForeignKeyColumn" type="DataItem"
            minOccurs="0" maxOccurs="unbounded" />
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="SourceMeasureGroup" type="MeasureGroupBinding"
      minOccurs="0" />
    <xsd:element name="Columns" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Column" type="MiningStructureColumn"
            minOccurs="0" maxOccurs="unbounded" />
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="Translations" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Translation" type="Translation"
            minOccurs="0" maxOccurs="unbounded" />
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>
```

Element	Read-Only	Default	Description
ForeignKeyColumns		Empty	A collection of DataItem objects that binds to foreign keys for this column. The <Source> element within the DataItem MUST be of type ColumnBinding.
SourceMeasureGroup		Empty	An optional binding to a MeasureGroup if DataSourceID for MiningModelStructure is OLAP.
Columns		Empty	A collection of bindings to MiningStructureColumns. MiningStructureColumns may be nested within each other, but it is only recursive to one level. That is, a set of scalar columns can be specified here, but included columns cannot

Element	Read-Only	Default	Description
			have included columns nested within them.
Translations		Empty	A collection of Translation objects.

2.2.4.2.2.16 MiningModel

This complex type represents a mining model.

```

<xsd:complexType name="MiningModel">
  <xsd:complexContent>
    <xsd:extension base="MajorObject">
      <xsd:all>
        <!--These elements are common to each MajorObject-->
        <xsd:element name="Name" type="xsd:string" />
        <xsd:element name="ID" type="xsd:string" minOccurs="0" />
        <xsd:element name="CreatedTimestamp" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="LastSchemaUpdate" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="Description" type="xsd:string" minOccurs="0" />
        <xsd:element name="Annotation" minOccurs="0" >
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Annotation" type="Annotation" minOccurs="0"
                maxOccurs="unbounded" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <!--Extended elements for MiningModel object-->
        <xsd:element name="Algorithm" minOccurs="10">
          <xsd:simpleType>
            <xsd:restriction base="xsd:string" >
              <xsd:enumeration value="Microsoft_Naive_Bayes" />
              <xsd:enumeration value="Microsoft_Decision_Trees" />
              <xsd:enumeration value="Microsoft_Clustering" />
              <xsd:enumeration value="Microsoft_Neural_Network" />
              <xsd:enumeration value="Microsoft_Logistic_Regression" />
              <xsd:enumeration value="Microsoft_Linear_Regression" />
              <xsd:enumeration value="Microsoft_Association_Rules" />
              <xsd:enumeration value="Microsoft_Time_Series" />
              <xsd:enumeration value="Microsoft_Sequence_Clustering" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
        <xsd:element name="LastProcessed" type="xsd:dateTime" minOccurs="0"/>
        <xsd:element name="AlgorithmParameters" minOccurs="0">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="AlgorithmParameter" type="AlgorithmParameter"
                minOccurs="0" maxOccurs="unbounded"/>
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <xsd:element name="AllowDrillThrough" type="xsd:boolean" minOccurs="0"/>
        <xsd:element name="Translations" minOccurs="0">
          <xsd:complexType>

```



```

    <xsd:sequence>
      <xsd:element name="Translation" type="AttributeTranslation"
        minOccurs="0" maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="Columns" >
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Column" type="MiningModelColumn" minOccurs="0"
        maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="State" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string" >
      <xsd:enumeration value="Processed" />
      <xsd:enumeration value="Unprocessed" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="FoldingParameters" type="FoldingParameters"
  minOccurs="0" />
<xsd:element name="Filter" type="xsd:string" minOccurs="0" />
<xsd:element name="MiningModelPermissions" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="MiningModelPermission" type="MiningModelPermission"
        minOccurs="0" maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="Language" type="xsd:string" minOccurs="0"/>
<xsd:element name="Collation" type="xsd:string" minOccurs="0"/>
</xsd:all>
</xsd:extension >
</xsd:complexContent>
</xsd:complexType>

```

Also included in the Server object are all elements from [MajorObject](#).

Element	Read-Only	Default	Description
Algorithm		[Required]	The protocol does not require any particular algorithms to be supported, and each server developer can support whichever algorithms he or she chooses to support. <17>
LastProcessed	Yes		The date and time when the mining model was last processed.
AlgorithmParameters		Empty	A collection of objects of type AlgorithmParameter. The allowed parameters are different depending on the Algorithm.

Element	Read-Only	Default	Description
AllowDrillThrough		False	A Boolean that indicates whether DrillThrough is allowed.
Translations		Empty	A collection of Translation objects.
Columns		Empty	A collection of objects of type MiningModelColumn.
State	Yes		A Boolean that indicates whether the MiningModel has been processed.
FoldingParameters		Empty	An object of type FoldingParameters. Describes a fold (a partition of the training data) to be used for training this mining model. Used only as part of the multifold cross-validation procedure. <18>
Filter		Empty	The DMX filter statement to be applied to training data for models that are trained only on a part of a structure's data. An empty string or missing element implies no filter. <19>
MiningModelPermissions		Empty	A collection of MiningModelPermission objects.
Language		Empty	The language to use by default.
Collation		Empty	The collation sequence to use.

2.2.4.2.2.16.1 MiningModelingFlag

This complex type represents a flag for a MiningModel algorithm. The flags that can be accepted depend upon the algorithm used in the MiningModel.

```
<xsd:complexType name="MiningModelingFlag">
  <xsd:all>
    <xsd:element name="ModelingFlag" type="xsd:string" />
  </xsd:all>
</xsd:complexType>
```

Element	Read-Only	Default	Description
ModelingFlag		Empty	A flag that is passed to a mining model algorithm. The form and content of flags is specific to each algorithm. Each ModelingFlag must be valid for the algorithm chosen. <20> Server vendors can define flags that support their algorithms.

2.2.4.2.2.16.2 MiningModelColumn

This complex type represents a column in a MiningModel.

```
<xsd:complexType name="MiningModelColumn">
  <xsd:all>
    <xsd:element name="Name" type="xsd:string"/>
  </xsd:all>
</xsd:complexType>
```

```

<xsd:element name="ID" type="xsd:string" minOccurs="0"/>
<xsd:element name="Description" type="xsd:string" minOccurs="0"/>
<xsd:element name="SourceColumnID" type="xsd:string"/>
<xsd:element name="Usage" type="xsd:string" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string" >
      <xsd:enumeration value="Key" />
      <xsd:enumeration value="Input" />
      <xsd:enumeration value="Predict" />
      <xsd:enumeration value="PredictOnly" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="Filter" type="xsd:string" minOccurs="0"/>
<xsd:element name="Translations" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Translation" type="Translation" minOccurs="0"
        maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="Columns" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Column" type="MiningModelColumn" minOccurs="0"
        maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="ModelingFlags" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="ModelingFlag" type="MiningModelingFlag" minOccurs="0"
        maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="Annotations" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Annotation" type="Annotation" minOccurs="0"
        maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
Name		[Required]	The object name.
ID		Defaults to Name	The object ID string.
Description		Empty	The object description.

Element	Read-Only	Default	Description
SourceColumnID		Empty	The ID of the source column in the parent structure.
Usage		"None"	Specifies the usage for this column within the MiningModel.
Filter		Empty	A string that contains a valid DMX filter to be applied to nested table columns. An empty string or missing element implies no filter. Must be empty for non-table columns. <21>
Translations		Empty	A collection of Translation objects.
Columns		Empty	A set of Column objects. This is a nesting of this same Type. It is used only for nested tables.
ModelingFlags		Empty	A collection of ModelingFlag objects.
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.16.3 AlgorithmParameter

This complex type represents an algorithm parameter for a MiningModel. The parameters allowed vary by which algorithm is chosen.

```
<xsd:complexType name="AlgorithmParameter">
  <xsd:all>
    <xsd:element name="Name" type="xsd:string"/>
    <xsd:element name="Value" type="xsd:anySimpleType" />
  </xsd:all>
</xsd:complexType>
```

Element	Read-Only	Default	Description
Name		[Required]	The parameter name. Algorithm-specific.
Value		[Required]	The parameter value. Algorithm-specific.

2.2.4.2.2.16.4 FoldingParameters

This complex type represents the folding parameters for a MiningModel.

[<22>](#)

```
<xsd:complexType name="FoldingParameters">
  <xsd:all>
    <xsd:element name="FoldIndex" type="xsd:integer" />
    <xsd:element name="FoldCount" type="xsd:integer" />
    <xsd:element name="MaxFoldCases" type="xsd:long" minOccurs="0"/>
    <xsd:element name="FoldTargetAttribute" type="xsd:string" minOccurs="0"/>
  </xsd:all>
</xsd:complexType>
```

Element	Read-Only	Default	Description
FoldIndex		[Required]	An integer that indicates the index of the partition to be used for validating this mining model in a multifold cross-validation procedure. <23>
FoldCount		[Required]	An integer that indicates the number of partitions in the multifold cross-validation procedure. <24>
MaxFoldCases		-1	An integer that indicates the maximum number of training cases to be used for cross-validation in this model. A value of -1 indicates that all cases are used. <25>
FoldTargetAttribute		Empty	A string that indicates the ID of the model column that contains the predictable attribute. <26>

2.2.4.2.2.17 Annotation

This complex type represents an annotation.

```

<xsd:complexType name="Annotation">
  <xsd:all>
    <xsd:element name="Name" type="xsd:string"/>
    <xsd:element name="Visibility" minOccurs="0">
      <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
          <xsd:enumeration value="SchemaRowset" />
          <xsd:enumeration value="None" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="Value" type="xsd:anyType" />
  </xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
Name		[Required]	This element SHOULD be in a style that references the vendor's XML Namespace, to prevent collisions in sharing of information contained in other Annotation objects. The Name MUST be unique within the collection of Annotations that is contained within an individual object. <27>
Visibility		"None"	This element determines the way in which Annotation objects are exposed. By default, Annotation objects are exposed only in DISCOVER_XML_METADATA, and are not visible to client software. If Visibility is set to SchemaRowset, then Annotation object information is exposed as a column in the schema rowset.
Value		[Required]	The content of the Annotation.

2.2.4.2.2.18 Translation

This complex type represents a translation of an object in a specific language.

```

<xsd:complexType name="Translation">
  <xsd:all>
    <xsd:element name="Language" type="xsd:unsignedInt"/>
    <xsd:element name="Caption" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Description" type="xsd:string" minOccurs="0"/>
    <xsd:element name="DisplayFolder" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Annotations" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Annotation" type="Annotation"
            minOccurs="0" maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
Language		[Required]	The locale identifier (LCID) of the language. For more details on locale identifiers, see [MS-LCID].
Caption		Empty	The caption of the object in the Language represented by the Language element.
Description		Empty	The description for the object.
DisplayFolder		Empty	The folder in which the object is displayed.
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.18.1 AttributeTranslation

This complex type represents a translation of a DimensionAttribute in a specific language. The AttributeTranslation type is an extension of the Translation type, and includes all of its elements.

```

<xsd:complexType name="AttributeTranslation">
  <xsd:all>
    <xsd:element name="Language" type="xsd:unsignedInt"/>
    <xsd:element name="Caption" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Description" type="xsd:string" minOccurs="0"/>
    <xsd:element name="DisplayFolder" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Annotations" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Annotation" type="Annotation" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="CaptionColumn" type="DataItem" minOccurs="0" />
    <xsd:element name="MembersWithDataCaption" type="xsd:string" minOccurs="0" />
  </xsd:all>
</xsd:complexType>

```

The following table includes only the elements additional to the AttributeTranslation type. All elements from the Translation type are also included.

Element	Read-Only	Default	Description
CaptionColumn		None	The source column for the attribute member captions.
MembersWithDataCaption		None	The caption template for data members. Only applies if Usage is set to Parent in the DimensionAttribute.

2.2.4.2.2.19 DataItem

This complex type represents a scalar data item associated with an object such as DimensionAttribute, Measure, and so on.

The Source element of the DataItem is type Binding. However, in a specific instance of the DataItem, there are often additional constraints as to what type of Binding will be permitted, depending upon the parent of the DataItem. Within the tables throughout this document, it is noted exactly which derived types of Binding are permitted in each context and MUST be used for that particular context.

```

<xsd:complexType name="DataItem">
  <xsd:all>
    <xsd:element name="DataType">
      <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
          <xsd:enumeration value="WChar" />
          <xsd:enumeration value="Integer" />
          <xsd:enumeration value="BigInt" />
          <xsd:enumeration value="Single" />
          <xsd:enumeration value="Double" />
          <xsd:enumeration value="Date" />
          <xsd:enumeration value="Currency" />
          <xsd:enumeration value="UnsignedTinyInt" />
          <xsd:enumeration value="UnsignedSmallInt" />
          <xsd:enumeration value="UnsignedInt" />
          <xsd:enumeration value="UnsignedBigInt" />
          <xsd:enumeration value="Bool" />
          <xsd:enumeration value="Smallint" />
          <xsd:enumeration value="Tinyint" />
          <xsd:enumeration value="Binary" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="DataSize" type="xsd:integer" minOccurs="0"/>
    <xsd:element name="MimeType" type="xsd:string" minOccurs="0"/>
    <xsd:element name="NullProcessing" minOccurs="0">
      <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
          <xsd:enumeration value="Preserve" />
          <xsd:enumeration value="Error" />
          <xsd:enumeration value="UnknownMember" />
          <xsd:enumeration value="ZeroOrBlank" />
          <xsd:enumeration value="Automatic" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
  </xsd:all>
</complexType>

```

```

</xsd:simpleType>
</xsd:element>
<xsd:element name="Trimming" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string" >
      <xsd:enumeration value="Left" />
      <xsd:enumeration value="Right" />
      <xsd:enumeration value="LeftRight" />
      <xsd:enumeration value="None" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="InvalidXmlCharacters" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string" >
      <xsd:enumeration value="Preserve" />
      <xsd:enumeration value="Remove" />
      <xsd:enumeration value="Replace" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="Collation" type="xsd:string" minOccurs="0"/>
<xsd:element name="Format" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string" >
      <xsd:enumeration value="TrimRight" />
      <xsd:enumeration value="TrimLeft" />
      <xsd:enumeration value="TrimAll" />
      <xsd:enumeration value="TrimNone" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="Source" type="Binding" minOccurs="0"/>
<xsd:element name="Annotations" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Annotation" type="Annotation"
        minOccurs="0" maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
DataType		[Required]	The data type of the column.
DataSize		Empty	The data size in bytes.
MimeType		Empty	The MIME type . Only applicable if the DataType is Binary.
NullProcessing		"Automatic"	Sets the processing of NULL values. "Automatic" – The server determines how null processing is handled. <28> "Preserve" – Preserves the null value.

Element	Read-Only	Default	Description
			"Error" – Raises an error. Value "Error" is not supported for Measures. "UnknownMember" – Generates an unknown member. "ZeroOrBlank" – Converts the null value to zero (for numeric data items) or a blank string (for string data items). "Automatic" – Uses the default processing appropriate for the element: "ZeroOrBlank" for OLAP data items. "UnknownMember" for data mining data items. For a column on a Measure object, cannot be set to "UnknownMember".
Trimming		"Right"	Specifies how data from the data source is trimmed. Applicable only to string data items.
InvalidXmlCharacters		"Preserve"	Specifies handling for invalid XML characters. If "Replace", replaces invalid characters with "?"
Collation		Empty	The collation of the data item. Applicable only to string data items.
Format		Empty	The format of the data item.
Source		Empty	The source of the data item. Which derived type of Binding is permitted is dependent upon the enclosing object, and is explained in the table for each enclosing object.
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.20 Binding

This complex type represents a binding of an object to a source of data. It is an abstract type that is extended by many binding types.

```
<xsd:complexType name="Binding" abstract="true" />
```

Element	Read-Only	Default	Description
(None)			

2.2.4.2.2.20.1 ColumnBinding

This complex type represents a binding to a column of a table.

```
<xsd:complexType name="ColumnBinding" >
  <xsd:complexContent>
    <xsd:extension base="Binding">
      <xsd:all>
```

```

        <xsd:element name="TableID" type="xsd:string" />
        <xsd:element name="ColumnID" type="xsd:string" />
    </xsd:all>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>

```

Element	Read-Only	Default	Description
TableID		[Required]	The ID of the table in the DataSourceView.
ColumnID		[Required]	The ID of the column in the DataSourceView.

2.2.4.2.2.20.2 RowBinding

This complex type represents a binding to the rows of a table.

```

<xsd:complexType name="RowBinding">
  <xsd:complexContent>
    <xsd:extension base="Binding">
      <xsd:all>
        <xsd:element name="TableID" type="xsd:string" />
      </xsd:all>
    </xsd:extension >
  </xsd:complexContent>
</xsd:complexType>

```

Element	Read-Only	Default	Description
TableID			The ID of the table in the DataSourceView.

2.2.4.2.2.20.3 DataSourceViewBinding

This complex type represents a binding to a DataSourceView.

```

<xsd:complexType name="DataSourceViewBinding" >
  <xsd:complexContent>
    <xsd:extension base="Binding">
      <xsd:all>
        <xsd:element name="DataSourceViewID" type="xsd:string" />
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

```

Element	Read-Only	Default	Description
DataSourceViewID		[Required]	The ID of the DataSourceView.

2.2.4.2.2.20.4 MeasureBinding

This complex type represents a binding to a Measure.

```

<xsd:complexType name="MeasureBinding" >
  <xsd:complexContent>
    <xsd:extension base="Binding">
      <xsd:all>
        <xsd:element name="MeasureID" type="xsd:string"/>
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

```

Element	Read-Only	Default	Description
MeasureID		[Required]	The ID of the Measure.

2.2.4.2.2.20.5 AttributeBinding

This complex type represents a binding to a DimensionAttribute.

```

<xsd:complexType name="AttributeBinding" abstract="true">
  <xsd:complexContent>
    <xsd:extension base="Binding">
      <xsd:all>
        <xsd:element name="AttributeID" type="xsd:string"/>
        <xsd:element name="Type" >
          <xsd:simpleType>
            <xsd:restriction base="xsd:string" >
              <xsd:enumeration value="All" />
              <xsd:enumeration value="Key" />
              <xsd:enumeration value="Name" />
              <xsd:enumeration value="Value" />
              <xsd:enumeration value="Translation" />
              <xsd:enumeration value="UnaryOperator" />
              <xsd:enumeration value="SkippedLevels" />
              <xsd:enumeration value="CustomRollup" />
              <xsd:enumeration value="CustomRollupProperties" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
        <xsd:element name="Ordinal" type="xsd:integer" minOccurs="0"/>
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

```

Element	Read-Only	Default	Description
AttributeID		[Required]	The ID of the Attribute.
Type		[Required]	Indicates the part of the Attribute to bind to. Enumeration values are as follows: All: AllLevel Key: Member keys Name: Member name

Element	Read-Only	Default	Description
			Value: Member value Translation: Member translations Unary Operator: Unary operators Skipped Levels: Skipped levels Custom Rollup: Custom rollup formulas Custom Rollup Properties: Custom rollup properties
Ordinal		Zero	When the binding is to a collection of objects, the ordinal indicates the ordinal number within that collection to bind to. (Applies to KeyColumns and Translations).

2.2.4.2.2.20.6 UserDefinedGroupBinding

This complex type represents a binding to a grouping of members from another DimensionAttribute.

```

<xsd:complexType name="UserDefinedGroupBinding" >
  <xsd:complexContent>
    <xsd:extension base="Binding">
      <xsd:all>
        <xsd:element name="AttributeID" type="xsd:string"/>
        <xsd:element name="Groups" >
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Group" type="Group" minOccurs="0"
                maxOccurs="unbounded"/>
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

```

Element	Read-Only	Default	Description
AttributeID		[Required]	The ID of the Attribute that is being grouped.
Groups		Empty	A collection of objects of type Group.

2.2.4.2.2.20.6.1 Group

This complex type represents a single group within a UserDefinedGroupBinding.

```

<xsd:complexType name="Group">
  <xsd:all>
    <xsd:element name="Name" type="xsd:string"/>
    <xsd:element name="Members" minOccurs="0" >
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Member" type="xsd:string" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>

```

```

    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
Name		[Required]	Name of the grouping member.
Members		[Required]	A collection of strings that contain MDX expressions that identify the set of members to be grouped.

2.2.4.2.2.20.7 CubeAttributeBinding

This complex type represents a binding to a CubeAttribute.

```

<xsd:complexType name="CubeAttributeBinding" >
  <xsd:complexContent>
    <xsd:extension base="Binding" >
      <xsd:all>
        <xsd:element name="CubeID" type="xsd:string"/>
        <xsd:element name="CubeDimensionID" type="xsd:string"/>
        <xsd:element name="AttributeID" type="xsd:string"/>
        <xsd:element name="Type" >
          <xsd:simpleType>
            <xsd:restriction base="xsd:string" >
              <xsd:enumeration value="All" />
              <xsd:enumeration value="Key" />
              <xsd:enumeration value="Name" />
              <xsd:enumeration value="Value" />
              <xsd:enumeration value="Translation" />
              <xsd:enumeration value="UnaryOperator" />
              <xsd:enumeration value="SkippedLevels" />
              <xsd:enumeration value="CustomRollup" />
              <xsd:enumeration value="CustomRollupProperties" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
        <xsd:element name="Ordinal" minOccurs="0">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Ordinal" type="xsd:integer"
                minOccurs="0" maxOccurs="unbounded"/>
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

```

Element	Read-Only	Default	Description
CubeID		[Required]	The ID of the Cube.
CubeDimensionID		[Required]	The ID of the CubeDimension.
AttributeID		[Required]	The ID of the CubeAttribute.
Type		[Required]	Indicates the part of the Attribute to bind to. For more information about the enumeration values, see AttributeBinding .
Ordinal		Zero	When the binding is to a collection of objects, the ordinal indicates the ordinal number within that collection to bind to. (Applies to KeyColumns and Translations.)

2.2.4.2.2.20.8 DimensionBinding

This complex type represents a binding to a dimension.

```

<xsd:complexType name="DimensionBinding" >
  <xsd:complexContent>
    <xsd:extension base="Binding">
      <xsd:all>
        <xsd:element name="DataSourceID" type="xsd:string"/>
        <xsd:element name="DimensionID" type="xsd:string"/>
        <xsd:element name="Persistence" minOccurs="0">
          <xsd:simpleType>
            <xsd:restriction base="xsd:string" >
              <xsd:enumeration value="NotPersisted" />
              <xsd:enumeration value="Metadata" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
        <xsd:element name="RefreshPolicy" minOccurs="0">
          <xsd:simpleType>
            <xsd:restriction base="xsd:string" >
              <xsd:enumeration value="ByQuery" />
              <xsd:enumeration value="ByInterval" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
        <xsd:element name="RefreshInterval" type="xsd:duration" minOccurs="0" />
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

```

Element	Read-Only	Default	Description
DataSourceID		[Required]	The ID of the DataSource.
DimensionID		[Required]	The ID of the Dimension.

Element	Read-Only	Default	Description
Persistence		"NotPersisted"	Determines which parts of the bound source data are dynamic and are checked for updates using the frequency that is specified by the RefreshPolicy element. Enumeration values are as follows: NotPersisted : Source metadata, members, and data are all dynamic. Metadata : Source metadata is static, but members and data are dynamic.
RefreshPolicy		"ByQuery"	Determines how often the dynamic part of the dimension or measure group (as specified by the Persistence element) is checked for changes. Enumeration values are as follows: ByQuery : Every query checks to see whether the source data has changed. ByInterval : Source data is checked for changes only at the interval that is specified by the RefreshInterval element.
RefreshInterval			Specifies the interval at which the dynamic part of the dimension or measure group is refreshed. The value - 10000000 is interpreted to mean infinite.

2.2.4.2.2.20.9 CubeDimensionBinding

This complex type represents a binding to a CubeDimension.

```
<xsd:complexType name="CubeDimensionBinding" >
  <xsd:complexContent>
    <xsd:extension base="Binding">
      <xsd:all>
        <xsd:element name="DataSourceID" type="xsd:dateTime"/>
        <xsd:element name="CubeID" type="xsd:dateTime"/>
        <xsd:element name="CubeDimensionID" type="xsd:string"/>
        <xsd:element name="Filter" type="xsd:string" minOccurs="0"/>
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>
```

Element	Read-Only	Default	Description
DataSourceID		[Required]	The ID of the DataSource.
CubeID		[Required]	The ID of the Cube.
CubeDimensionID		[Required]	The ID of the CubeDimension.
Filter		Empty	An MDX expression that specifies how to filter the source data.

2.2.4.2.2.20.10 MeasureGroupBinding

This complex type represents a binding to a MeasureGroup.

```
<xsd:complexType name="MeasureGroupBinding">
  <xsd:complexContent>
    <xsd:extension base="Binding">
      <xsd:all>
        <xsd:element name="DataSourceID" type="xsd:string"/>
        <xsd:element name="CubeID" type="xsd:string"/>
        <xsd:element name="MeasureGroupID" type="xsd:string"/>
        <xsd:element name="Persistence" minOccurs="0">
          <xsd:simpleType>
            <xsd:restriction base="xsd:string" >
              <xsd:enumeration value="NotPersisted" />
              <xsd:enumeration value="Metadata" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
        <xsd:element name="RefreshPolicy" minOccurs="0">
          <xsd:simpleType>
            <xsd:restriction base="xsd:string" >
              <xsd:enumeration value="ByQuery" />
              <xsd:enumeration value="ByInterval" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
        <xsd:element name="RefreshInterval" type="xsd:duration" minOccurs="0" />
        <xsd:element name="Filter" type="xsd:string" minOccurs="0"/>
      </xsd:all>
    </xsd:extension >
  </xsd:complexContent>
</xsd:complexType>
```

Element	Read-Only	Default	Description
DataSourceID		[Required]	The ID of the DataSource.
CubeID		[Required]	The ID of the Cube.
MeasureGroupID		[Required]	The ID of the MeasureGroup.
Persistence		"NotPersisted"	Determines which parts of the bound source data are dynamic and are checked for updates using the frequency that is specified by the RefreshPolicy element. Enumeration values are as follows: NotPersisted : Source metadata, members, and data are all dynamic. Metadata : Source metadata is static, but members and data are dynamic.
RefreshPolicy		Empty	Determines how often the dynamic part of the dimension or measure group (as specified by the Persistence element) is checked for changes. Enumeration values are as follows: ByQuery : Every query checks to see whether the source

Element	Read-Only	Default	Description
			data has changed. ByInterval: Source data is checked for changes only at the interval that is specified by the RefreshInterval element.
RefreshInterval		-10000000	A duration that specifies the interval at which the dynamic part of the dimension or measure group is refreshed. The value -10000000 is interpreted to mean infinite.
Filter		Empty	MDX expression that specifies how to filter the source data.

2.2.4.2.2.20.11 MeasureGroupDimensionBinding

This complex type represents a binding to a MeasureGroupDimension.

```
<xsd:complexType name="MeasureGroupDimensionBinding">
  <xsd:complexContent>
    <xsd:extension base="Binding">
      <xsd:all>
        <xsd:element name="CubeDimensionID" type="xsd:string"/>
      </xsd:all>
    </xsd:extension >
  </xsd:complexContent>
</xsd:complexType>
```

Element	Read-Only	Default	Description
CubeDimensionID		[Required]	The ID of the CubeDimension.

2.2.4.2.2.20.12 TimeBinding

This complex type represents a binding to a time calendar.

```
<xsd:complexType name="TimeBinding" >
  <xsd:complexContent>
    <xsd:extension base="Binding">
      <xsd:all>
        <xsd:element name="CalendarStartDate" type="xsd:dateTime"/>
        <xsd:element name="CalendarEndDate" type="xsd:dateTime"/>
        <xsd:element name="FirstDayOfWeek " minOccurs="0">
          <xsd:simpleType>
            <xsd:restriction base="xsd:integer">
              <xsd:minInclusive value="1" />
              <xsd:maxInclusive value="7" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
        <xsd:element name="CalendarLanguage" type="xsd:integer" minOccurs="0"/>
        <xsd:element name="FiscalFirstMonth" minOccurs="0">
          <xsd:simpleType>
```

```

        <xsd:restriction base="xsd:integer">
            <xsd:minInclusive value="1" />
            <xsd:maxInclusive value="12" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="FiscalFirstDayOfMonth" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:integer">
            <xsd:minInclusive value="1" />
            <xsd:maxInclusive value="31" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="FiscalYearName" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="CalendarYearName" />
            <xsd:enumeration value="NextCalendarYearName" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="ReportingFirstMonth" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:integer">
            <xsd:minInclusive value="1" />
            <xsd:maxInclusive value="12" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="ReportingFirstWeekOfMonth" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="1" />
            <xsd:enumeration value="2" />
            <xsd:enumeration value="3" />
            <xsd:enumeration value="4" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="ReportingWeekToMonthPattern" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="4-4-5" />
            <xsd:enumeration value="4-5-4" />
            <xsd:enumeration value="5-4-4" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="ManufacturingFirstMonth" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:integer">
            <xsd:minInclusive value="1" />
            <xsd:maxInclusive value="12" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name=" ManufacturingFirstWeekOfMonth" minOccurs="0">
    <xsd:simpleType>

```

```

    <xsd:restriction base="xsd:integer">
      <xsd:minInclusive value="1" />
      <xsd:maxInclusive value="4" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="ManufacturingExtraMonthQuarter" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:integer">
      <xsd:minInclusive value="1" />
      <xsd:maxInclusive value="4" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
</xsd:all>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>

```

Element	Read-Only	Default	Description
CalendarStartDate		[Required]	The start date of the calendar.
CalendarEndDate		[Required]	The end date of the calendar. The end date must be on or after the start date.
FirstDayOfWeek		1	The first day of the week. 1=Sunday 7=Saturday
CalendarLanguage		1033 (English-US)	This is the language in which the dimension member names will be created. This MUST be a language code identifier (LCID) code.
FiscalFirstMonth		1	First month of the fiscal calendar. 1=January 12=December
FiscalFirstDayOfMonth		1	First day of the fiscal calendar.
FiscalYearName		"NextCalendarYearName"	This enumeration value specifies how the name of the fiscal year is generated.
ReportingFirstMonth		1	First month of the reporting calendar. 1=January 12=December
ReportingFirstWeekOfMonth		1	First week of the reporting calendar.

Element	Read-Only	Default	Description
ReportingWeekToMonthPattern		"4-4-5"	Pattern by which to match weeks to months.
ManufacturingFirstMonth		1	First month of the manufacturing calendar. 1=January 12=December
ManufacturingFirstWeekOfMonth		1	First week of the manufacturing calendar.
ManufacturingExtraMonthQuarter		4	The quarter of a year that contains the extra month.

2.2.4.2.2.20.13 TimeAttributeBinding

This complex type represents a binding of a DimensionAttribute to a time calendar. It has no additional elements. It is used for the KeyColumns of Attributes in Dimensions that have a Source property with type TimeBinding.

```
<xsd:complexType name="TimeAttributeBinding" >
  <xsd:complexContent>
    <xsd:extension base="Binding" />
  </xsd:complexContent>
</xsd:complexType>
```

Element	Read-Only	Default	Description
(None.)			

2.2.4.2.2.20.14 InheritedBinding

This complex type represents a binding that is inherited from another object. InheritedBinding has no elements. It is used to indicate that a MeasureGroupAttribute inherits its bindings from the corresponding DimensionAttribute.

```
<xsd:complexType name="InheritedBinding">
  <xsd:complexContent>
    <xsd:extension base="Binding" />
  </xsd:complexContent>
</xsd:complexType>
```

Element	Read-Only	Default	Description
(None.)			

2.2.4.2.2.20.15 TabularBinding

This abstract complex type represents a binding to a tabular source of data.

```
<xsd:complexType name="TabularBinding" abstract="true" />
```

Element	Read-Only	Default	Description
(None.)			

2.2.4.2.2.20.16 TableBinding

This complex type represents a binding to a table.

```
<xsd:complexType name="TableBinding" >
  <xsd:complexContent>
    <xsd:extension base="TabularBinding">
      <xsd:all>
        <xsd:element name="DataSourceID" type="xsd:string" minOccurs="0"/>
        <xsd:element name="DbTableName" type="xsd:string"/>
        <xsd:element name="DbSchemaName" type="xsd:string" minOccurs="0"/>
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>
```

Element	Read-Only	Default	Description
DataSourceID		Empty	The ID of the DataSource.
DbTableName		[Required]	The name of the table.
DbSchemaName		Empty	The name of the schema.

2.2.4.2.2.20.17 QueryBinding

This complex type represents a binding to a query.

```
<xsd:complexType name="QueryBinding" >
  <xsd:complexContent>
    <xsd:extension base="TabularBinding">
      <xsd:all>
        <xsd:element name="DataSourceID" type="xsd:string" minOccurs="0"/>
        <xsd:element name="QueryDefinition" type="xsd:string"/>
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>
```

Element	Read-Only	Default	Description
DataSourceID		Empty	The ID of the DataSource.
QueryDefinition		[Required]	The text of the query.

2.2.4.2.2.20.18 DSVTableBinding

This complex type represents a binding to a table within a DataSourceView.

```
<xsd:complexType name="DSVTableBinding" >
  <xsd:complexContent>
    <xsd:extension base="TabularBinding">
      <xsd:all>
        <xsd:element name="DataSourceViewID" type="xsd:string" minOccurs="0"/>
        <xsd:element name="TableID" type="xsd:string"/>
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>
```

Element	Read-Only	Default	Description
DataSourceViewID		Empty	The ID of the DataSourceView.
TableID		[Required]	The ID of the table.

2.2.4.2.2.20.19 ProactiveCachingBinding

This abstract complex type represents a binding for proactive caching.

```
<xsd:complexType name="ProactiveCachingBinding" abstract="true" />
```

Element	Read-Only	Default	Description
(None.)			

2.2.4.2.2.20.20 ProactiveCachingObjectNotificationBinding

This abstract complex type represents an object notification binding for proactive caching.

The XSD does not show the elements for this class; instead the XSD of each derived class shows the elements. However, the elements that are common to all derived classes are shown in the table.

```
<xsd:complexType name="ProactiveCachingObjectNotificationBinding" abstract="true" />
```

Element	Read-Only	Default	Description
NotificationTechnique		"Client"	Specifies the notification technique to be used. Client: The client sends notifications by using the NotifyTableChange command. Server: The server listens for notifications from the data source.

2.2.4.2.2.20.21 ProactiveCachingInheritedBinding

This complex type represents an object notification binding for proactive caching. The XSD includes all elements in the base class and the derived class. The table includes only elements in this subclass that are in addition to elements in the base class.

```
<xsd:complexType name="ProactiveCachingInheritedBinding" >
  <xsd:complexContent>
    <xsd:extension base="ProactiveCachingObjectNotificationBinding">
      <xsd:all>
        <xsd:element name="NotificationTechnique" minOccurs="0">
          <xsd:simpleType>
            <xsd:restriction base="xsd:string" >
              <xsd:enumeration value="Client" />
              <xsd:enumeration value="Server" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>
```

The table shows only elements that are in addition to those in the base class.

Element	Read-Only	Default	Description
(None.)			

2.2.4.2.2.20.22 ProactiveCachingTablesBinding

This complex type represents a binding to a collection of table notifications for proactive caching. The XSD includes the entire class, including elements common with the base class. The table includes only elements in this subclass that are in addition to elements in the base class.

```
<xsd:complexType name="ProactiveCachingTablesBinding" >
  <xsd:complexContent>
    <xsd:extension base="ProactiveCachingObjectNotificationBinding">
      <xsd:all>
        <xsd:element name="NotificationTechnique" minOccurs="0">
          <xsd:simpleType>
            <xsd:restriction base="xsd:string" >
              <xsd:enumeration value="Client" />
              <xsd:enumeration value="Server" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
        <xsd:element name="TableNotifications" >
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="TableNotification" type="TableNotification"
                minOccurs="0" maxOccurs="unbounded"/>
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>
```

```

    </xsd:element>
  </xsd:all>
</xsd:extension>
</xsd:complexContent>
</xsd:complexType>

```

This table includes only elements that are in addition to elements in the base class.

Element	Read-Only	Default	Description
TableNotifications		Empty	Collection of objects of type TableNotification.

2.2.4.2.2.20.22.1 TableNotification

This complex type represents a table notification for proactive caching.

```

<xsd:complexType name="TableNotification">
  <xsd:all>
    <xsd:element name="DbTableName" type="xsd:string"/>
    <xsd:element name="DbSchemaName" type="xsd:string" minOccurs="0"/>
  </xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
DbTableName		[Required]	The name of the table.
DbSchemaName		Empty	The name of the schema.

2.2.4.2.2.20.23 ProactiveCachingQueryBinding

This complex type represents a binding to a collection of query notifications for proactive caching. The base type has no elements. Therefore, all elements are defined in the following XSD and table.

```

<xsd:complexType name="ProactiveCachingQueryBinding" >
  <xsd:complexContent>
    <xsd:extension base="ProactiveCachingBinding">
      <xsd:all>
        <xsd:element name="RefreshInterval" type="xsd:duration" />
        <xsd:element name="QueryNotifications" >
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="QueryNotification" type="QueryNotification"
                minOccurs="0" maxOccurs="unbounded"/>
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

```


Element	Read-Only	Default	Description
RefreshInterval		Infinite	The interval for running the queries.
QueryNotifications		[Required]	A collection of objects of type QueryNotification.

2.2.4.2.2.20.23.1 QueryNotification

This complex type represents a query notification for proactive caching.

```
<xsd:complexType name="QueryNotification">
  <xsd:all>
    <xsd:element name="Query" type="xsd:string"/>
  </xsd:all>
</xsd:complexType>
```

Element	Read-Only	Default	Description
Query		Empty	The query text.

2.2.4.2.2.20.24 ProactiveCachingIncrementalProcessingBinding

This complex type represents a binding to a collection of incremental processing notifications for proactive caching.

```
<xsd:complexType name="ProactiveCachingIncrementalProcessingBinding" >
  <xsd:complexContent>
    <xsd:extension base="ProactiveCachingBinding">
      <xsd:all>
        <xsd:element name="RefreshInterval" type="xsd:duration" minOccurs="0" />
        <xsd:element name="IncrementalProcessingNotifications" >
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="IncrementalProcessingNotification"
                type="IncrementalProcessingNotification"
                minOccurs="0" maxOccurs="unbounded"/>
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>
```

Element	Read-Only	Default	Description
RefreshInterval		Infinite	The interval for running the queries.
IncrementalProcessingNotifications		[Required]	A collection of objects of type IncrementalProcessingNotification.

2.2.4.2.2.20.24.1 IncrementalProcessingNotification

This complex type represents an incremental processing notification for proactive caching.

```
<xsd:complexType name="IncrementalProcessingNotification">
  <xsd:all>
    <xsd:element name="TableID" type="xsd:string" minOccurs="0" />
    <xsd:element name="ProcessingQuery" type="xsd:string" />
  </xsd:all>
</xsd:complexType>
```

Element	Read-Only	Default	Description
TableID		[Required]	The ID of the table in the DataSourceView.
ProcessingQuery		[Required]	The processing query text.

2.2.4.2.2.20.25 eng200_200:RowNumberBinding

This complex type represents a binding to the row number of the source table. [<29>](#)

The RowNumberBinding complex type is not defined in the default namespace. It is defined in the eng200_200: namespace.

```
<xsd:complexType name="RowNumberBinding" >
  <xsd:complexContent>
    <xsd:extension base="Binding" />
  </xsd:complexContent>
</xsd:complexType>
```

Element	Read-Only	Default	Description
(None.)			

2.2.4.2.2.20.26 CalculatedMeasureBinding

This complex type represents a binding to a calculated measure.

```
<xsd:complexType name="CalculatedMeasureBinding" >
  <xsd:complexContent>
    <xsd:extension base="Binding">
      <xsd:all>
        <xsd:element name="MeasureName" type="xsd:string" />
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>
```

Element	Read-Only	Default	Description
MeasureName		[Required]	The name of the calculated measure.

2.2.4.2.2.20.27 eng200_200:ExpressionBinding

This complex type represents a binding to a calculation expression.

```
<xsd:complexType name="ExpressionBinding">
  <xsd:complexContent>
    <xsd:extension base="Binding">
      <xsd:all>
        <xsd:element name="Expression" type="xsd:string" />
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>
```

Element	Read-Only	Default	Description
Expression		[Required]	The expression text.

2.2.4.2.2.21 Permission

This complex type represents a set of permissions assigned to a Role.

```
<xsd:complexType name="Permission">
  <xsd:complexContent>
    <xsd:extension base="MajorObject">
      <xsd:all>
        <!--These elements are common to each MajorObject-->
        <xsd:element name="Name" type="xsd:string" />
        <xsd:element name="ID" type="xsd:string" minOccurs="0" />
        <xsd:element name="CreatedTimestamp" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="LastSchemaUpdate" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="Description" type="xsd:string" minOccurs="0" />
        <xsd:element name="Annotation" minOccurs="0" >
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Annotation" type="Annotation"
                minOccurs="0" maxOccurs="unbounded" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <!--Extended elements for Permission object-->
        <xsd:element name="RoleID" type="xsd:string"/>
        <xsd:element name="Process" type="xsd:boolean" minOccurs="0"/>
        <xsd:element name="ReadDefinition" minOccurs="0">
          <xsd:simpleType>
            <xsd:restriction base="xsd:string" >
              <xsd:enumeration value="None" />
              <xsd:enumeration value="Basic" />
              <xsd:enumeration value="Allowed" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
        <xsd:element name="Read" minOccurs="0">
          <xsd:simpleType>
            <xsd:restriction base="xsd:string" >
```

```

        <xsd:enumeration value="None" />
        <xsd:enumeration value="Allowed" />
    </xsd:restriction>
</xsd:simpleType>
</xsd:element>
<xsd:element name="Write" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="None" />
            <xsd:enumeration value="Allowed" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
</xsd:all>
</xsd:extension >
</xsd:complexContent>
</xsd:complexType>

```

Also included in the Permission object are all elements from [MajorObject](#).

Element	Read-Only	Default	Description
RoleID		[Required]	The ID of the Role for which permissions are being defined.
Process		False	A Boolean that specifies whether the role has permission to process the object.
ReadDefinition		"None" for all objects (except Dimension) where default is value of Read property	A string that specifies whether the role has permission to read the XML definition of the object or any of its contained objects using DISCOVER XML METADATA . "None" implies no access to object definition. "Basic" implies limited access to object definition. "Allowed" implies full access to object definition.
Read		"None"	A string that specifies whether the role has permission to read metadata or data from the object or any of its contained objects.
Write		"None"	A string that specifies whether the role has permission to write to the object or any of its contained objects. Database permission cannot have Write="Allowed". Write cannot be set to "Allowed" unless Read is also set to "Allowed".

2.2.4.2.2.21.1 CubeDimensionPermission

This complex type represents permissions for a CubeDimension.

```

<xsd:complexType name="CubeDimensionPermission">
  <xsd:all>
    <xsd:element name="CubeDimensionID" type="xsd:string"/>
    <xsd:element name="Description" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Read" minOccurs="0">

```

```

<xsd:simpleType>
  <xsd:restriction base="xsd:string" >
    <xsd:enumeration value="None" />
    <xsd:enumeration value="Allowed" />
  </xsd:restriction>
</xsd:simpleType>
</xsd:element>
<xsd:element name="Write" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string" >
      <xsd:enumeration value="None" />
      <xsd:enumeration value="Allowed" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="AttributePermissions" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="AttributePermission" type="AttributePermission"
        minOccurs="0" maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="Annotations" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Annotation" type="Annotation"
        minOccurs="0" maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
CubeDimensionID		[Required]	The ID of the CubeDimension. For the Measures dimension, this string MUST be set to "Measures".
Description		Empty	The object description.
Read		"Allowed"	Specifies whether the role has permission to read metadata or data from the CubeDimension.
Write		"None"	Specifies whether the role has permission to write to the CubeDimension.
AttributePermissions		Empty	A collection of AttributePermission objects.
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.21.2 AttributePermission

This complex type represents permissions for a DimensionAttribute.

```
<xsd:complexType name="AttributePermission">
```

```

<xsd:all>
  <xsd:element name="AttributeID" type="xsd:string"/>
  <xsd:element name="Description" type="xsd:string" minOccurs="0"/>
  <xsd:element name="DefaultMember" type="xsd:string" minOccurs="0"/>
  <xsd:element name="VisualTotals" type="xsd:string" minOccurs="0"/>
  <xsd:element name="AllowedSet" type="xsd:string" minOccurs="0"/>
  <xsd:element name="DeniedSet" type="xsd:string" minOccurs="0"/>
  <xsd:element name="Annotation" minOccurs="0">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="Annotation" type="Annotation" minOccurs="0"
          maxOccurs="unbounded"/>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
</xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
AttributeID		[Required]	The ID of the attribute. "Measures" string MUST be used to indicate Measures dimension.
Description		Empty	The object description.
DefaultMember		Empty	An MDX expression that returns the default member for the attribute.
VisualTotals		Zero	An MDX expression that returns a Boolean that specifies whether MDX queries should return visual totals for the attribute.
AllowedSet		Empty	An MDX set expression that specifies the set of allowed members for the attribute.
DeniedSet		Empty	An MDX set expression that defines the set of denied members for the attribute.
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.1.3 CellPermission

This complex type represents permissions for the cells in a Cube.

A maximum of three CellPermission objects may exist within a CellPermissions collection, one each for the Read, ReadContingent, and ReadWrite values of the Access element.

```

<xsd:complexType name="CellPermission">
  <xsd:all>
    <xsd:element name="Access" >
      <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
          <xsd:enumeration value="Read" />
          <xsd:enumeration value="ReadContingent" />
          <xsd:enumeration value="ReadWrite" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>

```

```

    </xsd:simpleType>
  </xsd:element>
  <xsd:element name="Description" type="xsd:string" minOccurs="0"/>
  <xsd:element name="Expression" type="xsd:string" minOccurs="0"/>
  <xsd:element name="Annotations" minOccurs="0">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="Annotation" type="Annotation" minOccurs="0"
          maxOccurs="unbounded"/>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
</xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
Access		"Read"	An enumeration value that indicates the type of access being granted.
Description		Empty	The object description.
Expression		Empty	An MDX expression that returns a Boolean.
Annotations		Empty	A collection of Annotation objects.

2.2.4.2.2.22 DatabasePermission

This complex type represents permissions for a Database.

```

<xsd:complexType name="DatabasePermission">
  <xsd:complexContent>
    <xsd:extension base="Permission">
      <xsd:all>
        <!--These elements are common to Permission-->
        <xsd:element name="Name" type="xsd:string" />
        <xsd:element name="ID" type="xsd:string" minOccurs="0" />
        <xsd:element name="CreatedTimestamp" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="LastSchemaUpdate" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="Description" type="xsd:string" minOccurs="0" />
        <xsd:element name="Annotation" minOccurs="0" >
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Annotation" type="Annotation"
                minOccurs="0" maxOccurs="unbounded" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <xsd:element name="RoleID" type="xsd:string"/>
        <xsd:element name="Process" type="xsd:boolean" minOccurs="0"/>
        <xsd:element name="ReadDefinition" minOccurs="0">
          <xsd:simpleType>
            <xsd:restriction base="xsd:string" >
              <xsd:enumeration value="None" />
              <xsd:enumeration value="Basic" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

```

```

        <xsd:enumeration value="Allowed" />
    </xsd:restriction>
</xsd:simpleType>
</xsd:element>
<xsd:element name="Read" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="None" />
            <xsd:enumeration value="Allowed" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="Write" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="None" />
            <xsd:enumeration value="Allowed" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<!--Extended elements for DatabasePermission object-->
<xsd:element name="Administer" type="xsd:boolean" minOccurs="0"/>
</xsd:all>
</xsd:extension >
</xsd:complexContent>
</xsd:complexType>

```

The following table shows only the additional elements that are not contained in the Permission object.

Element	Read-Only	Default	Description
Administer		False	A Boolean that specifies whether the Role has permission to administer the Database.

2.2.4.2.2.23 DataSourcePermission

This complex type represents permissions for a DataSource.

```

<xsd:complexType name="DataSourcePermission">
    <xsd:complexContent>
        <xsd:extension base="Permission">
            <xsd:all>
                <!--These elements are common to Permission-->
                <xsd:element name="Name" type="xsd:string" />
                <xsd:element name="ID" type="xsd:string" minOccurs="0" />
                <xsd:element name="CreatedTimestamp" type="xsd:dateTime" minOccurs="0" />
                <xsd:element name="LastSchemaUpdate" type="xsd:dateTime" minOccurs="0" />
                <xsd:element name="Description" type="xsd:string" minOccurs="0" />
                <xsd:element name="Annotation" minOccurs="0" />
            </xsd:all>
            <xsd:complexType>
                <xsd:sequence>
                    <xsd:element name="Annotation" type="Annotation"
                        minOccurs="0" maxOccurs="unbounded" />
                </xsd:sequence>
            </xsd:complexType>
        </xsd:extension>
    </xsd:complexContent>
</xsd:complexType>

```



```

        </xsd:sequence>
    </xsd:complexType>
</xsd:element>
<xsd:element name="RoleID" type="xsd:string"/>
<xsd:element name="Process" type="xsd:boolean" minOccurs="0"/>
<xsd:element name="ReadDefinition" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="None" />
            <xsd:enumeration value="Basic" />
            <xsd:enumeration value="Allowed" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="Read" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="None" />
            <xsd:enumeration value="Allowed" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="Write" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="None" />
            <xsd:enumeration value="Allowed" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<!--Extended elements for DataSourcePermission object-->
<!--(No additional elements)-->
</xsd:all>
</xsd:extension >
</xsd:complexContent>
</xsd:complexType>

```

DataSourcePermission has no elements that are additional to those that are contained in the Permission object.

Element	Read-Only	Default	Description
(No additional elements)			

2.2.4.2.2.24 DimensionPermission

This complex type represents permissions for a Dimension.

```

<xsd:complexType name="DimensionPermission">
    <xsd:complexContent>
        <xsd:extension base="Permission">
            <xsd:all>
                <!--These elements are common to Permission-->
                <xsd:element name="Name" type="xsd:string" />
                <xsd:element name="ID" type="xsd:string" minOccurs="0" />
            </xsd:all>
        </xsd:extension>
    </xsd:complexContent>
</xsd:complexType>

```

```

<xsd:element name="CreatedTimestamp" type="xsd:dateTime" minOccurs="0" />
<xsd:element name="LastSchemaUpdate" type="xsd:dateTime" minOccurs="0" />
<xsd:element name="Description" type="xsd:string" minOccurs="0" />
<xsd:element name="Annotation" minOccurs="0" >
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Annotation" type="Annotation" minOccurs="0"
        maxOccurs="unbounded" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
<xsd:element name="RoleID" type="xsd:string"/>
<xsd:element name="Process" type="xsd:boolean" minOccurs="0"/>
<xsd:element name="ReadDefinition" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string" >
      <xsd:enumeration value="None" />
      <xsd:enumeration value="Basic" />
      <xsd:enumeration value="Allowed" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="Read" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string" >
      <xsd:enumeration value="None" />
      <xsd:enumeration value="Allowed" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="Write" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string" >
      <xsd:enumeration value="None" />
      <xsd:enumeration value="Allowed" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<!--Extended elements for DimensionPermission object-->
<xsd:element name="AttributePermissions" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="AttributePermission" type="AttributePermission"
        minOccurs="0" maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:extension >
</xsd:complexContent>
</xsd:complexType>

```

The following table shows only the additional elements in DimensionPermission that are not contained in [Permission](#).

Element	Read-Only	Default	Description
AttributePermissions		Empty	A collection of AttributePermission objects.

In DimensionPermission, the default for the Read element differs from the default for the Read element in the base Permission class. In DimensionPermission, the default for the Read element is "Allowed".

2.2.4.2.2.25 MiningStructurePermission

This complex type represents permissions for a MiningStructure.

```

<xsd:complexType name="MiningStructurePermission">
  <xsd:complexContent>
    <xsd:extension base="Permission">
      <xsd:all>
        <!--These elements are common to Permission-->
        <xsd:element name="Name" type="xsd:string" />
        <xsd:element name="ID" type="xsd:string" minOccurs="0" />
        <xsd:element name="CreatedTimestamp" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="LastSchemaUpdate" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="Description" type="xsd:string" minOccurs="0" />
        <xsd:element name="Annotations" minOccurs="0">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Annotation" type="Annotation" minOccurs="0"
                maxOccurs="unbounded" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <xsd:element name="RoleID" type="xsd:string"/>
        <xsd:element name="Process" type="xsd:boolean" minOccurs="0"/>
        <xsd:element name="ReadDefinition" minOccurs="0">
          <xsd:simpleType>
            <xsd:restriction base="xsd:string" >
              <xsd:enumeration value="None" />
              <xsd:enumeration value="Basic" />
              <xsd:enumeration value="Allowed" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
        <xsd:element name="Read" minOccurs="0">
          <xsd:simpleType>
            <xsd:restriction base="xsd:string" >
              <xsd:enumeration value="None" />
              <xsd:enumeration value="Allowed" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
        <xsd:element name="Write" minOccurs="0">
          <xsd:simpleType>
            <xsd:restriction base="xsd:string" >
              <xsd:enumeration value="None" />
              <xsd:enumeration value="Allowed" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

```

```

    </xsd:element>
    <!--Extended elements for MiningStructurePermission object-->
    <xsd:element name="AllowDrillThrough" type="xsd:boolean" minOccurs="0"/>
  </xsd:all>
</xsd:extension >
</xsd:complexContent>
</xsd:complexType>

```

There are no additional elements in this object; it is identical to the [Permission](#) object.

Element	Read-Only	Default	Description
(No additional elements)			

2.2.4.2.2.26 MiningModelPermission

This complex type represents permissions for a MiningModel.

```

<xsd:complexType name="MiningModelPermission">
  <xsd:complexContent>
    <xsd:extension base="Permission">
      <xsd:all>
        <!--These elements are common to Permission-->
        <xsd:element name="Name" type="xsd:string" />
        <xsd:element name="ID" type="xsd:string" minOccurs="0" />
        <xsd:element name="CreatedTimestamp" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="LastSchemaUpdate" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="Description" type="xsd:string" minOccurs="0" />
        <xsd:element name="Annotation" minOccurs="0" >
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Annotation" type="Annotation" minOccurs="0"
                maxOccurs="unbounded" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <xsd:element name="RoleID" type="xsd:string"/>
        <xsd:element name="Process" type="xsd:boolean" minOccurs="0"/>
        <xsd:element name="ReadDefinition" minOccurs="0">
          <xsd:simpleType>
            <xsd:restriction base="xsd:string" >
              <xsd:enumeration value="None" />
              <xsd:enumeration value="Basic" />
              <xsd:enumeration value="Allowed" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
        <xsd:element name="Read" minOccurs="0">
          <xsd:simpleType>
            <xsd:restriction base="xsd:string" >
              <xsd:enumeration value="None" />
              <xsd:enumeration value="Allowed" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

```

```

<xsd:element name="Write" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string" >
      <xsd:enumeration value="None" />
      <xsd:enumeration value="Allowed" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<!--Extended elements for MiningModelPermission object-->
<xsd:element name="AllowDrillThrough" type="xsd:boolean" minOccurs="0"/>
<xsd:element name="AllowBrowsing" type="xsd:boolean" minOccurs="0"/>
</xsd:all>
</xsd:extension >
</xsd:complexContent>
</xsd:complexType>

```

The following table shows only the additional elements that are not contained in [Permission](#).

Element	Read-Only	Default	Description
AllowDrillThrough		False	A Boolean that indicates whether drillthrough is allowed on the MiningModel.
AllowBrowsing		True	A Boolean that indicates whether browsing is allowed on the object.

2.2.4.2.2.27 CubePermission

This complex type represents permissions for a Cube.

```

<xsd:complexType name="CubePermission">
  <xsd:complexContent>
    <xsd:extension base="Permission">
      <xsd:all>
        <!--These elements are common to Permission-->
        <xsd:element name="Name" type="xsd:string" />
        <xsd:element name="ID" type="xsd:string" minOccurs="0" />
        <xsd:element name="CreatedTimestamp" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="LastSchemaUpdate" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="Description" type="xsd:string" minOccurs="0" />
        <xsd:element name="Annotation" minOccurs="0" >
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Annotation" type="Annotation"
                minOccurs="0" maxOccurs="unbounded" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <xsd:element name="RoleID" type="xsd:string"/>
        <xsd:element name="Process" type="xsd:boolean" minOccurs="0"/>
        <xsd:element name="ReadDefinition" minOccurs="0">
          <xsd:simpleType>
            <xsd:restriction base="xsd:string" >
              <xsd:enumeration value="None" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

```

```

        <xsd:enumeration value="Basic" />
        <xsd:enumeration value="Allowed" />
    </xsd:restriction>
</xsd:simpleType>
</xsd:element>
<xsd:element name="Read" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="None" />
            <xsd:enumeration value="Allowed" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="Write" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="None" />
            <xsd:enumeration value="Allowed" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<!--Extended elements for CubePermission object-->
<xsd:element name="ReadSourceData" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="None" />
            <xsd:enumeration value="Allowed" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="DimensionPermissions" minOccurs="0">
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element name="DimensionPermission"
                type="CubeDimensionPermission"
                minOccurs="0" maxOccurs="unbounded"/>
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>
<xsd:element name="CellPermissions" minOccurs="0" >
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element name="CellPermission" type="CellPermission"
                minOccurs="0" maxOccurs="3"/>
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:extension >
</xsd:complexContent>
</xsd:complexType>

```

CubePermission inherits from [Permission](#). The following table shows only the elements that are in addition to those contained in Permission.

Element	Read-Only	Default	Description
ReadSourceData		"None"	Specifies whether the role has permission to read the underlying source data in the Cube.
DimensionPermissions		Inherited from DimensionPermissions on Dimension.	A collection of CubeDimensionPermission objects.
CellPermissions			A collection of CellPermission objects.

2.2.4.2.2.28 Role

This complex type represents a role for which permissions MAY be assigned.

```

<xsd:complexType name="Role">
  <xsd:complexContent>
    <xsd:extension base="MajorObject">
      <xsd:all>
        <!--These elements are common to each MajorObject-->
        <xsd:element name="Name" type="xsd:string" />
        <xsd:element name="ID" type="xsd:string" minOccurs="0" />
        <xsd:element name="CreatedTimestamp" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="LastSchemaUpdate" type="xsd:dateTime" minOccurs="0" />
        <xsd:element name="Description" type="xsd:string" minOccurs="0" />
        <xsd:element name="Annotation" minOccurs="0">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Annotation" type="Annotation"
                minOccurs="0" maxOccurs="unbounded" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <!--Extended elements for Role object-->
        <xsd:element name="Members" minOccurs="0">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Member" type="Members" minOccurs="0"
                maxOccurs="unbounded" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

```

Also included in the Role object are all elements from [MajorObject](#).

Element	Read-Only	Default	Description
Members		Empty	A collection of Member objects.

2.2.4.2.2.28.1 Member

This complex type represents a member in a role.

```
<xsd:complexType name="Member">
  <xsd:all>
    <xsd:element name="Name" minOccurs="0" type="xsd:string"/>
    <xsd:element name="Sid" minOccurs="0" type="xsd:string"/>
  </xsd:all>
</xsd:complexType>
```

Element	Read-Only	Default	Description
Name		Empty	The name of the user.
Sid		Empty	The SID of the user.

2.2.4.2.2.29 ProactiveCaching

This complex type represents proactive caching settings for an object.

```
<xsd:complexType name="ProactiveCaching">
  <xsd:all>
    <xsd:element name="OnlineMode" minOccurs="0">
      <xsd:simpleType>
        <xsd:restriction base="xsd:string">
          <xsd:enumeration value="Immediate" />
          <xsd:enumeration value="OnCacheComplete" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="AggregationStorage" minOccurs="0">
      <xsd:simpleType>
        <xsd:restriction base="xsd:string">
          <xsd:enumeration value="Regular" />
          <xsd:enumeration value="MolapOnly" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="Source" type="ProactiveCachingBinding" minOccurs="0" />
    <xsd:element name="SilenceInterval" type="xsd:duration" minOccurs="0" />
    <xsd:element name="Latency" type="xsd:duration" minOccurs="0" />
    <xsd:element name="SilenceOverrideInterval" type="xsd:duration"
      minOccurs="0" />
    <xsd:element name="ForceRebuildInterval" type="xsd:duration" minOccurs="0" />
    <xsd:element name="Enabled" type="xsd:boolean" minOccurs="0"/>
  </xsd:all>
</xsd:complexType>
```

Element	Read-Only	Default	Description
OnlineMode		"Immediate"	A string that specifies whether the dimension/partition is brought back online

Element	Read-Only	Default	Description
			immediately when the rebuilding of the cache is initiated or only when the rebuilding of the cache is complete.
AggregationStorage		"Regular"	A string that specifies the storage method for aggregations. Only applies to partitions. On dimension, it MUST be "Regular".
Source		"ProactiveCachingInheritedBinding"	The binding of the proactive caching. This regulates the notification mechanisms as well as the processing options.
SilenceInterval		"Infinite"	The minimum amount of quiet time (in milliseconds) that occurs before the cache rebuild starts.
Latency		"Infinite"	The grace period between the earliest notification and the moment when the current cache is dropped.
SilenceOverrideInterval		"Infinite"	The amount of time that elapses after an initial notification after which the cache rebuild begins unconditionally.
ForceRebuildInterval		"Infinite"	The amount of time that elapses after a cache becomes available after which the cache rebuild begins unconditionally.
Enabled		False	A Boolean that specifies whether proactive caching is enabled.

2.2.4.2.2.30 ErrorConfiguration

This complex type represents error configuration settings to deal with issues in the source data.

```

<xsd:complexType name="ErrorConfiguration">
  <xsd:all>
    <xsd:element name="KeyErrorLimit" type="xsd:long" minOccurs="0"/>
    <xsd:element name="KeyErrorLogFile" type="xsd:string" minOccurs="0"/>
    <xsd:element name="KeyErrorAction" minOccurs="0">
      <xsd:simpleType>
        <xsd:restriction base="xsd:string">
          <xsd:enumeration value="ConvertToUnknown" />
          <xsd:enumeration value="DiscardRecord" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
  </xsd:all>
</complexType>

```

```

    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="KeyErrorLimitAction" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="StopProcessing" />
      <xsd:enumeration value="StopLogging" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="KeyNotFound" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="IgnoreError" />
      <xsd:enumeration value="ReportAndContinue" />
      <xsd:enumeration value="ReportAndStop" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="KeyDuplicate" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="IgnoreError" />
      <xsd:enumeration value="ReportAndContinue" />
      <xsd:enumeration value="ReportAndStop" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="NullKeyConvertedToUnknown" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="IgnoreError" />
      <xsd:enumeration value="ReportAndContinue" />
      <xsd:enumeration value="ReportAndStop" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="NullKeyNotAllowed" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string">
      <xsd:enumeration value="IgnoreError" />
      <xsd:enumeration value="ReportAndContinue" />
      <xsd:enumeration value="ReportAndStop" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
</xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
KeyErrorLimit		Zero	The number of key errors after which processing will fail.
KeyErrorLogFile		Empty	The file path for logging key errors.

Element	Read-Only	Default	Description
KeyErrorAction		"ConvertToUnknown"	Action to take upon encountering a key error.
KeyErrorLimitAction		"StopProcessing"	Action to take upon encountering a key error limit.
KeyNotFound		"ReportAndContinue"	Action to take upon encountering a "Key not found" error.
KeyDuplicate		"IgnoreError"	Action to take upon encountering a key duplicate error.
NullKeyConvertedToUnknown		"IgnoreError"	Action to take if a null key is converted to Unknown.
NullKeyNotAllowed		"ReportAndContinue"	Action to take if a null key is encountered and not allowed.

2.2.4.2.2.31 ImpersonationInfo

This complex type represents impersonation settings for an object or operation.

```

<xsd:complexType name="ImpersonationInfo">
  <xsd:all>
    <xsd:element name="ImpersonationMode" >
      <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
          <xsd:enumeration value="Default" />
          <xsd:enumeration value="ImpersonateServiceAccount" />
          <xsd:enumeration value="ImpersonateAnonymous" />
          <xsd:enumeration value="ImpersonateCurrentUser" />
          <xsd:enumeration value="ImpersonateAccount" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="Account" type="xsd:string" minOccurs="0"/>
    <xsd:element name="Password" type="xsd:string" minOccurs="0"/>
    <xsd:element name="ImpersonationInfoSecurity" minOccurs="0">
      <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
          <xsd:enumeration value="PasswordRemoved" />
          <xsd:enumeration value="Unchanged" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
ImpersonationMode		[Required]	A string that specifies the credentials to use for impersonation. The enumeration values are as

Element	Read-Only	Default	Description
			<p>follows:</p> <p>Default: The server uses the impersonation method that it deems to be appropriate for the context in which impersonation is used.</p> <p>ImpersonateServiceAccount: Use the user account that the server is running as.</p> <p>ImpersonateAnonymous: Use the anonymous user account.</p> <p>ImpersonateCurrentUser: Use the user account that the client is connecting as.</p> <p>ImpersonateAccount: Use the specified user account.<30></p>
Account		Empty	User account to impersonate when ImpersonationMode=ImpersonateAccount.
Password		Empty	Password of user account when ImpersonationMode=ImpersonateAccount.
ImpersonationInfoSecurity	Read-only		Specifies whether the password was removed.

2.2.4.3 TraceDefinition Complex Types

The specific trace events and columns that are supported by SQL Server Analysis Services can be seen in the Examples section. See sections [4.10](#), [4.11](#), and [4.12](#).

2.2.4.3.1 Trace_Definition_ProviderInfo

This complex type contains basic information about the server/trace provider.

```

<xsd:complexType name="Trace_Definition_ProviderInfo" >
  <xsd:sequence>
    <xsd:element name="Data" >
      <xsd:complexType>
        <xsd:all>
          <xsd:element name="Name" type="xsd:string" />
          <xsd:element name="Version" >
            <xsd:complexType>
              <xsd:all>
                <xsd:element name="Major" type="xsd:string" minOccurs="0" />
                <xsd:element name="Minor" type="xsd:string" minOccurs="0" />
                <xsd:element name="BuildNumber" type="xsd:string" minOccurs="0" />
              </xsd:all>
            </xsd:complexType>
          </xsd:element>
          <xsd:element name="Type" type="xsd:string" minOccurs="0" />
          <xsd:element name="Description" type="xsd:string" minOccurs="0" />
        </xsd:all>
      </xsd:complexType>
    </xsd:element>
  </xsd:sequence>

```

```
</xsd:complexType>
```

Element	Read-Only	Default	Description
Data	Yes	[Required]	This serves as the root element for the XML that it encloses.
Name	Yes	[Required]	Name of the server.
Version	Yes	Empty	A complex type consisting of three separate elements to identify a major version, a minor version, and a build number.
Type	Yes	Empty	Type of the server.
Description	Yes	Empty	Description of the server.

2.2.4.3.2 Trace_Event_Categories

This complex type contains information about the trace events that are available from the server.

```
<xsd:complexType name="Trace_Event_Categories" >
  <xsd:sequence>
    <xsd:element name="Data" >
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="EventCategory" >
            <xsd:complexType>
              <xsd:all>
                <xsd:element name="Name" type="xsd:string" />
                <xsd:element name="Type" type="xsd:string" minOccurs="0" />
                <xsd:element name="Description" type="xsd:string" minOccurs="0" />
                <xsd:element name="EventList" >
                  <xsd:complexType>
                    <xsd:sequence>
                      <xsd:element name="Event" type="TraceEvent" minOccurs="0"
                        maxOccurs="unbounded" />
                    </xsd:sequence>
                  </xsd:complexType>
                </xsd:element>
              </xsd:all>
            </xsd:complexType>
          </xsd:element>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:sequence>
</xsd:complexType>
```

Element	Read-Only	Default	Description
Data	Yes	[Required]	This serves as the root element for the XML that it encloses.
EventCategory	Yes	[Required]	This element encloses the information about each event category.

Element	Read-Only	Default	Description
Name	Yes	[Required]	Name of the event category.
Type	Yes	Empty	An integer indicating the type of event category. The enumeration values are as follows: 0=Normal 1=Significant 2=Error
Description	Yes	Empty	Description of the event category.
EventList	Yes	[Required]	A collection of elements of type TraceEvent for each event that belongs to this EventCategory.

2.2.4.3.2.1 TraceEvent

This complex type represents a single trace event.

```
<xsd:complexType name="TraceEvent" >
  <xsd:all>
    <xsd:element name="ID" type="xsd:integer" />
    <xsd:element name="Name" type="xsd:string" minOccurs="0" />
    <xsd:element name="Description" type="xsd:string" minOccurs="0" />
    <xsd:element name="EventColumnList" >
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="EventColumn" type="EventColumn" minOccurs="0"
            maxOccurs="unbounded" />
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>
```

Element	Read-Only	Default	Description
ID	Yes	[Required]	The ID of the event.
Name	Yes	Empty	The name of the event.
Description	Yes	Empty	A string containing the event description.
EventColumnList	Yes	[Required]	A collection of elements of type EventColumn for each column in this Event.

2.2.4.3.2.1.1 EventColumn

This complex type represents a single trace event column.

```
<xsd:complexType name="EventColumn" >
  <xsd:all>
```

```

<xsd:element name="ID" type="xsd:integer" />
<xsd:element name="EventColumnSubclassList" minOccurs="0">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="EventColumnSubclass" minOccurs="0"
        maxOccurs="unbounded" >
        <xsd:complexType>
          <xsd:all>
            <xsd:element name="ID" type="xsd:integer" />
            <xsd:element name="name" type="xsd:integer" />
          </xsd:all>
        </xsd:complexType>
      </xsd:element>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:complexType>

```

Element	Read-Only	Default	Description
ID	Yes	[Required]	The ID of the event column.
EventColumnSubclassList	Yes	Empty	A collection of EventColumnSubclass elements for each subclass that this event column has.

2.2.4.3.3 Trace_Columns

This complex type contains information about the trace columns that are available from the server. Every TraceEvent may use one or more of these columns.

```

<xsd:complexType name="Trace_Columns" >
  <xsd:sequence>
    <xsd:element name="Data">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Column" >
            <xsd:complexType>
              <xsd:all>
                <xsd:element name="ID" type="xsd:integer" />
                <xsd:element name="Type" type="xsd:integer" />
                <xsd:element name="Name" type="xsd:string" />
                <xsd:element name="Description" type="xsd:integer" minOccurs="0"/>
                <xsd:element name="Filterable" type="xsd:boolean" />
                <xsd:element name="Repeatable" type="xsd:boolean" />
                <xsd:element name="RepeatedBase" type="xsd:boolean" />
              </xsd:all>
            </xsd:complexType>
          </xsd:element>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:sequence>
</xsd:complexType>

```

Element	Read-Only	Default	Description
Data	Yes	[Required]	This serves as the root element for the XML that it encloses.
Column	Yes	[Required]	This element encloses the information about each trace column.
ID	Yes	[Required]	The ID of the column.
Type	Yes	[Required]	The type of the column.
Name			The name of the column.
Description			The description of the column.
Filterable			A Boolean that indicates whether the column may be used in a filtering operation.
Repeatable			A Boolean that indicates whether the server omits the value in this column if it is repeated from the value above it.
RepeatedBase			A Boolean that indicates whether this column is a repeated base for another column.

2.2.5 Simple Types

This specification does not define any common XML Schema **simple type** definitions.

2.2.6 Attributes

This specification does not define any common XML Schema attribute definitions.

2.2.7 Groups

This specification does not define any common XML Schema group definitions.

2.2.8 Attribute Groups

This specification does not define any common XML Schema attribute group definitions.

2.3 Transport-Specific Message Details

Unless otherwise specified, this protocol uses network byte order (big-endian) for all data.

2.3.1 TCP

When using TCP as the transport, the client and server MUST compose messages using DIME [\[DIME\]](#). A DIME message consists of one or more DIME records. Each DIME message MAY optionally be broken into smaller records. [<31>](#)

The following table describes the layout of a DIME record.

Field	Description
VERSION (5 bits)	Specifies the version of the DIME message.

Field	Description
MB (1 bit)	Specifies that this record is the first record of the message.
ME (1 bit)	Specifies that this record is the last record of the message.
CF (1 bit)	Specifies that the contents of the message have been broken into smaller records.
TYPE_T (4 bits)	Specifies the structure and format of the TYPE field.
RESERVED (4 bits)	The behavior of this field is undefined (must be set to 0).<32>
OPTIONS_LENGTH (16 bits)	Specifies the length (in bytes) of the OPTIONS field, excluding any necessary padding (up to 3 bytes). Padding consists of bytes that are inserted in a data stream to maintain alignment of the protocol requests on natural boundaries.
ID_LENGTH (16 bits)	Specifies the length (in bytes) of the ID field, excluding any necessary padding (up to 3 bytes).
TYPE_LENGTH (16 bits)	Specifies the length (in bytes) of the TYPE field, excluding any necessary padding (up to 3 bytes).
DATA_LENGTH (32 bits)	Specifies the length (in bytes) of the DATA field, excluding any necessary padding (up to 3 bytes).
OPTIONS	Contains any optional information used by a DIME parser
ID	Contains a uniform resource identifier (URI) for uniquely identifying a DIME payload with any additional padding. The length of this field is specified by ID_LENGTH. For more information, see [RFC2396] .
TYPE	Specifies the encoding for the record based on a type reference URI or a MIME media-type. The reference type is specified by TYPE_T, and the length of this field is specified by TYPE_LENGTH. For more information, see [RFC2396] .
DATA	Contains the actual data payload for the record. The format of the data depends on the TYPE specified for the record. The length of this field is specified by DATA_LENGTH.

The VERSION field (5 bits) is used to identify the internal version of DIME parser that is used by both parties. This value **MUST** be set to 1.

The MB field (1 bit) **MUST** be set to 1 for every DIME record that is beginning a new DIME message and **MUST** be set to 0 for all consecutive DIME records.

The ME field (1 bit) **MUST** be set to 1 for every DIME record that is a last record of every DIME message and **MUST** be set to 0 for all other DIME records.

The CF field (1 bit) **MUST** be set to 1 for every chunked DIME record except for the last record. Every chunked sequence is required to be encapsulated entirely within one DIME message and cannot span across multiple DIME messages. Therefore, a first or a middle record **MUST NOT** have the ME field value set to 1.

The TYPE_T field (4 bits) **MUST** be set to 1 for every DIME record that is beginning a new DIME message and **MUST** be set to 0 for all consecutive DIME records.

This protocol allows the optional use of binary XML [\[MS-BINXML\]](#) and compression that the client or server **MAY** apply on the SOAP request or response to reduce network latency. The content types that are supported are described in the following table.<33>

TYPE_LENGTH	TYPE	Description
8	text/xml	Data content is clear text XML.
14	application/sx	Data content is binary XML.
22	application/xml+xpress	Data content is compressed XML.
21	application/sx+xpress	Data content is compressed binary XML.

Because the support for binary XML and compression is optional, the client and server **MUST** negotiate the content type of the messages for the duration of the connection. This is done using flags in the OPTIONS field. The OPTIONS field consists of 4 bytes of which only the first byte is used. The last three bytes are reserved and **MUST** be set to zero. The following table describes the bits in the first byte in order from the least significant bit to the most significant bit.

Bit	Description
NEGO	Specifies whether message content type negotiation is complete.
REQ_SX	Specifies whether request from the client should or will be binary XML.
REQ_XPRESS	Specifies whether request from the client should or will be compressed.
RESP_SX	Specifies whether response from the server should or will be binary XML.
RESP_XPRESS	Specifies whether response from the server should or will be compressed.
RESERVED	Behavior is undefined (MUST be set to 0).
RESERVED	Behavior is undefined (MUST be set to 0).
RESERVED	Behavior is undefined (MUST be set to 0).

2.3.2 HTTP/HTTPS

When using HTTP/HTTPS as the transport, the client and server **MUST** set the HTTP headers that are described in the following table.

Field	Description
SOAPAction	Specifies SOAP action type "urn:schemas-microsoft-com:xml-analysis:Discover" for Discover requests or "urn:schemas-microsoft-com:xml-analysis:Execute" for Execute requests.
X-Transport-Caps-Negotiation-Flags	Used for content type negotiation. The value is a comma-separated list of five values that correspond to NEGO, REQ_SX, REQ_XPRESS, RESP_SX, and RESP_XPRESS.
Content-Type	Specifies the content type of the payload. The value is one of the following: "text/xml" "application/sx" "application/xml+xpress" "application/sx+xpress"

2.3.3 Encryption

When using TCP as the transport, the client and server MAY choose to encrypt or hash messages using [RFC2743](#). This is negotiated at the time of authentication after which the client and server can use GSS-API to determine whether encryption or hashing is enabled for the connection.

If encryption or hashing is being used, the message can be composed of one or more encryption data blocks. Each encryption data block has a layout as described in the following table.

Field	Description
DATA_SIZE (16 bit)	Specifies the size of the encrypted data. This field uses little-endian byte order.
TOKEN_SIZE (16 bit)	Specifies the size of the encryption token. This field uses little-endian byte order.
DATA	Encrypted data.
TOKEN	Encryption token.

Note An encryption data block can span multiple DIME records.

2.3.4 Compression

When using TCP or HTTP/HTTPS as the transport, the client and server MAY choose to compress messages. This is first negotiated when the connection is established.

If compression is being used, the message can be composed of one or more compression data blocks. Each compression data block has a layout as described in the following table.

Field	Description
ORIGINAL_SIZE (32 bit)	Specifies the original size of the data. This field uses little-endian byte order.
COMPRESSED_SIZE (32 bit)	Specifies the size of the data after compression. This field uses little-endian byte order.
DATA	Compressed data.
ORIGINAL_SIZE (32 bit)	Specifies the original size of the data. This field uses little-endian byte order.

Note A compression data block can span multiple DIME records or encryption data blocks.

2.3.5 Binary XML

When using TCP or HTTP/HTTPS as the transport, the client and server MAY choose to encode messages in binary XML [\[MS-BINXML\]](#). This is first negotiated when the connection is established.

The following table lists the binary XML data types that are supported in this protocol. The client and server MUST NOT use data types outside this list.

XSD Type	Binary XML Type
xsd:boolean	XSD-BOOLEAN
xsd:byte	SQL-TINYINT

XSD Type	Binary XML Type
xsd:short	SQL-SMALLINT
xsd:int	SQL-INT
xsd:long	SQL-BIGINT
xsd:unsignedByte	XSD-UNSIGNEDBYTE
xsd: unsignedShort	XSD-UNSIGNEDSHORT
xsd: unsignedInt	XSD-UNSIGNEDINT
xsd: unsignedLong	XSD-UNSIGNEDLONG
xsd:double	SQL-REAL
xsd:float	SQL-FLOAT
xsd:decimal	SQL-MONEY
xsd:dateTime	SQL-DATETIME
uuid	SQL-UUID
xsd:string	SQL-NTEXT SQL-NCHAR SQL-NVARCHAR
xsd:base64Binary	SQL-BINARY

3 Protocol Details

The client side of this protocol is simply a pass-through. That is, no additional timers or other state is required on the client side of this protocol. Calls made by the higher-layer protocol or application are passed directly to the transport, and the results that are returned by the transport are passed directly back to the higher-layer protocol or application.

3.1 Server Details

3.1.1 Abstract Data Model

This section describes a conceptual model of possible data organization that an implementation maintains to participate in this protocol. The described organization is provided to facilitate the explanation of how the protocol behaves. This document does not mandate that implementations adhere to this model as long as their external behavior is consistent with that described in this document.

The server SHOULD organize its data as per the OLAP data model and the DM model.

The OLAP model's high-level features are as follows:

- The server contains a collection of databases.
- Each database contains a collection of cubes.
- Each cube contains a collection of dimensions, [measure groups](#), measures, sets, performance indicators (KPIs), and actions.
- Each dimension contains a collection of [hierarchies](#).
- Each hierarchy contains a collection of levels.
- Each level contains a collection of members.
- Each member contains a collection of properties.
- Each measure group contains a collection of measure group dimensions and measures.

The DM model's high-level features are as follows:

- Within the collection of Databases on the server is a collection of **MiningStructures**.
- Each **MiningStructure** contains a collection of mining structure columns and a collection of mining models.
- Each mining model contains a collection of mining model columns.

For more information about the OLAP data model, see [\[MSDN-SSAS\]](#).

3.1.2 Timers

None. All protocol requests are initiated by the client.

3.1.3 Initialization

The server MUST start and begin listening for requests.

For stateless connections, no further initialization is required. For stateful connections, the following example shows how **sessions** are supported.

To begin the session, the client adds a **BeginSession SOAP header** to the request.

```
<?xml version="1.0" encoding="utf-8"?>
<Envelope xmlns="http://schemas.xmlsoap.org/soap/envelope/">
  <Header>
    <BeginSession xmlns="urn:schemas-microsoft-com:xml-analysis" mustUnderstand="1"/>
  </Header>
  <Body>
    ...<!-- Discover or Execute element goes here.-->
  </Body>
</Envelope>
```

The SOAP response message from the server includes the session ID in the SOAP header.

```
<Header>
  <Session
    xmlns="urn:schemas-microsoft-com:xml-analysis"
    SessionId="537C61C6-827C-4305-83A6-C8CE4A91001B" />
</Header>
```

For each subsequent request, the client must include the session ID that is provided by the server.

```
<Header>
  <Session
    xmlns="urn:schemas-microsoft-com:xml-analysis"
    mustUnderstand="1"
    SessionId="537C61C6-827C-4305-83A6-C8CE4A91001B" />
</Header>
```

To end the session, the client **MUST** send the **EndSession** header that contains the related session ID value to the server.

```
<Header>
  <EndSession
    xmlns="urn:schemas-microsoft-com:xml-analysis"
    mustUnderstand="1"
    SessionId="537C61C6-827C-4305-83A6-C8CE4A91001B" />
</Header>
```

Support for sessions on the server is mandatory. [<34>](#)

Multiple commands **MAY** be executed in the context of a single session. The server **MAY** choose to time out an active session after a period of inactivity. [<35>](#)

The following table lists the SOAP header elements and attributes that this protocol defines for initiating, maintaining, and closing a session.

SOAP Header	Description
BeginSession	Requests that the server create a new session. The server should respond by constructing a new session and returning the session ID in the Session header in the SOAP response.
Session	For every method call that is to occur in the session, this header must be used, and the session ID must be included in the header.
EndSession	To end the session, use this header. The session ID must be included in the header.

If the session ID that is specified in the **Session** or **EndSession** SOAP header is not valid or has timed out, then the server MUST return a [SOAP fault](#).

3.1.4 Message Processing Events and Sequencing Rules

Operation	Description
Authenticate	Used by the client and server to exchange UTF-8 encoded security token data blocks as a part of the authentication process.
Discover	Used to find information about the server.
Execute	Used for sending commands to the server.

3.1.4.1 Authenticate

This operation MAY be used by the client and server to exchange UTF-8 encoded security token data blocks as a part of the authentication process. The client MUST send an **Authenticate** request message and the server MUST respond with an **AuthenticateResponse** message.

The following WSDL describes the **Authenticate** operation.

```
<wsdl:operation name="Authenticate">
  <wsdl:input message="AuthenticateSoapIn" />
  <wsdl:output message="AuthenticateSoapOut" />
</wsdl:operation>
```

3.1.4.1.1 Messages

The following **WSDL message** definitions are specific to this operation.

3.1.4.1.1.1 AuthenticateSoapIn

This message is the request message for the **Authenticate** operation.

The SOAP **Action** value of the message is defined as follows.

```
"http://schemas.microsoft.com/analysiservices/2003/ext"
```

The **SOAP body** MUST contain an **Authenticate** element.

```

<message name="AuthenticateSoapIn">
  <part name="parameters" element="xmla:Authenticate" />
</message>

```

3.1.4.1.1.2 AuthenticateSoapOut

This message is the response message for the **Authenticate** operation.

The SOAP **Action** value of the message is defined as follows.

```
"http://schemas.microsoft.com/analysisisservices/2003/ext"
```

The SOAP **Body** MUST contain an **AuthenticateResponse** element.

```

<message name="AuthenticateSoapOut">
  <part name="parameters" element="xmla:AuthenticateResponse" />
</message>

```

3.1.4.1.2 Elements

The following XML Schema element definitions are specific to this operation.

3.1.4.1.2.1 Authenticate

The **Authenticate** element has the following definition.

```

<xsd:element name="Authenticate">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="SspiHandshake" minOccurs="1" maxOccurs="1"
        nillable="false" type="xsd:base64Binary" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>

```

Element	Default	Description
SspiHandshake	[Required]	This is a Base64-encoded security token data block that contains authentication information for a user.

The following is an example of an **Authenticate** request.

```

<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <Authenticate xmlns="http://schemas.microsoft.com/analysisisservices/2003/ext">
      <SspiHandshake>[Base64 encoded security token data block here]</SspiHandshake>
    </Authenticate>
  </soap:Body>

```



```
</soap:Envelope>
```

3.1.4.1.2.2 AuthenticateResponse

The **AuthenticateResponse** element has the following definition.

```
<xsd:element name="AuthenticateResponse">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="return" minOccurs="1" maxOccurs="1">
        <xsd:complexType>
          <xsd:sequence>
            <xsd:element name="SspiHandshake" minOccurs="1" maxOccurs="1"
              nillable="false" type="xsd:base64Binary" />
          </xsd:sequence>
        </xsd:complexType>
      </xsd:element>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
```

The following is an example of the **AuthenticateResponse** response.

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <AuthenticateResponse xmlns="http://schemas.microsoft.com/analysiservices/2003/ext">
      <return>
        <SspiHandshake>[Base64 encoded security token data block here]</SspiHandshake>
      </return>
    </AuthenticateResponse>
  </soap:Body>
</soap:Envelope>
```

3.1.4.2 Discover

This operation is used to find information about the server.

The following WSDL describes the **Discover** operation.

```
<wsdl:operation name="Discover">
  <wsdl:input message="DiscoverSoapIn" />
  <wsdl:output message="DiscoverSoapOut" />
</wsdl:operation>
```

The protocol client MUST send a **DiscoverSoapIn** request message, and the protocol server MUST respond with a **DiscoverSoapOut** response message.

3.1.4.2.1 Messages

The following XML Schema message definitions are specific to this operation.

3.1.4.2.1.1 DiscoverSoapIn

This message is the request message for the **Discover** operation.

The SOAP **Action** value of the message is defined as follows.

```
"urn:schemas-microsoft-com:xml-analysis:Discover"
```

The SOAP **Body** MUST contain a schema rowset.

```
<message name="DiscoverSoapIn">
  <part name="parameters" element="xmla:Discover" />
</message>
```

3.1.4.2.1.2 DiscoverSoapOut

This message is the response message for the **Discover** operation.

The SOAP **Action** value of the message is defined as follows.

```
"urn:schemas-microsoft-com:xml-analysis:Discover"
```

The SOAP **Body** MUST contain a **DiscoverResponse** element.

```
<message name="DiscoverSoapOut">
  <part name="parameters" element="xmla:DiscoverResponse" />
</message>
```

3.1.4.2.2 Elements

The following XML Schema element definitions are specific to this operation.

3.1.4.2.2.1 Discover

The schema rowset has the following definition.

```
<xsd:element name="Discover">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="RequestType" minOccurs="1" maxOccurs="1" >
        <xsd:simpleType>
          <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="DBSCHEMA_CATALOGS" />
            <xsd:enumeration value="MDSHEMA_CUBES" />
            <xsd:enumeration value="MDSHEMA_DIMENSIONS" />
            <xsd:enumeration value="MDSHEMA_HIERARCHIES" />
            <xsd:enumeration value="MDSHEMA_LEVELS" />
          </xsd:restriction>
        </xsd:simpleType>
      </xsd:element>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
```

```

<xsd:enumeration value="MDSHEMA_MEASURES" />
<xsd:enumeration value="MDSHEMA_PROPERTIES" />
<xsd:enumeration value="MDSHEMA_MEMBERS" />
<xsd:enumeration value="MDSHEMA_ACTIONS" />
<xsd:enumeration value="MDSHEMA_SETS" />
<xsd:enumeration value="MDSHEMA_INSTANCES" />
<xsd:enumeration value="MDSHEMA_KPIS" />
<xsd:enumeration value="MDSHEMA_MEASUREGROUPS" />
<xsd:enumeration value="MDSHEMA_MEASUREGROUP_DIMENSIONS" />
<xsd:enumeration value="DISCOVER_PROPERTIES" />
<xsd:enumeration value="DISCOVER_LITERAL" />
<xsd:enumeration value="DISCOVER_SCHEMA_ROWSETS" />
<xsd:enumeration value="DISCOVER_KEYWORDS" />
<xsd:enumeration value="DBSCHEMA_TABLES" />
<xsd:enumeration value="DBSCHEMA_COLUMNS" />
<xsd:enumeration value="DBSCHEMA_PROVIDER_TYPES" />
<xsd:enumeration value="MDSHEMA_INPUT_DATASOURCES" />
<xsd:enumeration value="DMSHEMA_MINING_SERVICES" />
<xsd:enumeration value="DMSHEMA_MINING_SERVICE_PARAMETERS" />
<xsd:enumeration value="DMSHEMA_MINING_FUNCTIONS" />
<xsd:enumeration value="DMSHEMA_MINING_MODEL_CONTENT" />
<xsd:enumeration value="DMSHEMA_MINING_MODEL_XML" />
<xsd:enumeration value="DMSHEMA_MINING_MODEL_CONTENT_PMML" />
<xsd:enumeration value="DMSHEMA_MINING_MODELS" />
<xsd:enumeration value="DMSHEMA_MINING_COLUMNS" />
<xsd:enumeration value="DMSHEMA_MINING_STRUCTURES" />
<xsd:enumeration value="DMSHEMA_MINING_STRUCTURE_COLUMNS" />
<xsd:enumeration value="DISCOVER_DATASOURCES" />
<xsd:enumeration value="DISCOVER_SCHEMA_ROWSETS" />
<xsd:enumeration value="DISCOVER_ENUMERATORS" />
<xsd:enumeration value="DISCOVER_XML_METADATA" />
<xsd:enumeration value="DISCOVER_TRACES" />
<xsd:enumeration value="DISCOVER_TRACE_DEFINITION_PROVIDERINFO" />
<xsd:enumeration value="DISCOVER_TRACE_COLUMNS" />
<xsd:enumeration value="DISCOVER_TRACE_EVENT_CATEGORIES" />
<xsd:enumeration value="DISCOVER_MEMORYUSAGE" />
<xsd:enumeration value="DISCOVER_MEMORYGRANT" />
<xsd:enumeration value="DISCOVER_LOCKS" />
<xsd:enumeration value="DISCOVER_CONNECTIONS" />
<xsd:enumeration value="DISCOVER_SESSIONS" />
<xsd:enumeration value="DISCOVER_JOBS" />
<xsd:enumeration value="DISCOVER_TRANSACTIONS" />
<xsd:enumeration value="DISCOVER_DB_CONNECTIONS" />
<xsd:enumeration value="DISCOVER_MASTER_KEY" />
<xsd:enumeration value="DISCOVER_PERFORMANCE_COUNTERS" />
<xsd:enumeration value="DISCOVER_LOCATIONS" />
<xsd:enumeration value="DISCOVER_PARTITION_DIMENSION_STAT" />
<xsd:enumeration value="DISCOVER_PARTITION_STAT" />
<xsd:enumeration value="DISCOVER_DIMENSION_STAT" />
<xsd:enumeration value="DISCOVER_COMMANDS" />
<xsd:enumeration value="DISCOVER_COMMAND_OBJECTS" />
<xsd:enumeration value="DISCOVER_OBJECT_ACTIVITY" />
<xsd:enumeration value="DISCOVER_OBJECT_MEMORY_USAGE" />
<xsd:enumeration value="DISCOVER_PARTITION_TABLES" />
<xsd:enumeration value="DISCOVER_PARTITION_TABLES_COLUMNS" />
<xsd:enumeration value="DISCOVER_PARTITION_TABLES_COLUMNS_SEGMENTS" />
<xsd:enumeration value="DISCOVER_COMMANDS" />
</xsd:restriction>
</xsd:simpleType>

```

```

</xsd:element>
<xsd:element name="Restrictions" minOccurs="1" maxOccurs="1">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="RestrictionList" minOccurs="0" maxOccurs="1" nillable="true"
    >
      <xsd:complexType>
        <xsd:sequence>
          <xsd:any minOccurs="0" maxOccurs="unbounded" />
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="Properties" type="Properties" />
</xsd:sequence>
</xsd:complexType>
</xsd:element>

```

Element	Read-Only	Default	Description
RequestType		[Required]	This enumeration value specifies which of the schema rowsets is being requested.
Restrictions		Empty	Restrictions contains a single RestrictionList element, in which the restrictions on the number of rows to be returned are specified.
Properties		Empty	The Properties type is common to the Discover and Execute methods. It is described in section 3.1.4.2.2.1.2 .

3.1.4.2.2.1.1 Restrictions and RestrictionList

The Restrictions element contains a single RestrictionList element. The RestrictionList element is of type `xsd:anyType`. This is because the restrictions that are available are variable depending upon the value of the RequestType specification. Each individual RequestType is described in section [3.1.4.2.3](#), and for each RequestType, the available restrictions are specified. The specified restrictions will restrict the number of rows that are returned by the Discover request.

3.1.4.2.2.1.2 Properties Type

The Properties type consists of a PropertyList element, which itself consists of a collection of Request properties. Each property allows the user to control some aspect of the Discover or Execute method, such as defining the information required for the connection, specifying the return format of the result set, or specifying the locale in which the data should be formatted. The available properties and their values can be obtained by using the DISCOVER_PROPERTIES request type with the Discover method. There is no required order for the properties listed in the Properties element. This element MUST be included, but it MAY be empty.

The Properties element MUST contain one and only one PropertyList element, of type PropertyList. The PropertyList type is defined in section [3.1.4.2.2.1.1](#).

3.1.4.2.2.2 DiscoverResponse

The **DiscoverResponse** element has the following definition.

```
<xsd:element name="DiscoverResponse">
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="return" minOccurs="0" maxOccurs="1">
        <xsd:complexType>
          <xsd:element name="root" minOccurs="0"
            type="xmla-rs:root" maxOccurs="1">
          </xsd:element>
        </xsd:complexType>
      </xsd:element>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
```

3.1.4.2.2.2.1 Return Element

Discover returns the return element that is described in section [3.1.4.3.3.1](#). The root element returned by Discover will be of type xmla-rs:rowset (see section [2.2.4.1.3](#)).

3.1.4.2.3 Discover Request Types

The following sections list all **Discover** request types that the server **MUST** support. The title of each section is the **RequestType**. Each section describes the request, specifies the restrictions, and specifies the columns in the rowset returned by the server.

Restrictions are optional unless specifically stated otherwise in the description for a specific **Discover RequestType**. If any restrictions have default values, they will be explained for the specific **Discover RequestType**. All columns listed below are mandatory in the returned rowset.

3.1.4.2.3.1 DBSCHEMA_CATALOGS RequestType

This schema rowset describes the catalogs accessible on the server.

3.1.4.2.3.1.1 Columns

The DBSCHEMA_CATALOGS rowset **MUST** contain the following columns.

Name	Type	Restrictions	Description
CATALOG_NAME	xsd:string	Yes	The catalog name.
DESCRIPTION	xsd:string		The catalog description.
ROLES	xsd:string		A comma delimited list of roles to which the current user belongs. <36>
DATE_MODIFIED	xsd:dateTime		The date that the catalog was last modified.

The rowset is sorted on CATALOG_NAME.

3.1.4.2.3.2 DBSCHEMA_TABLES

This schema rowset returns dimensions, measure groups, or schema rowsets exposed as tables.

3.1.4.2.3.2.1 Columns

The DBSCHEMA_TABLES rowset MUST contain the following columns.

Name	Type	Restrictions	Description
TABLE_CATALOG	xsd:string	Yes	The name of the database.
TABLE_SCHEMA	xsd:string	Yes	The name of the schema.
TABLE_NAME	xsd:string	Yes	The name of the table.
TABLE_TYPE	xsd:string	Yes	The type of table. TABLE for Measure Group. SYSTEM TABLE for Dimension. SCHEMA for schema rowset table.
TABLE_GUID	uuid		The GUID of the table.
DESCRIPTION	xsd:string		A description of the object.
TABLE_PROPID	xsd:string		The ID of the table.
DATE_CREATED	xsd:dateTime		The date the table was created.
DATE_MODIFIED	xsd:dateTime		The date the table was last modified.
TABLE_OLAP_TYPE	xsd:string	Yes	The OLAP type of the table. Possible values can be one of the following: MEASURE_GROUP CUBE_DIMENSION SCHEMA

The rowset is sorted on TABLE_TYPE, TABLE_CATALOG, TABLE_SCHEMA, and TABLE_NAME.

3.1.4.2.3.3 DBSCHEMA_COLUMNS

This schema rowset returns a row for each measure, each cube dimension attribute, and each schema rowset column, exposed as a column.

3.1.4.2.3.3.1 Columns

The DBSCHEMA_COLUMNS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
TABLE_CATALOG	xsd:string	Yes	The name of the database.
TABLE_SCHEMA	xsd:string	Yes	The name of the table schema.

Name	Type	Restrictions	Description
TABLE_NAME	xsd:string	Yes	The name of the table.
COLUMN_NAME	xsd:string	Yes	The name of the attribute hierarchy or measure.
COLUMN_GUID	uuid		The GUID of the column.
COLUMN_PROPID	xsd:string		The Property ID of the column.
ORDINAL_POSITION	xsd:string		The column order for each constraint.
COLUMN_HASDEFAULT	xsd:bool		Indicates whether the column has a default. If true, the column has a default. If false, the does not have a default.
COLUMN_DEFAULT	xsd:string		The default value of the column.
COLUMN_FLAGS	xsd:string		Bit mask indicating column properties. 0x1 - DBCOLUMNFLAGS_ISBOOKMARK 0x2 - DBCOLUMNFLAGS_MAYDEFER 0x4 - DBCOLUMNFLAGS_WRITE 0x8 - DBCOLUMNFLAGS_WRITEUNKNOWN 0x10 - DBCOLUMNFLAGS_ISFIXEDLENGTH 0x20 - DBCOLUMNFLAGS_ISNULLABLE 0x40 - DBCOLUMNFLAGS_MAYBENULL 0x80 - DBCOLUMNFLAGS_ISLONG 0x100 - DBCOLUMNFLAGS_ISROWID 0x200 - DBCOLUMNFLAGS_ISROWWER 0x1000 - DBCOLUMNFLAGS_CACHEDEFERRED
IS_NULLABLE	xsd:bool		Indicates whether column is nullable.<37>
DATA_TYPE	xsd:string		The data type of the column. Returns a string for dimension columns and a variant for measures.
TYPE_GUID	uuid		The GUID of the column's data type.

Name	Type	Restrictions	Description
CHARACTER_MAXIMUM_LENGTH	xsd:string		The maximum possible length of a value in the column, expressed as the number of wide characters.
CHARACTER_OCTET_LENGTH	xsd:string		The maximum length in octets (bytes) of the column, if the type of the column is character or binary. A value of zero means the column has no maximum length. NULL for all other types of columns.
NUMERIC_PRECISION	xsd:unsignedShort		If the column's data type is of a numeric data type other than VARNUMERIC, this is the maximum precision of the column.
NUMERIC_SCALE	xsd:short		If the column's type indicator is DBTYPE_DECIMAL, DBTYPE_NUMERIC, or DBTYPE_VARNUMERIC, this is the number of digits to the right of the decimal point. Otherwise, this is NULL.
DATETIME_PRECISION	xsd:unsignedInt		If the column is a Datetime or Interval type, this is the datetime precision (number of digits in the fractional seconds portion) of the column.
CHARACTER_SET_CATALOG	xsd:string		The catalog name. NULL if the provider does not support catalogs.
CHARACTER_SET_SCHEMA	xsd:string		The unqualified schema name. NULL if the provider does not support schemas.
CHARACTER_SET_NAME	xsd:string		The character set name.
COLLATION_CATALOG	xsd:string		The catalog name in which the collation is defined. NULL if the provider does not support catalogs or different collations.
COLLATION_SCHEMA	xsd:string		Unqualified schema name in which the collation is defined. NULL if the provider does not support schemas or different collations.
COLLATION_NAME	xsd:string		Collation name. NULL if the server does not support different collations.
DOMAIN_CATALOG	xsd:string		Catalog name in which the domain is defined. NULL if the server does not support catalogs or domains.

Name	Type	Restrictions	Description
DOMAIN_SCHEMA	xsd:string		Unqualified schema name in which the domain is defined. NULL if the server does not support schemas or domains.
DOMAIN_NAME	xsd:string		The domain name. NULL if the server does not support domains.
DESCRIPTION	xsd:string		The human-readable description of the column. For example, the description for a column named Name in the Employee table might be "Employee name." NULL if this column is not supported by the server, or if there is no description associated with the column.
COLUMN_OLAP_TYPE	xsd:string	Yes	The OLAP type of the object. MEASURE indicates that the object is a measure. ATTRIBUTE indicates that the object is a dimension attribute. SCHEMA indicates that the object is a column in a schema rowset table.

The rowset is sorted on TABLE_CATALOG, TABLE_SCHEMA and, TABLE_NAME.

3.1.4.2.3.4 DBSCHEMA_PROVIDER_TYPES

This schema rowset identifies the (base) data types supported by the server.

3.1.4.2.3.4.1 Columns

The DBSCHEMA_PROVIDER_TYPES rowset MUST contain the following columns.

Name	Type	Restrictions	Description
TYPE_NAME	xsd:string		The server-specific data type name. <38>
DATA_TYPE	xsd:unsignedShort	Yes	This enumeration is the same as DATA_TYPE for MDSCHEMA_LEVELS. (See section 3.1.4.2.3.8)
COLUMN_SIZE	xsd:unsignedInt		The length of a non-numeric column or parameter that refers to either the maximum or the length defined for this type by the server. For character data, this is the maximum or defined length in characters. For DateTime data types, this is the length of the string representation (assuming the maximum allowed precision of the fractional second component).

Name	Type	Restrictions	Description
			If the data type is numeric, this is the upper bound on the maximum precision of the data type.
LITERAL_PREFIX	xsd:string		The character or characters used to prefix a literal of this type in a text command.
LITERAL_SUFFIX	xsd:string		The character or characters used to suffix a literal of this type in a text command.
CREATE_PARAMS	xsd:string		<p>The creation parameters specified by the consumer when creating a column of this data type. For example, the SQL data type, DECIMAL, needs a precision and a scale. In this case, the creation parameters might be the string "precision,scale". In a text command to create a DECIMAL column with a precision of 10 and a scale of 2, the value of the TYPE_NAME column might be DECIMAL() and the complete type specification would be DECIMAL(10,2).</p> <p>The creation parameters appear as a comma-separated list of values, in the order they are to be supplied and with no surrounding parentheses. If a creation parameter is length, maximum length, precision, scale, seed, or increment, use "length", "max length", "precision", "scale", "seed", and "increment", respectively. If the creation parameter is some other value, the server determines what text is to be used to describe the creation parameter.</p> <p>If the data type requires creation parameters, "(" usually appears in the type name. This indicates the position at which to insert the creation parameters. If the type name does not include "()", the creation parameters are enclosed in parentheses and appended to the data type name.</p>
IS_NULLABLE	xsd:boolean		<p>A Boolean that indicates if the data type is nullable.</p> <ul style="list-style-type: none"> ▪ VARIANT_TRUE indicates that the data type is nullable. ▪ VARIANT_FALSE indicates that the data type is not nullable. ▪ NULL indicates that it is not known whether the data type is nullable. <39>

Name	Type	Restrictions	Description
CASE_SENSITIVE	xsd:boolean		<p>A Boolean that indicates if the data type is a character type and case-sensitive.</p> <ul style="list-style-type: none"> ▪ VARIANT_TRUE indicates that the data type is a character type and is case-sensitive. ▪ VARIANT_FALSE indicates that the data type is not case-sensitive. ▪ NULL indicates that the data type is not a character type.
SEARCHABLE	xsd:unsignedInt		<p>An integer indicating how the data type can be used in searches if the server supports ICommandText; otherwise, NULL.</p> <p>If the server supports ICommandText, then this column can have the following values:</p> <ul style="list-style-type: none"> ▪ DB_UNSEARCHABLE indicates that the data type cannot be used in a WHERE clause. ▪ DB_LIKE_ONLY indicates that the data type can be used in a WHERE clause only with the LIKE predicate. ▪ DB_ALL_EXCEPT_LIKE indicates that the data type can be used in a WHERE clause with all comparison operators except LIKE. ▪ DB_SEARCHABLE indicates that the data type can be used in a WHERE clause with any comparison operator. <40>
UNSIGNED_ATTRIBUTE	xsd:boolean		<p>A Boolean that indicates if the data type is unsigned.</p> <ul style="list-style-type: none"> ▪ VARIANT_TRUE indicates that the data type is unsigned. ▪ VARIANT_FALSE indicates that the data type is signed. ▪ NULL indicates that this is not applicable to the data type.
FIXED_PREC_SCALE	xsd:boolean		<p>A Boolean that indicates if the data type has a fixed precision and scale.</p> <ul style="list-style-type: none"> ▪ VARIANT_TRUE indicates that the data type has a fixed precision and

Name	Type	Restrictions	Description
			<p>scale.</p> <ul style="list-style-type: none"> VARIANT_FALSE indicates that the data type does not have a fixed precision and scale. <41>
AUTO_UNIQUE_VALUE	xsd:boolean		<p>A Boolean that indicates if the data type can be autoincrementing.</p> <ul style="list-style-type: none"> VARIANT_TRUE indicates that values of this type can be autoincrementing. VARIANT_FALSE indicates that values of this type cannot be autoincrementing. If this value is VARIANT_TRUE, whether or not a column of this type is always autoincrementing depends on the server's DBPROP_COL_AUTOINCREMENT column property. If the DBPROP_COL_AUTOINCREMENT property is read/write, whether or not a column of this type is autoincrementing depends on the setting of the DBPROP_COL_AUTOINCREMENT property. If DBPROP_COL_AUTOINCREMENT is a read-only property, either all or none of the columns of this type are autoincrementing. <42>
LOCAL_TYPE_NAME	xsd:string		<p>The localized version of TYPE_NAME. NULL is returned if a localized name is not supported by the server.</p>
MINIMUM_SCALE	xds:short		<p>If the type indicator is DBTYPE_VARNUMERIC, DBTYPE_DECIMAL, or DBTYPE_NUMERIC, this specifies the minimum number of digits allowed to the right of the decimal point. Otherwise, NULL.</p>
MAXIMUM_SCALE	xds:short		<p>If the type indicator is DBTYPE_VARNUMERIC, DBTYPE_DECIMAL, or DBTYPE_NUMERIC, this specifies the minimum number of digits allowed to the right of the decimal point. Otherwise, NULL.</p>
GUID	uuid		<p>(Intended for future use.)</p> <p>The GUID of the type, if the type is described in a type library. Otherwise, NULL.</p>

Name	Type	Restrictions	Description
TYPELIB	xsd:string		The type library containing the description of the type, if the type is described in a type library. Otherwise, NULL.
VERSION	xsd:string		The version of the type definition. Servers might want to create different versions of type definitions. Different servers might use different versioning schemes, such as a timestamp or a number (Integer or Float). NULL if not supported.
IS_LONG	xsd:boolean		<p>A Boolean that indicates if the data type is a binary large object (BLOB) and has very long data.</p> <ul style="list-style-type: none"> ▪ VARIANT_TRUE indicates that the data type is a BLOB that contains very long data; the definition of very long data is server-specific. ▪ VARIANT_FALSE indicates that the data type is a BLOB that does not contain very long data or is not a BLOB. <p>This column value determines the setting of the DBCOLUMNFLAGS_ISLONG flag returned by GetColumnInfo in IColumnsInfo and the DBCOLUMNFLAGS_ISLONG flag returned by GetParameterInfo in ICommandWithParameters.</p>
BEST_MATCH	xsd:boolean	Yes	<p>A Boolean that indicates if the data type is a best match.</p> <p>TRUE indicates that the data type is the best match between all data types in the data store and the OLE DB data type indicated by the value in the DATA_TYPE column. For more information, see [MSDN-OLEDB].</p> <p>FALSE indicates that the data type is not the best match.</p> <p>For each set of rows in which the value of the DATA_TYPE column is the same, the BEST_MATCH column is set to TRUE in only one row. <43></p>
IS_FIXEDLENGTH	xsd:boolean		<p>A Boolean that indicates whether the column is fixed in length.</p> <p>TRUE indicates that columns of this type created by the data definition language (DDL) will be of fixed length.</p> <p>FALSE indicates that columns of this type</p>

Name	Type	Restrictions	Description
			created by the DDL will be of variable length. If the field is NULL, it is not known whether the server will map this field with a fixed-length or variable-length column.<44>

The rowset is sorted on DATA_TYPE.

3.1.4.2.3.5 MDSCHEMA_CUBES RequestType

This schema rowset describes the structure of cubes within a database.

3.1.4.2.3.5.1 Columns

The MDSCHEMA_CUBES rowset MUST contain the following columns.

Name	Type	Restrictions	Description
CATALOG_NAME	xsd:string	Yes	The catalog name.
SCHEMA_NAME	xsd:string	Yes	The name of the schema. <45>
CUBE_NAME	xsd:string	Yes	The name of the cube.
CUBE_TYPE	xsd:string		The type of the cube. Valid values are: <ul style="list-style-type: none"> ▪ CUBE ▪ DIMENSION
CUBE_GUID	uuid		The GUID of the cube.
CREATED_ON	xsd:dateTime		The date and time the cube was created.
LAST_SCHEMA_UPDATE	xsd:dateTime		The date and time that the cube schema was last updated.
SCHEMA_UPDATED_BY	xsd:string		The name of the user who last updated the cube.
LAST_DATA_UPDATE	xsd:dateTime		The date and time that the cube was last processed.
DATA_UPDATED_BY	xsd:string		The name of the user who last updated the data of the cube.
LAST_UPDATED_BY	xsd:string		The name of the user who last updated the cube.
DESCRIPTION	xsd:string		A description of the cube.
IS_DRILLTHROUGH_ENABLED	xsd:boolean		A Boolean that indicates whether the cube has drillthrough enabled.

Name	Type	Restrictions	Description
			<46>
IS_LINKABLE	xsd:boolean		A Boolean that indicates whether the cube can be used in a linked cube.
IS_WRITE_ENABLED	xsd:boolean		A Boolean that indicates whether the cube is write-enabled.
IS_SQL_ENABLED	xsd:boolean		A Boolean that indicates whether SQL can be used on the cube.
CUBE_CAPTION	xsd:string		The caption of the cube.
BASE_CUBE_NAME	xsd:string	Yes	The name of the source cube if this cube is a perspective cube.
CUBE_SOURCE	xsd:unsignedShort	Yes	A bitmask with one of these valid values: 0x01-Cube 0x02-Dimension

The rowset is sorted on CATALOG_NAME, SCHEMA_NAME and CUBE_NAME.

3.1.4.2.3.6 MDSCHEMA_DIMENSIONS

This schema rowset describes the dimensions within a database.

3.1.4.2.3.6.1 Columns

The MDSCHEMA_DIMENSIONS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
CATALOG_NAME	xsd:string	Yes	The name of the database.
SCHEMA_NAME	xsd:string	Yes	The name of the schema. <47>
CUBE_NAME	xsd:string	Yes	The name of the cube.
DIMENSION_NAME	xsd:string	Yes	The name of the dimension.
DIMENSION_UNIQUE_NAME	xsd:string	Yes	The unique name of the dimension.
DIMENSION_GUID	Uuid		The GUID of the dimension.
DIMENSION_CAPTION	xsd:string		The caption of the dimension.
DIMENSION_ORDINAL	xsd:unsignedInt		The position of the dimension within the cube.
DIMENSION_TYPE	xsd:short		The type of the dimension. Valid values are:

Name	Type	Restrictions	Description
			<ul style="list-style-type: none"> ▪ 0 - UNKNOWN ▪ 1 - TIME ▪ 2 - MEASURE ▪ 3 - OTHER ▪ 5 - QUANTITATIVE ▪ 6- ACCOUNTS ▪ 7 - CUSTOMERS ▪ 8- PRODUCTS ▪ 9 - SCENARIO ▪ 10- UTILITY ▪ 11 - CURRENCY ▪ 12 - RATES ▪ 13 - CHANNEL ▪ 14 - PROMOTION ▪ 15 - ORGANIZATION ▪ 16 - BILL OF MATERIALS ▪ 17 - GEOGRAPHY
DIMENSION_CARDINALITY	xsd:unsignedInt		The number of members in the key attribute.
DEFAULT_HIERARCHY	xsd:string		The default hierarchy of the dimension.
DESCRIPTION	xsd:string		A description of the dimension.
IS_VIRTUAL	xsd:boolean		A Boolean that indicates whether the dimension is virtual. <48>
IS_READWRITE	xsd:boolean		A Boolean that indicates whether the dimension is write-enabled.
DIMENSION_UNIQUE_SETTINGS	xsd:int		<p>A bitmask that specifies which columns contain unique values:</p> <ul style="list-style-type: none"> ▪ 0x00000001 - Member key columns establish uniqueness. ▪ 0x00000002 - Member name columns establish uniqueness.
DIMENSION_MASTER_NAME	xsd:string		The name of the master

Name	Type	Restrictions	Description
			dimension.

The rowset is sorted on CATALOG_NAME, CUBE_NAME, and DIMENSION_NAME.

3.1.4.2.3.6.2 Additional Restrictions

In addition to the column restrictions indicated in the previous section, the following additional restrictions may also apply to this rowset.

Name	Type	Description
CUBE_SOURCE	xsd:unsignedShort	A bitmask with one of these valid values: 0x01 - Cube 0x02 - Dimension Default restriction is a value of 1.
DIMENSION_VISIBILITY	xsd:unsignedShort	A bitmask with one of these valid values: 0x01 - Visible 0x02 - Not Visible Default restriction is a value of 1.

3.1.4.2.3.7 MDSHEMA_HIERARCHIES

This schema rowset describes each hierarchy within a particular dimension.

3.1.4.2.3.7.1 Columns

The MDSHEMA_HIERARCHIES rowset MUST contain the following columns.

Name	Type	Restrictions	Description
CATALOG_NAME	xsd:string	Yes	The name of the database.
SCHEMA_NAME	xsd:string	Yes	The name of the schema.
CUBE_NAME	xsd:string	Yes	The name of the cube.
DIMENSION_UNIQUE_NAME	xsd:string	Yes	The unique name of the dimension. <49>
HIERARCHY_NAME	xsd:string	Yes	The name of the hierarchy. This column MAY be blank if there is only a single hierarchy in the dimension. <50>
HIERARCHY_UNIQUE_NAME	xsd:string	Yes	The unique name of the hierarchy.
HIERARCHY_GUID	Uuid		The GUID of the hierarchy.
HIERARCHY_CAPTION	xsd:string		The caption of the hierarchy.

Name	Type	Restrictions	Description
DIMENSION_TYPE	xsd:short		The type of the dimension. <ul style="list-style-type: none"> ▪ 0 - UNKNOWN ▪ 1 - TIME ▪ 2 - MEASURE ▪ 3 - OTHER ▪ 5 - QUANTITATIVE ▪ 6 - ACCOUNTS ▪ 7 - CUSTOMERS ▪ 8 - PRODUCTS ▪ 9 - SCENARIO ▪ 10 - UTILITY ▪ 11 - CURRENCY ▪ 12 - RATES ▪ 13 - CHANNEL ▪ 14 - PROMOTION ▪ 15 - ORGANIZATION ▪ 16 - BILL_OF_MATERIALS ▪ 17 - GEOGRAPHY
HIERARCHY_CARDINALITY	xsd:unsignedInt		The number of members in the hierarchy.
DEFAULT_MEMBER	xsd:string		The default member for this hierarchy.
ALL_MEMBER	xsd:string		The member name at the highest level of the hierarchy.
DESCRIPTION	xsd:string		A description of the hierarchy.
STRUCTURE	xsd:short		The structure of the hierarchy. Valid values are defined in the following table. <ul style="list-style-type: none"> ▪ 0 - Hierarchy is a fully balanced structure. ▪ 1 - Hierarchy is a

Name	Type	Restrictions	Description
			<p>ragged balanced structure.</p> <ul style="list-style-type: none"> ▪ 2 - Hierarchy is an unbalanced structure. ▪ 3 - Hierarchy is a network structure. <p>For more information, see the definitions for balanced hierarchy and unbalanced hierarchy in section 1.1.</p>
IS_VIRTUAL	xsd:boolean		A Boolean that indicates whether the hierarchy is a virtual hierarchy. <51>
IS_READWRITE	xsd:boolean		A Boolean that indicates whether write back to the hierarchy is enabled. <52>
DIMENSION_UNIQUE_SETTINGS	xsd:int		<p>A list of values that specifies which columns contain unique values: <53></p> <ul style="list-style-type: none"> ▪ 0x00000001 - Member key columns establish uniqueness. ▪ 0x00000002 - Member name columns establish uniqueness.
DIMENSION_MASTER_UNIQUE_NAME	xsd:string		The unique name of the master dimension. <54>
DIMENSION_IS_VISIBLE	xsd:boolean		A Boolean that indicates whether the dimension is visible. <55>
HIERARCHY_ORDINAL	xsd:unsignedInt		The ordinal number of the hierarchy across all hierarchies of the dimension.
DIMENSION_IS_SHARED	xsd:boolean		A Boolean that indicates whether the dimension is shared. <56>
HIERARCHY_IS_VISIBLE	xsd:boolean		A Boolean that indicates whether the hierarchy is visible.
HIERARCHY_ORIGIN	xsd:unsignedShort	Yes	A bit mask that determines the source of the

Name	Type	Restrictions	Description
			hierarchy. <ul style="list-style-type: none"> ▪ 0x0001 - Identifies user-defined hierarchies. ▪ 0x0002 - Identifies attribute hierarchies. ▪ 0x0004 - Identifies key attribute hierarchies. ▪ 0x0008 - Identifies attributes with no attribute hierarchies. ▪ The default restriction value is 0x0003.
HIERARCHY_DISPLAY_FOLDER	xsd:string		Display folder for the hierarchy.
INSTANCE_SELECTION	xsd:unsignedShort		A list of values to provide a hint to the client application about how to display the hierarchy values. Valid values include the following: <ul style="list-style-type: none"> ▪ 0 - NONE (No hint is suggested.) ▪ 1 - DROPDOWN type of display is suggested. ▪ 2 - LIST type of display is suggested. ▪ 3 - FILTERED LIST type of display is suggested ▪ 4 - MANDATORY FILTER type of display is suggested

The rowset is sorted on CATALOG_NAME, CUBE_NAME, DIMENSION_UNIQUE_NAME, and HIERARCHY_NAME.

3.1.4.2.3.7.2 Additional Restrictions

In addition to the column restrictions indicated in the previous section, the following additional restrictions may also apply to this rowset.

Name	Type	Description
CUBE_SOURCE	xsd:unsignedShort	A bitmask with one of these valid values:

Name	Type	Description
		<ul style="list-style-type: none"> ▪ 0x01 - Cube ▪ 0x02 - Dimension Default restriction is a value of 1.
HIERARCHY_VISIBILITY	xsd:unsignedShort	A bitmask with one of these valid values: <ul style="list-style-type: none"> ▪ 0x01 - Visible ▪ 0x02 - Not Visible Default restriction is a value of 1.

3.1.4.2.3.8 MDSHEMA_LEVELS

This schema rowset describes each level within a particular hierarchy.

3.1.4.2.3.8.1 Columns

The MDSHEMA_LEVELS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
CATALOG_NAME	xsd:string	Yes	The name of the database.
SCHEMA_NAME	xsd:string	Yes	The name of the schema.
CUBE_NAME	xsd:string	Yes	The name of the cube.
DIMENSION_UNIQUE_NAME	xsd:string	Yes	The unique name of the dimension. <57>
HIERARCHY_UNIQUE_NAME	xsd:string	Yes	The unique name of the hierarchy.
LEVEL_NAME	xsd:string	Yes	The name of the level.
LEVEL_UNIQUE_NAME	xsd:string	Yes	The unique name of the level.
LEVEL_GUID	Uuid		The GUID of the level.
LEVEL_CAPTION	xsd:string		The caption of the hierarchy. <58>
LEVEL_NUMBER	xsd:unsignedInt		The level number in the hierarchy. Top level is zero (0).
LEVEL_CARDINALITY	xsd:unsignedInt		The number of members in the level.

Name	Type	Restrictions	Description
LEVEL_TYPE	xsd:int		<p>The type of the level from a list of possible values.</p> <ul style="list-style-type: none"> ▪ 0x2001 - Geography continent ▪ 0x2002 - Geography region ▪ 0x2003 - Geography country ▪ 0x2004 - Geography state or province ▪ 0x2005 - Geography county ▪ 0x2006 - Geography city ▪ 0x2007 - Geography postalcode ▪ 0x2008 - Geography point ▪ 0x1011 - Organization unit ▪ 0x1012 - Bill of materials resource ▪ 0x1013 - Quantitative ▪ 0x1014 - Account ▪ 0x1021 - Customer ▪ 0x1022 - Customer group ▪ 0x1023 - Customer household ▪ 0x1031 - Product ▪ 0x1032 - Product group ▪ 0x1015 - Scenario ▪ 0x1016 - Utility ▪ 0x1041 - Person

Name	Type	Restrictions	Description
			<ul style="list-style-type: none"> ▪ 0x1042 - Company ▪ 0x1051 - Currency source ▪ 0x1052 - Currency destination ▪ 0x1061 - Channel ▪ 0x1062 - Representative ▪ 0x1071 - Promotion
DESCRIPTION	xsd:string		A description of the level.
CUSTOM_ROLLUP_SETTINGS	xsd:int		<p>A bitmask that specifies the custom rollup options:</p> <ul style="list-style-type: none"> ▪ 0x01 - Indicates that a custom rollup expression exists for this level. ▪ 0x02 - Indicates that members of this level have custom rollup expressions. ▪ 0x04 - Indicates that there is a skipped level associated with members of this level. ▪ 0x08 - Indicates that members of this level have custom member properties. ▪ 0x10 - Indicates that members on this level have unary operators.
LEVEL_UNIQUE_SETTINGS	xsd:int		<p>A bitmask that specifies which columns contain unique values, if the level only has members with unique names or keys:</p> <ul style="list-style-type: none"> ▪ 0x00000001 - Member key columns

Name	Type	Restrictions	Description
			establish uniqueness. <ul style="list-style-type: none"> ▪ 0x00000002 - Member name columns establish uniqueness.
LEVEL_IS_VISIBLE	xsd:boolean		A Boolean that indicates whether the level is visible.
LEVEL_ORDERING_PROPERTY	xsd:string		The Name of the attribute that the level is sorted on.
LEVEL_DBTYPE	xsd:int		The type of the member key column that is used for the level attribute. MUST be null if concatenated keys are used as the member key column. <p>Type values are described in the following list:</p> <ul style="list-style-type: none"> ▪ 0 – (DBTYPE_EMPTY) Indicates no value was specified. ▪ 2 – (DBTYPE_I2) Indicates a two-byte signed integer. ▪ 3 – (DBTYPE_I4) Indicates a four-byte signed integer. ▪ 4 – (DBTYPE_R4) Indicates a single-precision floating-point value. ▪ 5 – (DBTYPE_R8) Indicates a double-precision floating-point value. ▪ 6 – (DBTYPE_CY) Indicates a currency value. Currency is a fixed-point number with four digits to the right of the decimal point and is stored in an eight-byte signed integer scaled by

Name	Type	Restrictions	Description
			<p>10,000.</p> <ul style="list-style-type: none"> ▪ 7 – (DBTYPE_DATE) Indicates a date value. Date values are stored as Double, the whole part of which is the number of days since December 30, 1899, and the fractional part of which is the fraction of a day. ▪ 8 – (DBTYPE_BSTR) Indicates a null-terminated character string (Unicode). ▪ 9 – (DBTYPE_IDISPATCH) Indicates a pointer to an IDispatch interface on an OLE object. This data type is not currently supported by ADO, and usage of this data type may cause unpredictable results. ▪ 10 – (DBTYPE_ERROR) Indicates a 32-bit error code. ▪ 11 – (DBTYPE_BOOL) Indicates a Boolean value. ▪ 12 – (DBTYPE_VARIANT) Indicates an Automation Variant. This data type is not currently supported by ADO, and usage of this data type may cause unpredictable results. ▪ 13 – (DBTYPE_IUNKNOWN) Indicates a pointer to an IUnknown interface on an OLE object. This data type is not currently supported by ADO,

Name	Type	Restrictions	Description
			<p>and usage of this data type may cause unpredictable results.</p> <ul style="list-style-type: none"> ▪ 14 – (DBTYPE_DECIMAL) Indicates an exact numeric value with a fixed precision and scale. ▪ 16 – (DBTYPE_I1) Indicates a one-byte signed integer. ▪ 17 – (DBTYPE_UI1) Indicates a one-byte unsigned integer. ▪ 18 – (DBTYPE_UI2) Integer indicates a two-byte unsigned integer. ▪ 19 – (DBTYPE_UI4) Indicates a four-byte unsigned integer. ▪ 20 – (DBTYPE_I8) Indicates an eight-byte signed integer. ▪ 21 – (DBTYPE_UI8) Indicates an eight-byte unsigned integer. ▪ 72 – (DBTYPE_GUID) Indicates a globally unique identifier (GUID). ▪ 128 – (DBTYPE_BYTES) Indicates a binary value. ▪ 129 – (DBTYPE_STR) Indicates a string value. ▪ 130 – (DBTYPE_WSTR) Indicates a null-terminated Unicode character string. ▪ 131 – (DBTYPE_NUMERIC)

Name	Type	Restrictions	Description
			<p>Indicates an exact numeric value with a fixed precision and scale.</p> <ul style="list-style-type: none"> ▪ 132 – (DBTYPE_UDT) Indicates a user-defined variable. ▪ 133 – (DBTYPE_DBDATE) Indicates a date value (yyyymmdd). ▪ 134 – (DBTYPE_DBTIME) Indicates a time value (hhmmss). ▪ 135 – (DBTYPE_DBTIMESTAMP) Indicates a date-time stamp (yyyymmddhhmmss plus a fraction in billionths). ▪ 136 - Indicates a four-byte chapter value used to identify rows in a child rowset.
LEVEL_MASTER_UNIQUE_NAME	xsd:string		The unique name of the master level.
LEVEL_NAME_SQL_COLUMN_NAME	xsd:string		The SQL column name for the level name.
LEVEL_KEY_SQL_COLUMN_NAME	xsd:string		The SQL column name for the level key.
LEVEL_UNIQUE_NAME_SQL_COLUMN_NAME	xsd:string		The SQL column name for the level unique name.
LEVEL_ATTRIBUTE_HIERARCHY_NAME	xsd:string		The name of the attribute hierarchy providing the source of the level.
LEVEL_KEY_CARDINALITY	xsd:unsignedShort		The number of columns in the level key.
LEVEL_ORIGIN	xsd:unsignedShort	Yes	A bitmask that defines how the level was sourced:

Name	Type	Restrictions	Description
			<ul style="list-style-type: none"> ▪ 0x00000001 - Identifies levels in a user defined hierarchy. ▪ 0x00000002 - Identifies levels in an attribute hierarchy. ▪ 0x00000004 - Identifies levels in a key attribute hierarchy. ▪ 0x00000008 - Identifies levels in attribute hierarchies that are not enabled.

The rowset is sorted on CATALOG_NAME, CUBE_NAME, DIMENSION_UNIQUE_NAME, and HIERARCHY_NAME.

3.1.4.2.3.8.2 Additional Restrictions

In addition to the column restrictions indicated in the previous section, the following additional restrictions may also apply to this rowset.

Name	Type	Description
CUBE_SOURCE	xsd:unsignedShort	A bitmask with one of these valid values: <ul style="list-style-type: none"> ▪ 0x01 - Cube ▪ 0x02 - Dimension Default restriction is a value of 1.
LEVEL_VISIBILITY	xsd:unsignedShort	A bitmask with one of these valid values: <ul style="list-style-type: none"> ▪ 0x01 - Visible ▪ 0x02 - Not Visible Default restriction is a value of 1.

3.1.4.2.3.9 MDSHEMA_MEASURES

This schema rowset describes each measure.

3.1.4.2.3.9.1 Columns

The MDSHEMA_MEASURES rowset MUST contain the following columns.

Name	Type	Restrictions	Description
CATALOG_NAME	xsd:string	Yes	The name of the catalog to which this measure belongs.
SCHEMA_NAME	xsd:string	Yes	The name of the schema to which this measure belongs.
CUBE_NAME	xsd:string	Yes	The name of the cube to which this measure belongs.
MEASURE_NAME	xsd:string	Yes	The name of the measure.
MEASURE_UNIQUE_NAME	xsd:string	Yes	The unique name of the measure.
MEASURE_CAPTION	xsd:string		A caption associated with the measure.
MEASURE_GUID	uuid		The GUID of the measure.
MEASURE_AGGREGATOR	xsd:int		<p>An enumeration that identifies how a measure was derived. Can be one of the following values:</p> <ul style="list-style-type: none"> ▪ 1 - (MDMEASURE_AGGR_SUM) MEASURE aggregates from SUM. ▪ 2 - (MDMEASURE_AGGR_COUNT) MEASURE aggregates from COUNT. ▪ 3 - (MDMEASURE_AGGR_MIN) MEASURE aggregates from MIN. ▪ 4 - (MDMEASURE_AGGR_MAX) MEASURE aggregates from MAX. ▪ 5 - (MDMEASURE_AGGR_AVG) MEASURE aggregates from AVG. ▪ 6 - (MDMEASURE_AGGR_VAR) MEASURE aggregates from VAR. ▪ 7 - (MDMEASURE_AGGR_STD) Identifies that the measure was derived from an aggregation function that was SUM, COUNT, MIN, MAX, AVG, VAR, or STDEV, respectively. ▪ 127 -

Name	Type	Restrictions	Description
			<p>(MDMEASURE_AGGR_CALCULATED) Identifies that the measure was derived from a formula that was not any of the single functions listed above.</p> <ul style="list-style-type: none"> 0 - (MDMEASURE_AGGR_UNKNOWN) Identifies that the measure was derived from an unknown aggregation function or formula.
DATA_TYPE	xsd:int		This enumeration is the same as DATA_TYPE for MDSCHEMA_LEVELS. (See section 3.1.4.2.3.8.)
NUMERIC_PRECISION	xsd:unsignedShort		The maximum precision of the measure if the measure object's data type is Numeric, Decimal, or Datetime. NULL for all other property types.
NUMERIC_SCALE	xsd:short		The number of digits to the right of the decimal point if the measure object's type indicator is Numeric, Decimal or Datetime. Otherwise, this value is NULL.
MEASURE_UNITS	xsd:string		The units for the measure.
DESCRIPTION	xsd:string		A description of the measure.
EXPRESSION	xsd:string		An expression for the member.
MEASURE_IS_VISIBLE	xsd:boolean		A Boolean that always returns a value of "TRUE". If the measure is not visible, it will not be included in the schema rowset.
LEVELS_LIST	xsd:string		Not currently in use. <59>
MEASURE_NAME_SQL_COLUMN_NAME	xsd:string		The name of the column in the SQL query that corresponds to the measure's name.
MEASURE_UNQUALIFIED_CAPTION	xsd:string		The caption of the measure, not qualified with the measure group caption.
MEASUREGROUP_NAME	xsd:string	Yes	The name of the measure group to which the measure belongs.
MEASURE_DISPLAY_FOLDER	xsd:string		The display folder of the measure. <60>

Name	Type	Restrictions	Description
DEFAULT_FORMAT_STRING	xsd:string		The default format string for the measure.

The rowset is sorted on CATALOG_NAME, CUBE_NAME, and DIMENSION_NAME.

3.1.4.2.3.9.2 Additional Restrictions

In addition to the column restrictions indicated in the previous section, the following additional restrictions may also apply to this rowset.

Name	Type	Description
CUBE_SOURCE	xsd:unsignedShort	A bitmask with one of these valid values: <ul style="list-style-type: none"> ▪ 0x01 - Cube ▪ 0x02 - Dimension Default restriction is a value of 1.
MEASURE_VISIBILITY	xsd:unsignedShort	A bitmask with one of these valid values: <ul style="list-style-type: none"> ▪ 0x01 - Visible ▪ 0x02 - Not Visible Default restriction is a value of 1.

3.1.4.2.3.10 MDSHEMA_PROPERTIES

This schema rowset describes the properties of members and cell properties.

3.1.4.2.3.10.1 Columns

The MDSHEMA_PROPERTIES rowset MUST contain the following columns.

Name	Type	Restrictions	Description
CATALOG_NAME	xsd:string	Yes	The name of the database.
SCHEMA_NAME	xsd:string	Yes	The name of the schema.
CUBE_NAME	xsd:string	Yes	The name of the cube.
DIMENSION_UNIQUE_NAME	xsd:string	Yes	The unique name of the dimension.
HIERARCHY_UNIQUE_NAME	xsd:string	Yes	The unique name of the hierarchy.
LEVEL_UNIQUE_NAME	xsd:string	Yes	The unique name of

Name	Type	Restrictions	Description
			the level to which this property belongs.
MEMBER_UNIQUE_NAME	xsd:string	Yes	The unique name of the member to which the property belongs.
PROPERTY_TYPE	xsd:short	Yes	A bitmask that specifies the type of the property: <ul style="list-style-type: none"> ▪ 1 - Identifies a property of a member. ▪ 2 - Identifies a property of a cell. ▪ 4 - Identifies an internal property. ▪ 8 - Identifies a property which contains a binary large object (BLOB).
PROPERTY_NAME	xsd:string	Yes	The name of the property. <61>
PROPERTY_CAPTION	xsd:string		A label or caption associated with the property. <62>
DATA_TYPE	xsd:int		This enumeration is the same as DATA_TYPE for MDSCHEMA_LEVELS. (See 3.1.4.2.3.8)
CHARACTER_MAXIMUM_LENGTH	xsd:unsignedInt		The maximum possible length of the property, if it is Character or Binary type. Zero indicates there is no defined maximum length. Returns NULL for all other data types.
CHARACTER_OCTET_LENGTH	xsd:unsignedInt		The maximum possible length (in bytes) of the property, if it is a Character or Binary type.

Name	Type	Restrictions	Description
			Zero indicates there is no defined maximum length. Returns NULL for all other data types.
NUMERIC_PRECISION	xsd:unsignedShort		The maximum precision of the property if the measure object's data type is Numeric, Decimal or Datetime. NULL for all other property types.
NUMERIC_SCALE	xsd:short		The number of digits to the right of the decimal point if the measure object's type indicator is Numeric, Decimal or datetime. Otherwise, this value is NULL.
DESCRIPTION	xsd:string		A description of the property.
PROPERTY_CONTENT_TYPE	xsd:short		<p>The content type of the property.</p> <p>Built-in values are values listed as follows. This enumeration is extensible and additional values can be added by users.</p> <ul style="list-style-type: none"> ▪ 0x00 - Regular ▪ 0x01 - Id ▪ 0x02 - Relation to parent ▪ 0x03 - Rollup operator ▪ 0x11 - Organization title ▪ 0x21 - Caption ▪ 0x22 - Caption short ▪ 0x23 - Caption description

Name	Type	Restrictions	Description
			<ul style="list-style-type: none"> ▪ 0x24 - Caption abbreviation ▪ 0x31 - Web URL ▪ 0x32 - Web HTML ▪ 0x33 - Web XML or XSL ▪ 0x34 - Web mail alias ▪ 0x41 - Address ▪ 0x42 - Address street ▪ 0x43 - Address house ▪ 0x44 - Address city ▪ 0x45 - Address state or province ▪ 0x46 - Address zip ▪ 0x47 - Address quarter ▪ 0x48 - Address country ▪ 0x49 - Address building ▪ 0x4A - Address room ▪ 0x4B - Address floor ▪ 0x4C - Address fax ▪ 0x4D - Address phone ▪ 0x61 - Geography centroid x ▪ 0x62 - Geography centroid y ▪ 0x63 - Geography centroid z ▪ 0x64 - Geography

Name	Type	Restrictions	Description
			boundary top <ul style="list-style-type: none"> ▪ 0x65 - Geography boundary left ▪ 0x66 - Geography boundary bottom ▪ 0x67 - Geography boundary right ▪ 0x68 - Geography boundary front ▪ 0x69 - Geography boundary rear ▪ 0x6A - Geography boundary polygon ▪ 0x71 - Physical size ▪ 0x72 - Physical color ▪ 0x73 - Physical weight ▪ 0x74 - Physical height ▪ 0x75 - Physical width ▪ 0x76 - Physical depth ▪ 0x77 - Physical volume ▪ 0x78 - Physical density ▪ 0x82 - Person full name ▪ 0x83 - Person first name ▪ 0x84 - Person last name ▪ 0x85 - Person middle name ▪ 0x86 - Person demographic ▪ 0x87 - Person

Name	Type	Restrictions	Description
			contact <ul style="list-style-type: none"> ▪ 0x91 - Quantity range low ▪ 0x92 - Quantity range high ▪ 0xA1 - Formatting color ▪ 0xA2 - Formatting order ▪ 0xA3 - Formatting font ▪ 0xA4 - Formatting font effects ▪ 0xA5 - Formatting font size ▪ 0xA6 - Formatting sub total ▪ 0xB1 - Date ▪ 0xB2 - Date start ▪ 0xB3 - Date ended ▪ 0xB4 - Date canceled ▪ 0xB5 - Date modified ▪ 0xB6 - Date duration ▪ 0xC1 - Version
SQL_COLUMN_NAME	xsd:string		The column name of the property used in SQL queries.
LANGUAGE	xsd:unsignedShort		The language expressed as an LCID. Only valid for property translations.
PROPERTY_ORIGIN	xsd:unsignedShort	Yes	A bitmask that specifies the type of hierarchy that the property applies to: <ul style="list-style-type: none"> ▪ 1 - Indicates the property is on a

Name	Type	Restrictions	Description
			user defined hierarchy. <ul style="list-style-type: none"> ▪ 2 - Indicates the property is on an attribute hierarchy. ▪ 4 - Indicates the property is on a key attribute hierarchy. ▪ 8 - Indicates the property is on an attribute hierarchy that is not enabled.
PROPERTY_ATTRIBUTE_HIERARCHY_NAME	xsd:string		The name of the attribute hierarchy sourcing this property.
PROPERTY_CARDINALITY	xsd:string		The cardinality of the property. Possible values include the following strings: <ul style="list-style-type: none"> ▪ "ONE" ▪ "MANY"
MIME_TYPE	xsd:string		The MIME type (if this property is of type Binary).
PROPERTY_IS_VISIBLE	xsd:boolean		A Boolean that indicates whether the property is visible.

This schema rowset is not sorted.

3.1.4.2.3.10.2 Additional Restrictions

In addition to the column restrictions indicated in the previous section, the following additional restrictions may also apply to this rowset.

Name	Type	Description
CUBE_SOURCE	xsd:unsignedShort	A bitmask with one of these valid values: <ul style="list-style-type: none"> ▪ 0x01 - Cube ▪ 0x02 - Dimension

Name	Type	Description
		Default restriction is a value of 1.
PROPERTY_VISIBILITY	xsd:unsignedShort	A bitmask with one of these valid values: <ul style="list-style-type: none"> ▪ 0x01 - Visible ▪ 0x02 - Not Visible Default restriction is a value of 1.

3.1.4.2.3.11 MDSHEMA_MEMBERS

This schema rowset describes the members within a database.

3.1.4.2.3.11.1 Columns

The MDSHEMA_MEMBERS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
CATALOG_NAME	xsd:string	Yes	The name of the database.
SCHEMA_NAME	xsd:string	Yes	The name of the schema.
CUBE_NAME	xsd:string	Yes	The name of the cube.
DIMENSION_UNIQUE_NAME	xsd:string	Yes	The unique name of the dimension.
HIERARCHY_UNIQUE_NAME	xsd:string	Yes	The unique name of the hierarchy.
LEVEL_UNIQUE_NAME	xsd:string	Yes	The unique name of the level.
LEVEL_NUMBER	xsd:unsignedInt	Yes	The distance of the member from the root of the hierarchy. The root level is zero (0).
MEMBER_ORDINAL	xsd:unsignedInt		The ordinal of the member in its level.
MEMBER_NAME	xsd:string	Yes	The name of the member.
MEMBER_UNIQUE_NAME	xsd:string	Yes	The unique name of the member.
MEMBER_TYPE	xsd:int	Yes	The type of the member. <63> <ul style="list-style-type: none"> ▪ 1 - Is a regular member. ▪ 2 - Is the All member. ▪ 3 - Is a measure. ▪ 4 - Is a formula. ▪ 0 - Is of unknown type.
MEMBER_GUID	uuid		The GUID of the member.
MEMBER_CAPTION	xsd:string	Yes	The caption of the member.

Name	Type	Restrictions	Description
CHILDREN_CARDINALITY	xsd:unsignedInt		The number of children that the member has. This can be an estimate.
PARENT_LEVEL	xsd:unsignedInt		The distance of the member's parent from the root level of the hierarchy. The root level is zero (0).
PARENT_UNIQUE_NAME	xsd:string		The unique name of the member's parent. NULL is returned for any members at the root level.
PARENT_COUNT	xsd:unsignedInt		The number of parents that this member has.
DESCRIPTION	xsd:string		The description of the member.
EXPRESSION	xsd:string		The expression for calculations, if the member is of type 4 (Formula).
MEMBER_KEY	xsd:string		The value of the member's key column. Returns NULL if the member has a composite key.
IS_PLACEHOLDERMEMBER	xsd:boolean		A Boolean that indicates whether a member is a placeholder member for an empty position in a dimension hierarchy. It is valid only if the MDX Compatibility property has been set to 1.
IS_DATAMEMBER	xsd:boolean		A Boolean that indicates whether the member is a data member.
SCOPE	xsd:int		The scope of the member. The member can be a session-calculated member or a global-calculated member. The column returns NULL for non-calculated members. This column can have one of the following values: <ul style="list-style-type: none"> ▪ 1 - Global ▪ 2 - Session

Additional columns may be returned in this schema rowset for custom member properties.

This rowset is sorted on CATALOG_NAME, CUBE_NAME, DIMENSION_UNIQUE_NAME, HIERARCHY_UNIQUE_NAME, LEVEL_UNIQUE_NAME, LEVEL_NUMBER, MEMBER_ORDINAL.

3.1.4.2.3.11.2 Additional Restrictions

In addition to the column restrictions indicated in the previous section, the following additional restrictions may also apply to this rowset.

Name	Type	Description
CUBE_SOURCE	xsd:unsignedShort	A bitmask with one of these valid values: <ul style="list-style-type: none"> 0x01 - Cube 0x02 - Dimension Default restriction is a value of 1.
TREE_OP	xsd:int	Only applies to a single member: <ul style="list-style-type: none"> 0x20 - Returns all of the ancestors. 0x01 - Returns only the immediate children. 0x02 - Returns members on the same level. 0x04 - Returns only the immediate parent. 0x08 - Returns itself in the list of returned rows. 0x10 - Returns all of the descendants.

3.1.4.2.3.12 MDSHEMA_ACTIONS

This schema rowset describes the actions that may be available to the client application.

3.1.4.2.3.12.1 Columns

The MDSHEMA_ACTIONS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
CATALOG_NAME	xsd:string	Yes	The name of the database.
SCHEMA_NAME	xsd:string	Yes	The name of the schema.
CUBE_NAME	xsd:string	[Required]	The name of the cube.
ACTION_NAME	xsd:string	Yes	The name of this action.
ACTION_TYPE	xsd:int	Yes	A bitmask that is used to specify the action type. <ul style="list-style-type: none"> 0x01 - Action type is URL. 0x02 - Action type is HTML. 0x04 - Action type is Statement. 0x08 - Action type is Dataset. 0x10 - Action type is Rowset. 0x20 - Action type is Commandline. 0x40 - Action type is Proprietary.

Name	Type	Restrictions	Description
			<ul style="list-style-type: none"> ▪ 0x80 - Action type is Report. ▪ 0x100 - Action type is Drillthrough.
COORDINATE	xsd:string	[Required]	An MDX expression that specifies an object or a coordinate in the multidimensional space in which the action is performed. The COORDINATE must resolve to the object specified in COORDINATE_TYPE.
COORDINATE_TYPE	xsd:int	[Required]	<p>An enumeration that specifies how the COORDINATE restriction column is interpreted. The possible values are as follows:</p> <ul style="list-style-type: none"> ▪ 1 - Action coordinate refers to the cube. ▪ 2 - Action coordinate refers to a dimension. ▪ 3 - Action coordinate refers to a level. ▪ 4 - Action coordinate refers to a member. ▪ 5 - Action coordinate refers to a set. ▪ 6 - Action coordinate refers to a cell.
ACTION_CAPTION	xsd:string		The Caption for the Action. The action name is used if no caption was specified and no translations were specified when the action was created or altered.
DESCRIPTION	xsd:string		A description of the action.
CONTENT	xsd:string		The expression or content of the action that is to be run.
APPLICATION	xsd:string		The name of the application that is to be used to run the action.
INVOCATION	xsd:int	Yes	<p>Information about how to invoke the action:</p> <ul style="list-style-type: none"> ▪ 1 - Indicates a regular action used during normal operations. This is the default value for this column. ▪ 2 - Indicates to perform the action when the cube is first opened. ▪ 4 - Indicates that the action is performed as part of a batch operation.

The rowset is sorted on CATALOG_NAME, CUBE_NAME, ACTION_NAME. Actions of MDACTION_TYPE_PROPRIETARY type must provide a value for the APPLICATION column.

3.1.4.2.3.12.2 Additional Restrictions

In addition to the column restrictions indicated in the previous section, the following additional restrictions may also apply to this rowset.

Name	Type	Description
CUBE_SOURCE	xsd:unsignedShort	A bitmask with one of these valid values: <ul style="list-style-type: none"> 0x01 - Cube 0x02 - Dimension Default restriction is a value of 1.

3.1.4.2.3.12.3 Remarks

The following table lists the valid COORDINATE and COORDINATE_TYPE combinations.

COORDINATE Object Type	COORDINATE_TYPE
Cube	MDACTION_COORDINATE_CUBE
Dimension	MDACTION_COORDINATE_DIMENSION MDACTION_COORDINATE_LEVEL MDACTION_COORDINATE_MEMBER MDACTION_COORDINATE_SET MDACTION_COORDINATE_CELL
Hierarchy	MDACTION_COORDINATE_DIMENSION
Level	MDACTION_COORDINATE_LEVEL
Member	MDACTION_COORDINATE_MEMBER
Set	MDACTION_COORDINATE_SET
Cell	MDACTION_COORDINATE_CELL

3.1.4.2.3.13 MDSHEMA_SETS

This Discover element describes any sets that are currently defined in a database, including session-scoped sets.

3.1.4.2.3.13.1 Columns

The MDSHEMA_SETS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
CATALOG_NAME	xsd:string	Yes	The name of the database.
SCHEMA_NAME	xsd:string	Yes	The name of the schema.
CUBE_NAME	xsd:string	Yes	The name of the cube.
SET_NAME	xsd:string	Yes	The name of the set, as specified in the CREATE SET statement.
SCOPE	xsd:int	Yes	The scope of the set: The scope of the set. The set can be a

Name	Type	Restrictions	Description
			session-defined set or global-defined set. This column can have one of the following values: <ul style="list-style-type: none"> 1 - Global 2 - Session
DESCRIPTION	xsd:string		A description of the set.
EXPRESSION	xsd:string		The expression for the set.
DIMENSIONS	xsd:string		A comma-delimited list of hierarchies included in the set.
SET_CAPTION	xsd:string		A caption associated with the set.
SET_DISPLAY_FOLDER	xsd:string		The display folder.
SET_EVALUATION_CONTEXT	xsd:int		The context for the set. The set can be static or dynamic. This column can have one of the following values: <ul style="list-style-type: none"> 1 - STATIC 2 - DYNAMIC

The rowset is sorted on CATALOG_NAME and CUBE_NAME.

3.1.4.2.3.13.2 Additional Restrictions

In addition to the column restrictions indicated in the previous section, the following additional restrictions may also apply to this rowset.

Name	Type	Description
CUBE_SOURCE	xsd:unsignedShort	A bitmask with one of these valid values: <ul style="list-style-type: none"> 0x01 - Cube 0x02 - Dimension Default restriction is a value of 1.
HIERARCHY_UNIQUE_NAME	xsd:string	Unique name of the hierarchy containing the set.

3.1.4.2.3.14 MDSHEMA_INSTANCES

This schema rowset describes the instances on the server.

3.1.4.2.3.14.1 Columns

The DISCOVER_INSTANCES rowset MUST contain the following columns.

Name	Type	Restrictions	Description
INSTANCE_NAME	xsd:string	Yes	The name of the instance.
INSTANCE_PORT_NUMBER	xsd:int		The port number the instance listens on.
INSTANCE_STATE	xsd:int		The state of the server instance. This column can have one of the following values: <ul style="list-style-type: none"> ▪ Started ▪ Stopped ▪ Starting ▪ Stopping ▪ Paused

This schema rowset is not sorted.

3.1.4.2.3.15 MDSHEMA_KPIS

This schema rowset describes the KPIs within a database.

3.1.4.2.3.15.1 Columns

The MDSHEMA_KPIS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
CATALOG_NAME	xsd:string	Yes	The name of the database.
SCHEMA_NAME	xsd:string	Yes	The name of the schema.
CUBE_NAME	xsd:string	Yes	The parent cube for the KPI.
MEASUREGROUP_NAME	xsd:string		The associated measure group for the KPI.
KPI_NAME	xsd:string	Yes	The name of the KPI.
KPI_CAPTION	xsd:string		A label or caption associated with the KPI.
KPI_DESCRIPTION	xsd:string		A description of the KPI.
KPI_DISPLAY_FOLDER	xsd:string		The display folder.
KPI_VALUE	xsd:string		The unique name of the member in the measures dimension for the KPI Value.
KPI_GOAL	xsd:string		The unique name of the member in the measures dimension for the KPI Goal.
KPI_STATUS	xsd:string		The unique name of the member

Name	Type	Restrictions	Description
			in the measures dimension for the KPI Status.
KPI_TREND	xsd:string		The unique name of the member in the measures dimension for the KPI Trend.
KPI_STATUS_GRAPHIC	xsd:string		The default graphical representation of the KPI status.
KPI_TREND_GRAPHIC	xsd:string		The default graphical representation of the KPI trend.
KPI_WEIGHT	xsd:string		The unique name of the member in the measures dimension for the KPI Weight.
KPI_CURRENT_TIME_MEMBER	xsd:string		The unique name of the member in the time dimension that defines the temporal context of the KPI.
KPI_PARENT_KPI_NAME	xsd:string		The name of the parent KPI.
ANNOTATIONS	xsd:string		The annotations on the KPI.
CUBE_SOURCE	xsd:unsignedShort	Yes	Optional. A bitmap with one of the following valid values: <ul style="list-style-type: none"> ▪ 1 - CUBE ▪ 2 - DIMENSION Default restriction is a value of 1.

This schema rowset is not sorted.

3.1.4.2.3.15.2 Additional Restrictions

In addition to the column restrictions indicated in the previous section, the following additional restrictions may also apply to this rowset.

Name	Type	Description
CUBE_SOURCE	xsd:unsignedShort	A bitmask with one of these valid values: <ul style="list-style-type: none"> ▪ 0x01 - Cube ▪ 0x02 - Dimension Default restriction is a value of 1.

3.1.4.2.3.16 MDSCHEMA_MEASUREGROUPS

This schema rowset describes the measure groups within a database.

3.1.4.2.3.16.1 Columns

The MDSHEMA_MEASUREGROUPS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
CATALOG_NAME	xsd:string	Yes	The name of the catalog.
SCHEMA_NAME	xsd:string	Yes	The name of the schema.
CUBE_NAME	xsd:string	Yes	The name of the cube.
MEASUREGROUP_NAME	xsd:string	Yes	The name of the measure group.
DESCRIPTION	xsd:string		A description of the member.
IS_WRITE_ENABLED	xsd:boolean		A Boolean that indicates whether the measure group is write-enabled. Returns "TRUE" if the measure group is write enabled.
MEASUREGROUP_CAPTION	xsd:string		The caption for the measure group.

This schema rowset is not sorted.

3.1.4.2.3.17 MDSHEMA_MEASUREGROUP_DIMENSIONS

This schema rowset enumerates the dimensions of measure groups.

3.1.4.2.3.17.1 Columns

The MDSHEMA_MEASUREGROUP_DIMENSIONS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
CATALOG_NAME	xsd:string	Yes	The name of the catalog.
SCHEMA_NAME	xsd:string	Yes	The name of the schema.
CUBE_NAME	xsd:string	Yes	The name of the cube.
MEASUREGROUP_NAME	xsd:string	Yes	The name of the measure group.
MEASUREGROUP_CARDINALITY	xsd:string		The number of instances a measure in the measure group can have for a single dimension member. Possible values include: <ul style="list-style-type: none">ONEMANY
DIMENSION_UNIQUE_NAME	xsd:string	Yes	The unique name for the dimension.
DIMENSION_CARDINALITY	xsd:string	Yes	The number of instances a dimension member can have for a single instance of a measure group

Name	Type	Restrictions	Description
			measure. Possible values include: <ul style="list-style-type: none"> ONE MANY
DIMENSION_IS_VISIBLE	xsd:boolean		A Boolean that indicates if hierarchies in the dimension are visible.
DIMENSION_IS_FACT_DIMENSION	xsd:boolean		A Boolean that indicates if the dimension is a fact dimension.
DIMENSION_PATH	nested rowset		A list of dimensions for the reference dimension. The column name of the nested row is 'MeasureGroupDimension'. For information on nested rowsets, see section 2.2.4.2.2.11.1 .
DIMENSION_GRANULARITY	xsd:string		The unique name of the attribute hierarchy that represents the granularity of the dimension.

The rowset supports sorting on CATALOG_NAME, CUBE_NAME, MEASUREGROUP_NAME, DIMENSION_UNIQUE_NAME.

3.1.4.2.3.17.2 Additional Restrictions

In addition to the column restrictions indicated in the previous section, the following additional restrictions may also apply to this rowset.

Name	Type	Description
DIMENSION_VISIBILITY	xsd:unsignedShort	A bitmask with one of these valid values: <ul style="list-style-type: none"> 0x01 - Visible 0x02 - Not Visible Default restriction is a value of 1.

3.1.4.2.3.18 MDSCHEMA_INPUT_DATASOURCES

This schema rowset request describes the data source objects defined within the database.

3.1.4.2.3.18.1 Columns

The MDSCHEMA_INPUT_DATASOURCES rowset MUST contain the following columns.

Name	Type	Restrictions	Description
CATALOG_NAME	xsd:string	Yes	The name of the catalog.

Name	Type	Restrictions	Description
SCHEMA_NAME	xsd:string	Yes	The name of the schema.
DATASOURCE_NAME	xsd:string	Yes	The name of the data source object.
DATASOURCE_TYPE	xsd:string	Yes	The type of the data source. Valid values include: <ul style="list-style-type: none"> ▪ Relational ▪ Olap
CREATED_ON	xsd:dateTime		The date that the data source was created.
LAST_SCHEMA_UPDATE	xsd:dateTime		The date and time that the data source was last modified.
DESCRIPTION	xsd:string		description of the action.
TIMEOUT	xsd:unsignedInt		The timeout of the data source.
DBMS_NAME	xsd:string		The external data source name.
DBMS_VERSION	xsd:string		The external data source version.

The rowset is not sorted.

3.1.4.2.3.19 DMSHEMA_MINING_SERVICES

This schema rowset provides information about each data mining algorithm that the server supports.

3.1.4.2.3.19.1 Columns

The DMSHEMA_MINING_SERVICES rowset MUST contain the following columns.

Name	Type	Restrictions	Description
SERVICE_NAME	xsd:string	Yes	The name of the algorithm.
SERVICE_TYPE_ID	xsd:unsignedInt	Yes	This column contains a binary value that describes the mining service. <64>
SERVICE_DISPLAY_NAME	xsd:string		A localizable display name for the algorithm.
SERVICE_GUID	uuid		The GUID for the algorithm.
DESCRIPTION	xsd:string		A human-readable description of the algorithm.
PREDICTION_LIMIT	xsd:unsignedInt		The maximum number of predictions the model and algorithm can provide.

Name	Type	Restrictions	Description
SUPPORTED_DISTRIBUTION_FLAGS	xsd:string		<p>A comma-delimited list of flags that describe the statistical distributions supported by the algorithm. This column contains one or more of the following values:</p> <ul style="list-style-type: none"> ▪ NORMAL ▪ LOG NORMAL ▪ UNIFORM
SUPPORTED_INPUT_CONTENT_TYPES	xsd:string		<p>A comma-delimited list of flags that describe the input content types that are supported by the algorithm. This column contains one or more of the following values:</p> <ul style="list-style-type: none"> ▪ KEY ▪ DISCRETE ▪ CONTINUOUS ▪ DISCRETIZED ▪ ORDERED ▪ KEY SEQUENCE ▪ CYCLICAL ▪ PROBABILITY ▪ VARIANCE ▪ STDEV ▪ SUPPORT ▪ PROBABILITY VARIANCE ▪ PROBABILITY STDEV ▪ KEY TIME
SUPPORTED_PREDICTION_CONTENT_TYPES	xsd:string		<p>A comma-delimited list of flags that describe the prediction content types that are supported by the algorithm. This column contains one or more of the following values:</p> <ul style="list-style-type: none"> ▪ KEY ▪ DISCRETE ▪ CONTINUOUS

Name	Type	Restrictions	Description
			<ul style="list-style-type: none"> ▪ DISCRETIZED ▪ ORDERED ▪ KEY SEQUENCE ▪ CYCLICAL ▪ PROBABILITY ▪ VARIANCE ▪ STDEV ▪ SUPPORT ▪ PROBABILITY VARIANCE ▪ PROBABILITY STDEV ▪ KEY TIME
SUPPORTED_MODELING_FLAGS	xsd:string		<p>A comma-delimited list of the modeling flags that are supported by the algorithm. Currently defined flags will include one or more of the following values:</p> <ul style="list-style-type: none"> ▪ MODEL_EXISTENCE_ONLY ▪ REGRESSOR <p>Server-specific flags can also appear in this column.</p>
SUPPORTED_SOURCE_QUERY	xsd:string		Reserved for future use.
TRAINING_COMPLEXITY	xsd:string		<p>The length of time that training is expected to take:</p> <ul style="list-style-type: none"> ▪ 0 - DM_TRAINING_COMPLEXITY_LOW indicates that the running time is relatively short, and that it is proportional to input. ▪ 1 - DM_TRAINING_COMPLEXITY_MEDIUM indicates that the running time may be long, but that it is generally proportional to input. ▪ 2 - DM_TRAINING_COMPLEXITY_HIGH indicates that the running time is long and that it may grow exponentially in relationship to the number of training cases.

Name	Type	Restrictions	Description
PREDICTION_COMPLEXITY	xsd:string		<p>The length of time that prediction is expected to take:</p> <ul style="list-style-type: none"> ▪ 0 - DM_PREDICTION_COMPLEXITY_LOW indicates that the running time is relatively short, and that it is proportional to input. ▪ 1 - DM_PREDICTION_COMPLEXITY_MEDIUM indicates that the running time may be long, but that it is generally proportional to input. ▪ 2 - DM_PREDICTION_COMPLEXITY_HIGH indicates that the running time is long and that it may grow exponentially in relationship to the number of training cases.
EXPECTED_QUALITY	xsd:string		<p>The expected quality of the model produced with this algorithm:</p> <ul style="list-style-type: none"> ▪ 0 - DM_EXPECTED_QUALITY_LOW ▪ 1 - DM_EXPECTED_QUALITY_MEDIUM ▪ 2 - DM_EXPECTED_QUALITY_HIGH
SCALING	xsd:string		<p>The scalability of the algorithm:</p> <ul style="list-style-type: none"> ▪ 0 - DM_SCALING_LOW ▪ 1 - DM_SCALING_MEDIUM ▪ 2 - DM_SCALING_HIGH
ALLOW_INCREMENTAL_INSERT	xsd:boolean		<p>A Boolean that indicates whether the algorithm supports incremental training, that is, updating the discovered patterns based on new factual data, rather than fully rediscovering the patterns.</p>
ALLOW_PMML_INITIALIZATION	xsd:boolean		<p>A Boolean that indicates whether mining models can be created based on a PMML 2.1 string.</p> <p>If true, the mining algorithm supports initialization from PMML 2.1 content.</p>
CONTROL	xsd:string		<p>The support given by the service if training is interrupted:</p>

Name	Type	Restrictions	Description
			<ul style="list-style-type: none"> ▪ DM_CONTROL_NONE indicates that the algorithm cannot be canceled after it starts to train the model. ▪ DM_CONTROL_CANCEL indicates that the algorithm can be canceled after it starts to train the model, but that it must be restarted to resume training. ▪ DM_CONTROL_SUSPENDRESUME indicates that the algorithm can be canceled and resumed at any time, but that results are not available until training is complete. ▪ DM_CONTROL_SUSPENDWITHRESULT indicates that the algorithm can be canceled and resumed at any time, and that any incremental results can be obtained.
ALLOW_DUPLICATE_KEY	xsd:boolean		A Boolean that indicates whether cases can contain duplicate keys. If VARIANT_TRUE, cases are allowed to contain duplicate keys.
VIEWER_TYPE	xsd:string		The recommended viewer for this model.
HELP_FILE	xsd:string		The name of the file that contains the documentation for this service. This HELP FILE is optional.
HELP_CONTENT	xsd:string		The Help context ID for this service. The HELP CONTENT is optional.
MSOLAP_SUPPORTS_ANALYSIS_SERVICES_DDL	xsd:string		The version of DDL supported. Zero indicates no DDL support.
MSOLAP_SUPPORTS_OLAP_MINING_MODELS	xsd:Boolean		A Boolean that indicates whether OLAP mining models can be created. If true, OLAP mining models can be created and MSOLAP_SUPPORTS_ANALYSIS_SERVICES_DDL MUST be non-zero.
MSOLAP_SUPPORTS_DATA_MINING_DIMENSIONS	xsd:boolean		A Boolean that indicates whether data mining dimensions can be created. If true, data mining dimensions can

Name	Type	Restrictions	Description
			be created.
MSOLAP_SUPPORTS_DRILLTHROUGH	xsd:boolean		A Boolean that indicates whether the service supports drill-through capabilities. If true, the service supports drill-through capabilities.

The rowset is sorted on SERVICE_NAME.

3.1.4.2.3.20 DMSHEMA_MINING_SERVICE_PARAMETERS

This schema rowset provides a list of parameters that can be used to configure the behavior of each data mining algorithm that is installed on the server.

3.1.4.2.3.20.1 Columns

The DMSHEMA_MINING_PARAMETERS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
SERVICE_NAME	xsd:string	Yes	The name of the algorithm.
PARAMETER_NAME	xsd:string	Yes	The name of the parameter.
PARAMETER_TYPE	xsd:string		The type of the parameter.
IS_REQUIRED	xsd:boolean		A Boolean that returns TRUE if the parameter is required.
PARAMETER_FLAGS	xsd:unsignedInt		A bitmask that describes the characteristics of the parameter: <ul style="list-style-type: none"> DM_PARAMETER_TRAINING (0x0000001) - Indicates that the parameter is used for training. DM_PARAMETER_PREDICTION (0x0000002) - Indicates that the parameter is used for prediction. DM_PARAMETER_CONTENT (0x0000003) - Indicates that the parameter is used for content restriction.
DESCRIPTION	xsd:string		A human-readable description of the parameter.
DEFAULT_VALUE	xsd:string		The default value of the parameter. Returns NULL if the default value is not a simple data type.
VALUE_ENUMERATION	xsd:string		An enumerator of possible values for the parameter.

Name	Type	Restrictions	Description
HELP_FILE	xsd:string		The name of the file that contains documentation for this parameter.
HELP_CONTEXT	xsd:string		The help context ID for this function.

The rowset is sorted on SERVICE_NAME, and then sorted on PARAMETER_NAME.

3.1.4.2.3.21 DMSHEMA_MINING_FUNCTIONS

This schema rowset describes the data mining functions that are supported by the data mining algorithms available on a server that is running Microsoft® SQL Server® 2008 Analysis Services.

3.1.4.2.3.21.1 Columns

The DMSHEMA_FUNCTIONS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
SERVICE_NAME	xsd:string	Yes	The name of the algorithm.
FUNCTION_NAME	xsd:string	Yes	The name of the function.
FUNCTION_SIGNATURE	xsd:string		The signature of the function.
RETURNS_TABLE	xsd:boolean		Whether or not the function returns a table. FALSE if the function returns scalar content (such as the length of the character argument); TRUE if the function returns a table (such as a histogram table).
DESCRIPTION	xsd:string		A human-readable description of the function.
HELP_FILE	xsd:string		The name of the file that contains this function's documentation.
HELP_CONTENT	xsd:string		The help context ID for this function.

The rowset is sorted on SERVICE_NAME, and then sorted on FUNCTION_NAME.

3.1.4.2.3.22 DMSHEMA_MINING_MODEL_CONTENT

This schema rowset enables the client application to browse the content of a trained data mining model.

3.1.4.2.3.22.1 Columns

The DMSHEMA_MINING_MODEL_CONTENT rowset MUST contain the following columns.

Name	Type	Restrictions	Description
MODEL_CATALOG	xsd:string	Yes	The catalog name.

Name	Type	Restrictions	Description
MODEL_SCHEMA	xsd:string	Yes	The unqualified schema name.
MODEL_NAME	xsd:string	Yes	The name of the model with which the content described by this row is associated.
ATTRIBUTE_NAME	xsd:string	Yes	The names of the attributes that correspond to this node.
NODE_NAME	xsd:string	Yes	The name of the node. Currently, this column contains the same value as NODE_UNIQUE_NAME, although this may change in future releases.
NODE_UNIQUE_NAME	xsd:string	Yes	The unique name of the node.
NODE_TYPE	xsd:int	Yes	<p>The type of the node. Will generate one of the following values (third-party data mining algorithms can extend this list):</p> <ul style="list-style-type: none"> ▪ DM_NODE_TYPE_CLASSIFICATION_TREE_ROOT (2) ▪ DM_NODE_TYPE_TREE_INTERIOR (3) ▪ DM_NODE_TYPE_TREE_DISTRIBUTION (4) ▪ DM_NODE_TYPE_CLUSTER (5) ▪ DM_NODE_TYPE_UNKNOWN (6) ▪ DM_NODE_TYPE_ITEMSET (7) ▪ DM_NODE_TYPE_ASSOCIATION_RULE (8) ▪ DM_NODE_TYPE_NB_PREDICTABLE_ATTRIBUTE (9) ▪ DM_NODE_TYPE_NB_INPUT_ATTRIBUTE (10) ▪ DM_NODE_TYPE_NB_INPUT_ATTRIBUTE_STATE (11) ▪ DM_NODE_TYPE_SEQUENCE (13) ▪ DM_NODE_TYPE_TRANSITION (14) ▪ DM_NODE_TYPE_TIME_SERIES (15) ▪ DM_NODE_TYPE_TS_TREE (16) ▪ DM_NODE_TYPE_NN_SUBNETWORK (17)

Name	Type	Restrictions	Description
			Neural network, subnetwork <ul style="list-style-type: none"> ▪ DM_NODE_TYPE_NN_INPUT_LAYER (18) Neural network, input layer (parent of input nodes) ▪ DM_NODE_TYPE_NN_HIDDEN_LAYER (19) Neural network, hidden layer (parent of hidden nodes) ▪ DM_NODE_TYPE_NN_OUTPUT_LAYER (20) Neural network, output layer (parent of output nodes) ▪ DM_NODE_TYPE_NN_INPUT_NODE (21) Neural network, input node ▪ DM_NODE_TYPE_NN_HIDDEN_NODE (22) Neural network, hidden node ▪ DM_NODE_TYPE_NN_OUTPUT_NODE (23) Neural network, output node ▪ DM_NODE_TYPE_NN_MARGINAL_STAT_NODE (24) Neural network, marginal stat node ▪ DM_NODE_TYPE_REGRESSION_TREE_ROOT (25) ▪ DM_NODE_TYPE_NB_MARGINAL_STAT_NODE (26) Neural network, marginal stat node
NODE_GUID	uuid	Yes	The node GUID. This column is not supported by Analysis Services; it always contains NULL.
NODE_CAPTION	xsd:string	Yes	A label or a caption associated with the node. This property is primarily for display purposes.
CHILDREN_CARDINALITY	xsd:unsignedInt		An estimate of the number of children that the node has.
PARENT_UNIQUE_NAME	xsd:string		The unique name of the node's parent. NULL is returned for any nodes at the root level.
NODE_DESCRIPTION	xsd:string		Human-readable description of the node.
NODE_RULE	xsd:string		An XML description of the rule that is embedded in the node.

Name	Type	Restrictions	Description
MARGINAL_RULE	xsd:string		An XML description of the rule that is moving to the node from the parent node.
NODE_PROBABILITY	xsd:float		The probability associated with this node.
MARGINAL_PROBABILITY	xsd:float		The probability of reaching the node from the parent node.
NODE_DISTRIBUTION	DBTYPE_HCHAPTER		A table that contains the probability histogram of the node.
SUPPORT	xsd:float		Count of the cases that have this attribute-value pair, or that contain this itemset or rule.
PROBABILITY	xsd:float		Indicates the probability for this specific node within the entire model.
VARIANCE	xsd:float		Indicates the variance of the values within the node. By definition, variance is always zero for discrete values. If the model supports continuous values, variance is computed as σ^2 (sigma), using the denominator n , representing the number of cases in the node.
VALUETYPE	xsd:unsignedInt		Indicates the data type of the value or an attribute, and the usage of the value. Certain value types apply only to certain model types: <ul style="list-style-type: none"> ▪ 1 - Missing ▪ 2 - Existing ▪ 3 - Continuous ▪ 4 - Discrete ▪ 5 - Discretized ▪ 6 - Existing ▪ 7 - Coefficient ▪ 8 - Score gain ▪ 9 - Statistics ▪ 10 - Node unique name ▪ 11 - Intercept ▪ 12 - Periodicity ▪ 13 - Autoregressive order

Name	Type	Restrictions	Description
			<ul style="list-style-type: none"> ▪ 14 - Moving average order ▪ 15 - Difference order ▪ 16 - Boolean ▪ 17 - Other ▪ 18 - Pre-rendered string
NODE_SUPPORT	xsd:float		The number of cases that support this node.
MSOLAP_MODEL_COLUMN	xsd:string		The name of the column from the model definition to which this node pertains.
MSOLAP_NODE_SCORE	xsd:float		The score that was computed for this node.
MSOLAP_NODE_SHORT_CAPTION	xsd:string		A short caption for the node that can be used for display purposes to improve readability.

The rowset is sorted on MODEL_CATALOG, MODEL_SCHEMA, MODEL_NAME and ATTRIBUTE_NAME.

3.1.4.2.3.22.2 Additional Restrictions

In addition to the column restrictions indicated in the previous section, the following additional restrictions may also apply to this rowset.

Name	Type	Description
TREE_OPERATION	xsd:unsignedInt	<p>The restriction, TREE_OPERATION, does not apply to any particular column of the DMSHEMA_MINING_MODEL_CONTENT rowset; rather, it specifies a tree operator. The consumer can specify a NODE_UNIQUE_NAME restriction and the tree operator (ANCESTORS, CHILDREN, SIBLINGS, PARENT, DESCENDANTS, SELF) to obtain the requested set of members. The SELF operator includes the row for the node itself in the list of returned rows. The following list describes the constants that make up the bitmap definition for the TREE_OPERATION restriction. They can be combined by using the logical OR operator.</p> <ul style="list-style-type: none"> ▪ DMTREEOP_ANCESTORS = 0x00000020 ▪ DMTREEOP_CHILDREN = 0x00000001 ▪ DMTREEOP_SIBLINGS = 0x00000002 ▪ DMTREEOP_PARENT = 0x00000004 ▪ DMTREEOP_SELF = 0x00000008 ▪ DMTREEOP_DESCENDANTS = 0x00000020

3.1.4.2.3.23 DMSHEMA_MINING_MODEL_XML

This schema rowset returns the XML structure of the mining model. The format of the XML string follows the Predictive Model Markup Language (PMML 2.1) standard.

3.1.4.2.3.23.1 Columns

The DMSHEMA_MINING_MODEL_XML rowset MUST contain the following columns.

Name	Type	Restrictions	Description
MODEL_CATALOG	xsd:string	Yes	The catalog name.
MODEL_SCHEMA	xsd:string	Yes	The unqualified schema name.
MODEL_NAME	xsd:string	Yes	The model name.
MODEL_TYPE	xsd:string	Yes	The model type.
MODEL_GUID	uuid		The GUID that identifies the model.
MODEL_PMML	xsd:string		An XML representation of the model's content in PMML format.
SIZE	xsd:unsignedInt		The number of bytes in the XML string.
LOCATION	xsd:string		The location of the XML file. It is NULL if a physical file is not used for storage.

The rowset is not sorted.

3.1.4.2.3.24 DMSHEMA_MINING_MODEL_CONTENT_PMML

This schema rowset returns the XML structure of the mining model. The format of the XML string follows the Predictive Model Markup Language (PMML 2.1) standard.

3.1.4.2.3.24.1 Columns

The DMSHEMA_MINING_MODEL_CONTENT_PMML rowset MUST contain the following columns.

Name	Type	Restrictions	Description
MODEL_CATALOG	xsd:string	Yes	The catalog name that is populated with the name of the database of which the model is a member.
MODEL_SCHEMA	xsd:string	Yes	The unqualified schema name. This column is not supported by Microsoft Microsoft® SQL Server® 2008 Analysis Services; it always contains NULL.
MODEL_NAME	xsd:string	Yes	The model name. This column cannot contain NULL.
MODEL_TYPE	xsd:string	Yes	The model type. It is a server-specific string. It can be NULL.
MODEL_GUID	uuid		The GUID that identifies the model. Servers that

Name	Type	Restrictions	Description
			do not use GUIDs to identify tables return NULL.
MODEL_PMML	xsd:string		An XML representation of the model's content in PMML format.
SIZE	xsd:unsignedInt		The number of bytes in the XML string.
LOCATION	xsd:string		The location of the XML file. It is NULL if no location is available.

This rowset is not sorted.

3.1.4.2.3.25 DMSHEMA_MINING_MODELS

This schema rowset enumerates the data mining models that are deployed on the server.

3.1.4.2.3.25.1 Columns

The DMSHEMA_MINING_MODELS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
MODEL_CATALOG	xsd:string	Yes	The catalog name.
MODEL_SCHEMA	xsd:string	Yes	The unqualified schema name.
MODEL_NAME	xsd:string	Yes	The mining model name.
MODEL_TYPE	xsd:string	Yes	The model type.
MODEL_GUID	uuid		The GUID of the model.
DESCRIPTION	xsd:string		The human-readable description of the model.
MODEL_PROPID	xsd:unsignedInt		The property ID of the model.
DATE_CREATED	xsd:dateTime		The date on which the model was created.
DATE_MODIFIED	xsd:dateTime		The date on which the model definition was last modified.
SERVICE_TYPE_ID	xsd:unsignedInt	Yes	An enumeration that identifies the type of data mining algorithm that is used by the model. This type can be one of the following values: <ul style="list-style-type: none"> ▪ DM_SERVICETYPE_CLASSIFICATION (0x1) ▪ DM_SERVICETYPE_CLUSTERING (0x2) ▪ DM_SERVICETYPE_SEQUENCE

Name	Type	Restrictions	Description
			(0x10)
SERVICE_NAME	xsd:string	Yes	The server-specific name for the data mining algorithm that is used by the model.
CREATION_STATEMENT	xsd:string		The statement that was used to create the mining model.
PREDICTION_ENTITY	xsd:string		A comma-delimited list indicating which mining columns can be predicted.
IS_POPULATED	xsd:boolean		A Boolean flag that indicates whether the model is populated. TRUE if the model is populated; otherwise, FALSE.
MINING_PARAMETERS	xsd:string		A list of the parameters that were used when the model was created.
MINING_STRUCTURE	xsd:string	Yes	The ID of the mining structure on which the model is based.
LAST_PROCESSED	xsd:dateTime		The date the model was last processed.
MSOLAP_IS_DRILLTHROUGH_ENABLED	xsd:boolean		A Boolean flag that indicates whether the model supports Drillthrough.
FILTER	xsd:string		The filter expression that is associated with the mining model. NULL or empty string indicates that no filter is applied.
TRAINING_SET_SIZE	xsd:unsignedLarge		The number of cases that are contained in the mining model training set after the structure has been processed and any filters have been applied to the model.

The rowset is sorted on MODEL_CATALOG, MODEL_SCHEMA, and MODEL_NAME.

3.1.4.2.3.26 DMSHEMA_MINING_COLUMNS

This schema rowset describes the individual columns of all defined data mining models that are deployed on the server.

3.1.4.2.3.26.1 Columns

The DMSHEMA_MINING_COLUMNS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
------	------	--------------	-------------

Name	Type	Restrictions	Description
MODEL_CATALOG	xsd:string	Yes	The catalog name.
MODEL_SCHEMA	xsd:string	Yes	The unqualified schema name.
MODEL_NAME	xsd:string	Yes	The mining model name.
COLUMN_NAME	xsd:string	Yes	The name of the column.
COLUMN_GUID	uuid		The column GUID.
COLUMN_PROPID	xsd:unsignedInt		The column property ID.
ORDINAL_POSITION	xsd:unsignedInt		The ordinal position of the column. Columns are numbered starting from 1. This column contains NULL if there is no stable ordinal value for the column.
COLUMN_HAS_DEFAULT	xsd:boolean		A Boolean that indicates whether the column has a default value. True if the column has a default value, otherwise false.
COLUMN_DEFAULT	xsd:string		The default value of the column. If the default value is the NULL value, COLUMN_HASDEFAULT contains "TRUE", and this column contains NULL.
COLUMN_FLAGS	xsd:unsignedInt		A bitmask that describes characteristics of the column. The DBCOLUMNFLAGS enumerated type specifies the bits in the bitmask. This column is never empty.
IS_NULLABLE	xsd:boolean		A Boolean that indicates whether the column is nullable. False if the column is known not to be nullable; otherwise, true.
DATA_TYPE	xsd:unsignedShort		This enumeration is the same as DATA_TYPE for MDSCHEMA_LEVELS. (See 3.1.4.2.3.8)
TYPE_GUID	uuid		The GUID of the column's data type.
CHARACTER_MAXIMUM_LENGTH	xsd:unsignedInt		The maximum possible length

Name	Type	Restrictions	Description
			<p>of a value in the column. For character, binary, or bit columns, this is one of the following:</p> <p>The maximum length of the column in characters, bytes, or bits, respective to the column type, if a length is defined. For example, a CHAR(5) column in an SQL table has a maximum length of 5.</p> <p>The maximum length of the data type in characters, bytes, or bits, respective to the column type, if the column does not have a defined length.</p> <p>Zero (0) if neither the column nor the data type has a defined maximum length.</p> <p>NULL for all other types of columns.</p>
CHARACTER_OCTET_LENGTH	xsd:unsignedInt		<p>The maximum length in octets (bytes) of the column, if the type of the column is character or binary. A value of zero (0) means the column has no maximum length. This column contains NULL for all other types of columns.</p>
NUMERIC_PRECISION	xsd:unsignedShort		<p>The maximum precision of the column if the column's data type is of a numeric data type other than VARNUMERIC.</p> <p>NULL if the column's data type is not numeric or is VARNUMERIC.</p> <p>The precision of columns with a data type of DBTYPE_DECIMAL or DBTYPE_NUMERIC depends on the column definition.</p>
NUMERIC_SCALE	xsd:Short		<p>The number of digits to the right of the decimal point if the column's type indicator is DBTYPE_DECIMAL, DBTYPE_NUMERIC, or DBTYPE_VARNUMERIC. Otherwise, this column contains VT_NULL.</p>
DATETIME_PRECISION	xsd:unsignedInt		<p>The date/time precision</p>

Name	Type	Restrictions	Description
			(number of digits in the fractional seconds portion) of the column if the column data type is a DateTime or interval type; otherwise, NULL.
CHARACTER_SET_CATALOG	xsd:string		The catalog name in which the character set is defined. This column is not supported by Analysis Services; it always contains NULL.
CHARACTER_SET_SCHEMA	xsd:string		An unqualified schema name in which the character set is defined.
CHARACTER_SET_NAME	xsd:string		The character set name.
COLLATION_CATALOG	xsd:string		The catalog name in which the collation is defined. This column is not supported by Analysis Services; it always contains NULL.
COLLATION_SCHEMA	xsd:string		An unqualified schema name in which the collation is defined. This column is not supported by Analysis Services; it always contains NULL.
COLLATION_NAME	xsd:string		The collation name. This column is not supported by Analysis Services; it always contains NULL.
DOMAIN_CATALOG	xsd:string		The catalog name in which the domain is defined. This column is not supported by Analysis Services; it always contains NULL.
DOMAIN_SCHEMA	xsd:string		The unqualified schema name in which the domain is defined. This column is not supported by Analysis Services; it always contains NULL.
DOMAIN_NAME	xsd:string		The domain name. This column is not supported by Analysis Services; it always contains NULL.
DESCRIPTION	xsd:string		The human-readable description of the column. This column is not supported by Analysis Services; it always

Name	Type	Restrictions	Description
			contains NULL.
DISTRIBUTION_FLAG	xsd:string		<p>A description of the statistical distribution of the column. This column contains one of the following:</p> <ul style="list-style-type: none"> ▪ NORMAL ▪ LOG_NORMAL ▪ UNIFORM
CONTENT_TYPE	xsd:string		<p>A description of the content of the column. This column contains one of the following:</p> <ul style="list-style-type: none"> ▪ KEY ▪ DISCRETE ▪ CONTINUOUS ▪ DISCRETIZED(arguments) ▪ ORDERED ▪ KEY TIME ▪ CYCLICAL ▪ PROBABILITY ▪ VARIANCE ▪ STDEV ▪ SUPPORT ▪ PROBABILITY_VARIANCE ▪ PROBABILITY_STDEV ▪ KEY SEQUENCE
MODELING_FLAG	xsd:string		<p>A comma-delimited list of flags. The defined flags are: MODEL_EXISTENCE_ONLY REGRESSOR</p> <p>Algorithm-specific modeling flags can also be contained in this column.</p>
IS_RELATED_TO_KEY	xsd:boolean		<p>A Boolean that indicates whether the column is related to the key. True if this column is related</p>

Name	Type	Restrictions	Description
			to the key. If the key is a single column, the RELATED_ATTRIBUTE field can optionally contain its column name.
RELATED_ATTRIBUTE	xsd:string		The name of the target column to which the current column either relates or is a special property.
IS_INPUT	xsd:boolean		A Boolean that indicates whether the column is an input column. VARIANT_TRUE if this is an input column.
IS_PREDICTABLE	xsd:boolean		A Boolean that indicates whether the column is predictable. True if the column is predictable.
CONTAINING_COLUMN	xsd:string		The name of the TABLE column that contains this column. This column contains NULL if the column is not contained in another column.
PREDICTION_SCALAR_FUNCTIONS	xsd:string		A comma-delimited list of scalar functions that can be performed on the column.
PREDICTION_TABLE_FUNCTIONS	xsd:string		A comma-delimited list of functions that can be applied to the column. The functions should return a table. The list has the following format: <function name>(<column1> [, <column2>], ...) The format allows the client application to determine the signature (list of parameters) for the respective function.
IS_POPULATED	xsd:boolean		A Boolean that indicates whether the column has been trained with a set of possible values. True if the column has been trained with a set of possible values. False if the column is not populated.
PREDICTION_SCORE	xsd:double		The score of the model on predicting the column. Score

Name	Type	Restrictions	Description
			is used to measure the accuracy of a model.
SOURCE_COLUMN	xsd:string		The name of the source mining structure column for the current mining column.
FILTER	xsd:string		The filter that was used in definition of the nested table. If the column is a scalar column, the value should always be NULL or an empty string. If the column is a nested table, NULL or an empty string indicates that no filter is applied to the nested table.

The rowset is sorted on MODEL_CATALOG, MODEL_SCHEMA, MODEL_NAME, and COLUMN_NAME.

3.1.4.2.3.27 DMSHEMA_MINING_STRUCTURES

This schema rowset enumerates information about the mining structures in the current catalog.

3.1.4.2.3.27.1 Columns

The DMSHEMA_MINING_STRUCTURES rowset MUST contain the following columns.

Name	Type	Restrictions	Description
STRUCTURE_CATALOG	xsd:string	Yes	The catalog name.
STRUCTURE_SCHEMA	xsd:string	Yes	The unqualified schema name.
STRUCTURE_NAME	xsd:string	Yes	The structure name.
STRUCTURE_GUID	uuid		A GUID that uniquely identifies the structure.
DESCRIPTION	xsd:string		The human-readable description of the structure.
STRUCTURE_PROPID	xsd:unsignedInt		The property ID of the structure. NULL if not supported by the server.
DATE_CREATED	xsd:dateTime		The date when the structure was created. NULL if not available from the server.
DATE_MODIFIED	xsd:dateTime		The date when the structure was last modified. NULL if not available from the server.
CREATION_STATEMENT	xsd:string		(Optional.) The statement that was used to create

Name	Type	Restrictions	Description
			the original data mining model.
IS_POPULATED	xsd:boolean		A Boolean that indicates whether the structure is populated. VARIANT_TRUE if the structure is populated; VARIANT_FALSE otherwise.
LAST_PROCESSED	xsd:dateTime		The date when the structure was last processed. NULL if not available from the server.
HOLDOUT_MAXPERCENT	xsd:unsignedByte		User-specified value that indicates the maximum percentage of the input cases held out as the test set. Zero or NULL indicates no limit.
HOLDOUT_MAXCASES	xsd:unsignedLarge		User-specified value that indicates the maximum number of the input cases held out as the test set. Zero or NULL indicates no limit.
HOLDOUT_SEED	xsd:unsignedLarge		User-specified value that is used as the seed for repeatable partitioning. Zero indicates that a hash of the mining structure ID is used as the seed.
HOLDOUT_ACTUAL_SIZE	xsd:unsignedLarge		If the mining structure is processed, this indicates the actual size of the test data set, expressed in number of cases. NULL indicates that the mining structure is not processed.

The rowset is sorted on STRUCTURE_CATALOG, STRUCTURE_SCHEMA, and STRUCTURE_NAME.

3.1.4.2.3.28 DMSHEMA_MINING_STRUCTURE_COLUMNS

This schema rowset describes the individual columns of all mining structures that are deployed on the server.

3.1.4.2.3.28.1 Columns

The DMSHEMA_MINING_STRUCTURE_COLUMNS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
STRUCTURE_CATALOG	xsd:string	Yes	The catalog name.
STRUCTURE_SCHEMA	xsd:string	Yes	The unqualified schema name. Analysis Services does not support schemas, so this column is always NULL.
STRUCTURE_NAME	xsd:string	Yes	The structure name. This column cannot contain a NULL.

Name	Type	Restrictions	Description
COLUMN_NAME	xsd:string	Yes	The name of the column. Uniqueness is only guaranteed among columns that share the same pattern. For example, two nested columns may have the same name if they belong to two different nested tables inside the same structure.
COLUMN_GUID	uuid		The column GUID.
COLUMNS_PROPID	xsd:unsignedInt		The column property ID.
ORDINAL_POSITION	xsd:unsignedInt		The ordinal of the column. Columns are numbered starting from 1. NULL if there is no stable ordinal value for the column.
COLUMN_HASDEFAULT	xsd:boolean		A Boolean that indicates whether this column has a default value. True if the column has a default value. False if the column does not have a default value or if it is unknown whether the column has a default value.
COLUMN_DEFAULT	xsd:string		The default value of the column.
COLUMN_FLAGS	xsd:unsignedInt		A bitmask that describes column characteristics. The DBCOLUMNFLAGS enumerated type specifies the bits in the bitmask. This column cannot contain a NULL value. Valid values include: <ul style="list-style-type: none"> ▪ DBCOLUMNFLAGS_ISNULLABLE (0x20) ▪ DBCOLUMNFLAGS_MAYBENULL (0x40) ▪ DBCOLUMNFLAGS_ISLONG (0x80)
IS_NULLABLE	xsd:boolean		A Boolean that indicates whether this column has a default value. True if the column can contain NULL; false, otherwise.
DATA_TYPE	xsd:unsignedShort		The indicator of the column's data type. <ul style="list-style-type: none"> ▪ "TABLE" =

Name	Type	Restrictions	Description
			DBTYPE_HCHAPTER (16) <ul style="list-style-type: none"> ▪ "TEXT" = DBTYPE_WSTR (130) ▪ "LONG" = DBTYPE_I8 (20) ▪ "DOUBLE" = DBTYPE_R8 (5) ▪ "DATE" = DBTYPE_DATE (7)
TYPE_GUID	uuid		The GUID of the column's data type. Servers that do not use GUIDs to identify data types should return NULL in this column.
CHARACTER_MAXIMUM_LENGTH	xsd:unsignedInt		The maximum possible length of a value in the column. For character, binary, or bit columns, this is one of the following: <p>The maximum length of the column in characters, bytes, or bits, respectively, if the length is defined. For example, a CHAR(5) column in an SQL table has a maximum length of 5.</p> <p>The maximum length of the data type in characters, bytes, or bits, respectively, if the column does not have a defined length.</p> <p>Zero (0) if neither the column nor the data type has a defined maximum length.</p> <p>NULL for all other types of columns.</p>
CHARACTER_OCTET_LENGTH	xsd:unsignedInt		The maximum length in octets (bytes) of the column, if the type of the column is character or binary. A value of zero (0) means the column has no maximum length. NULL for all other types of columns.
NUMERIC_PRECISION	xsd:unsignedShort		The maximum precision of the column if the column's data type is of a numeric data type other than VARNUMERIC; NULL if the column's data type is not numeric or is VARNUMERIC. <p>The precision of columns with a data type of DBTYPE_DECIMAL or DBTYPE_NUMERIC depends on the definition of the column.</p>

Name	Type	Restrictions	Description
NUMERIC_SCALE	xsd:unsignedShort		The number of digits to the right of the decimal point if the column's type indicator is DBTYPE_DECIMAL, DBTYPE_NUMERIC, or DBTYPE_VARNUMERIC. Otherwise, this is NULL.
DATETIME_PRECISION	xsd:unsignedInt		The datetime precision (the number of digits in the fractional seconds portion) of the column if the column is a Datetime or Interval type. If the column's data type is not Datetime, this is NULL.
CHARACTER_SET_CATALOG	xsd:string		The catalog name in which the character set is defined. NULL if the server does not support catalogs or different character sets.
CHARACTER_SET_SCHEMA	xsd:string		The unqualified schema name in which the character set is defined. NULL if the server does not support schemas or different character sets.
CHARACTER_SET_NAME	xsd:string		The character set name. NULL if the server does not support different character sets.
COLLATION_CATALOG	xsd:string		The catalog name in which the collation is defined. NULL if the server does not support catalogs or different collations.
COLLATION_SCHEMA	xsd:string		The unqualified schema name in which the collation is defined. NULL if the server does not support schemas or different collations.
COLLATION_NAME	xsd:string		The collation name. NULL if the server does not support different collations.
DOMAIN_CATALOG	xsd:string		The catalog name in which the domain is defined. NULL if the server does not support catalogs or domains.
DOMAIN_SCHEMA	xsd:string		The unqualified schema name in which the domain is defined. NULL if the server does not support schemas or domains.

Name	Type	Restrictions	Description
DOMAIN_NAME	xsd:string		The domain name. NULL if the server does not support domains.
DESCRIPTION	xsd:string		Human-readable description of the column. NULL if there is no description associated with the column.
DISTRIBUTION_FLAG	xsd:string		The distribution of the mining structure column: <ul style="list-style-type: none"> ▪ NORMAL ▪ LOG_NORMAL ▪ UNIFORM
CONTENT_TYPE	xsd:string		The content type of the mining structure column: <ul style="list-style-type: none"> ▪ KEY ▪ DISCRETE ▪ CONTINUOUS ▪ DISCRETIZED(arguments) ▪ ORDERED ▪ SEQUENCE_TIME ▪ CYCLICAL ▪ PROBABILITY ▪ VARIANCE ▪ STDEV ▪ SUPPORT ▪ PROBABILITY_VARIANCE ▪ PROBABILITY_STDEV
MODELING_FLAG	xsd:string		A comma-delimited list of modeling flags. The only supported flag for a structure column is "NOT NULL".
IS_RELATED_TO_KEY	xsd:boolean		A Boolean that indicates whether this column is related to the key. VARIANT_TRUE if this column is related to the key; VARIANT_FALSE otherwise. If the key is a single column, the RELATED_ATTRIBUTE field

Name	Type	Restrictions	Description
			optionally may contain its column name.
RELATED_ATTRIBUTE	xsd:string		The name of the target column that the current column relates to, or is a special property of.
CONTAINING_COLUMN	xsd:string		The name of the TABLE column containing this column. NULL if no table contains the column.
IS_POPULATED	xsd:boolean		A Boolean that indicates whether this column has learned a set of possible values. True if the column has learned a set of possible values; false, otherwise.

The rowset is sorted on STRUCTURE_CATALOG, STRUCTURE_SCHEMA, STRUCTURE_NAME, and COLUMN_NAME.

3.1.4.2.3.29 DISCOVER_PROPERTIES

This schema rowset returns a list of information and values about the properties that are supported by the server for the specified data source.

3.1.4.2.3.29.1 Columns

The DISCOVER_PROPERTIES rowset MUST contain the following columns.

Name	Type	Restrictions	Description
PropertyName	xsd:string	Yes	The name of the property.
PropertyDescription	xsd:string		A description of the property.
PropertyType	xsd:string		The XSD data type of the property.
PropertyAccessType	xsd:string		The access for the property. The value can be Read, Write, or ReadWrite.
IsRequired	xsd:boolean		A Boolean that indicates if a property is required.
Value	xsd:string		The current value of the property.

This schema rowset is not sorted.

3.1.4.2.3.30 DISCOVER_LITERALS

This schema rowset returns information about literals supported by the server.

3.1.4.2.3.30.1 Columns

The DISCOVER_LITERALS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
LiteralName	xsd:string	Yes	The name of the literal.
LiteralValue	xsd:string		The literal value.
LiteralInvalidChars	xsd:string		The characters that are not valid in the literal.
LiteralInvalidStartingChars	xsd:string		The characters that are not valid as the first character of the literal.
LiteralMaxLength	xsd:int		The maximum number of characters in the literal. If there is no maximum or the maximum is unknown, the value is -1.
LiteralNameEnumValue	xsd:int		<p>One of the following:</p> <ul style="list-style-type: none"> ▪ DBLITERAL_INVALID = 0 ▪ DBLITERAL_BINARY_LITERAL = 1 ▪ DBLITERAL_CATALOG_NAME = 2 ▪ DBLITERAL_CATALOG_SEPARATOR = 3 ▪ DBLITERAL_CHAR_LITERAL = 4 ▪ DBLITERAL_COLUMN_ALIAS = 5 ▪ DBLITERAL_COLUMN_NAME = 6 ▪ DBLITERAL_CORRELATION_NAME = 7 ▪ DBLITERAL_CURSOR_NAME = 8 ▪ DBLITERAL_ESCAPE_PERCENT = 9 ▪ DBLITERAL_ESCAPE_UNDERSCORE = 10 ▪ DBLITERAL_INDEX_NAME = 11 ▪ DBLITERAL_LIKE_PERCENT = 12 ▪ DBLITERAL_LIKE_UNDERSCORE = 13 ▪ DBLITERAL_PROCEDURE_NAME = 14 ▪ DBLITERAL_QUOTE_PREFIX = 15 ▪ DBLITERAL_SCHEMA_NAME = 16 ▪ DBLITERAL_TABLE_NAME = 17 ▪ DBLITERAL_TEXT_COMMAND = 18 ▪ DBLITERAL_USER_NAME = 19 ▪ DBLITERAL_VIEW_NAME = 20 ▪ DBLITERAL_CUBE_NAME = 21

Name	Type	Restrictions	Description
			<ul style="list-style-type: none"> ▪ DBLITERAL_DIMENSION_NAME = 22 ▪ DBLITERAL_HIERARCHY_NAME = 23 ▪ DBLITERAL_LEVEL_NAME = 24 ▪ DBLITERAL_MEMBER_NAME = 25 ▪ DBLITERAL_PROPERTY_NAME = 26 ▪ DBLITERAL_SCHEMA_SEPARATOR = 27 ▪ DBLITERAL_QUOTE_SUFFIX = 28 ▪ DBLITERAL_ESCAPE_PERCENT_SUFFIX = 29 ▪ DBLITERAL_ESCAPE_UNDERSCORE_SUFFIX = 30

This schema rowset is not sorted.

3.1.4.2.3.31 DISCOVER_SCHEMA_ROWSETS

This schema rowset returns the names, restrictions, description, and other information for all Discover requests.

3.1.4.2.3.31.1 Columns

The DISCOVER_SCHEMA_ROWSETS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
SchemaName	xsd:string	Yes	The name of the Discover request.
SchemaGuid	uuid		The GUID of the Discover request.
Restrictions	nested rowset		The restrictions supported by the Discover request.
Description	xsd:string		The description of the Discover request.
RestrictionsMask	xsd:unsignedLong		The lowest N bits set to 1, where N is the number of restrictions.

This schema rowset is not sorted.

3.1.4.2.3.32 DISCOVER_KEYWORDS

This schema rowset returns information about keywords reserved by the XMLA server.

If you call the Discover method with the **DISCOVER_KEYWORDS** enumeration value in the RequestType element, the Discover method returns the **DISCOVER_KEYWORDS** rowset.

3.1.4.2.3.32.1 Columns

The DISCOVER_KEYWORDS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
Keyword	xsd:string	Yes	The keyword string.

This schema rowset is not sorted.

3.1.4.2.3.33 DISCOVER_DATASOURCES

This schema rowset returns a list of the data sources that are available on the server.

3.1.4.2.3.33.1 Columns

The DISCOVER_DATASOURCES rowset MUST contain the following columns.

Name	Type	Restrictions	Description
DataSourceName	xsd:string	Yes	The name of the data source.
DataSourceDescription	xsd:string		The description of the data source.
URL	xsd:string	Yes	The unique path of the data source.
DataSourceInfo	xsd:string		A string that contains any additional information required to connect to the data source.
ProviderName	xsd:string	Yes	The name of the provider for the data source.
ProviderType	xsd:string	Yes	This array specifies the types of data supported by the server. It can include one or more of the following types: <ul style="list-style-type: none">▪ MDP: multidimensional data provider.▪ TDP: tabular data provider.▪ DMP: data mining provider (implements the OLE for DB for Data Mining specification). <65>
AuthenticationMode	xsd:string	Yes	A string that specifies what type of security mode the data source uses. Values can be one of the following: <ul style="list-style-type: none">▪ "Unauthenticated": No user ID or password has to be sent.▪ "Authenticated": User ID and password must be included in the information required to connect to the data source.▪ "Integrated": The data source uses the underlying security to determine authorization, such as Integrated Security provided by Microsoft Internet Information Services (IIS).

Name	Type	Restrictions	Description
			<66>

The rowset is not sorted.

3.1.4.2.3.34 DISCOVER_PROPERTIES

This schema rowset returns a list of information and values about the properties that are supported by the server.

3.1.4.2.3.34.1 Columns

The DISCOVER_PROPERTIES rowset MUST contain the following columns.

Name	Type	Restrictions	Description
PropertyName	xsd:string	Yes	The name of the property.
PropertyDescription	xsd:string		A description of the property.
PropertyType	xsd:string		The XSD data type of the property.
PropertyAccessType	xsd:string		The access for the property. The value can be Read, Write, or ReadWrite.
IsRequired	xsd:boolean		A Boolean that indicates if a property is required.
Value	xsd:string		The current value of the property.

The rowset is not sorted.

3.1.4.2.3.35 DISCOVER_ENUMERATORS

This schema rowset returns a list of names, data types, and enumeration values of enumerators supported by the XMLA Provider for a specific data source.

3.1.4.2.3.35.1 Columns

The DISCOVER_ENUMERATORS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
EnumName	xsd:string	Yes	The name of the enumerator that contains a set of values.
EnumDescription	xsd:string		A localizable description of the enumerator.
EnumType	xsd:string		The data type of the enumeration values.
ElementName	xsd:string		The name of one of the value elements in the enumerator set. Example: TDP
ElementDescription	xsd:string		(Optional.)

Name	Type	Restrictions	Description
			A localizable description of the element.
ElementValue	xsd:string		The value of the element. This is always a string representing a number, and it never has a leading 0. Example: 1

The rowset is not sorted.

3.1.4.2.3.36 DISCOVER_XML_METADATA

This schema rowset returns a rowset with one row and one column. The single cell in the rowset contains an XML document that contains the requested XML metadata.

3.1.4.2.3.36.1 Columns

The DISCOVER_XML_METADATA rowset MUST contain the following columns.

Name	Type	Restrictions	Description
METADATA	MajorObject		An XML document that describes the object requested by the restriction.

3.1.4.2.3.36.2 Additional Restrictions

In addition to the column restrictions indicated in the previous section, the following additional restrictions may also apply to this rowset.

Name	Type	Description
DatabaseID	xsd:string	The database ID.
DimensionID	xsd:string	The dimension ID.
CubeID	xsd:string	The cube ID.
MeasureGroupID	xsd:string	The measure group ID.
PartitionID	xsd:string	The partition ID.
PerspectiveID	xsd:string	The prespective ID.
DimensionPermissionID	xsd:string	The dimension permission ID.
RoleID	xsd:string	The role ID.
DatabasePermissionID	xsd:string	The database permission ID.
MiningModelID	xsd:string	The mining model ID.
MiningModelPermissionID	xsd:string	The mining model permission ID.
DataSourceID	xsd:string	The datasource ID.
MiningStructureID	xsd:string	The mining structure ID.

Name	Type	Description
AggregationDesignID	xsd:string	The aggregation design ID.
TraceID	xsd:string	The trace ID.
MiningStructurePermissionID	xsd:string	The mining structure permission ID.
CubePermissionID	xsd:string	The cube permission ID.
AssemblyID	xsd:string	The assembly ID.
MdxScriptID	xsd:string	The MDX script ID.
DataSourceViewID	xsd:string	The datasource view ID.
DataSourcePermissionID	xsd:string	The datasource permission ID.
ObjectExpansion	xsd:string	<p>Defines the degree of expansion desired in the return result. The available values are:</p> <ul style="list-style-type: none"> ▪ ReferenceOnly - Returns only the name/ID/timestamp/state requested for the requested objects and all descendant major objects recursively. ▪ ObjectProperties - Expands the requested object with no references to contained objects (includes expanded minor contained objects). ▪ ExpandObject - Same as <i>ObjectProperties</i>, but also returns the name, ID, and timestamp for contained major objects. ▪ ExpandFull - Fully expands the requested object recursively to the bottom of every contained object.
Metadata	xsd:string	An XML string that describes the object requested by the restriction. This document will consist of the objects described in 2.2.4.2 . The exact objects included depend on the restrictions in the request.

The rowset is not sorted.

3.1.4.2.3.37 DISCOVER_TRACES

This schema rowset contains the DISCOVER_TRACES schema rowset.

3.1.4.2.3.37.1 Columns

The DISCOVER_TRACES rowset MUST contain the following columns.

Name	Type	Restrictions	Description
TraceID	xsd:string	Yes	The trace ID.
TraceName	xsd:string		The trace name.
LogFileName	xsd:string		The trace log file name.

Name	Type	Restrictions	Description
LogFileSize	xsd:signedLarge		The trace log file size.
LogFileRollover	xsd:boolean		A Boolean that specifies if the log file should be rolled over.
AutoRestart	xsd:boolean		A Boolean that specifies if the auto restart option is enabled.
CreationTime	xsd:dateTime		The date and time that the trace was created.
StopTime	xsd:dateTime		The stop time of a trace.

The rowset is sorted on DISCOVER_TRACES.

3.1.4.2.3.38 DISCOVER_TRACE_DEFINITION_PROVIDERINFO

This schema rowset returns basic information about the trace provider such as its name, description, and so on.

3.1.4.2.3.38.1 Columns

The DISCOVER_TRACE_DEFINITION, PROVIDERINFO rowset MUST contain the following columns.

Name	Type	Restrictions	Description
Data	xsd:string	Yes	This column contains an encoded XML string describing basic information about the trace provider. See 2.2.4.3.1 for information on what this XML string contains.

The rowset is not sorted.

3.1.4.2.3.39 DISCOVER_TRACE_COLUMNS

This schema rowset contains the DISCOVER_TRACE_COLUMNS schema rowset.

3.1.4.2.3.39.1 Columns

The DISCOVER_TRACE_COLUMNS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
Data	xsd:string	Yes	This column contains an encoded XML string describing information about the trace columns provided by the trace provider. It contains the <COLUMN> element of the trace definition. See 2.2.4.3.3 for an explanation of what this XML string contains.

The rowset is not sorted.

3.1.4.2.3.40 DISCOVER_TRACE_EVENT_CATEGORIES

This schema rowset contains the DISCOVER_TRACE_EVENT_CATEGORIES schema rowset.

3.1.4.2.3.40.1 Columns

The DISCOVER_TRACE_EVENT_CATEGORIES rowset MUST contain the following columns.

Name	Type	Restrictions	Description
Data	xsd:string	Yes	This column contains an encoded XML string describing event category information about the trace provider. See 2.2.4.3.2 for an explanation of what this XML document contains.

The rowset is not sorted.

3.1.4.2.3.41 DISCOVER_MEMORYUSAGE

This schema rowset returns the DISCOVER_MEMORYUSAGE statistics for various objects allocated by the server.

3.1.4.2.3.41.1 Columns

The DISCOVER_MEMORYUSAGE rowset MUST contain the following columns.

Name	Type	Restrictions	Description
MemoryID	xsd:unsignedLarge		A number identifying the memory.
MemoryName	xsd:string		The name of the object owning the memory.
SPID	xsd:unsignedInt	Yes	The session that allocated the memory. Zero indicates memory not tied to a specific session.
CreationTime	xsd:dateTime		Either "the time the object was created" or "the time the memory was allocated."
BaseObjectType	xsd:unsignedInt	Yes	This is a number describing the type of the object. Objects with the same BaseObjectType have the same type.
MemoryUsed	xsd:unsignedLarge	Yes	This is the current size of the object, which may be less than the memory allocated for use by the object.
MemoryAllocated	xsd:unsignedLarge		The amount of memory allocated for use by the object, which may be greater than the amount of memory actually used by the object.
MemoryAllocBase	xsd:unsignedLarge		The bytes initially allocated for the object itself (excluding additional allocations for object contents).
MemoryAllocFromAlloc	xsd:unsignedLarge		The memory allocated for the contents of this object.
ElementCount	xsd:unsignedInt		For a container object, this is the number of objects contained by that object.

Name	Type	Restrictions	Description
Shrinkable	xsd:boolean	Yes	A Boolean that indicates if the memory is shrinkable (can be evicted due to memory pressure). If true, the memory is shrinkable; if false, the memory is not shrinkable.
ObjectParentPath	xsd:string		A string identifying the parent object of this object.
ObjectID	xsd:string		A short identifier describing the object. The full path of this object is represented by the string: (ObjectParentPath + '.' + ObjectID).

The rowset is not sorted.

3.1.4.2.3.42 DISCOVER_MEMORYGRANT

Returns a list of internal memory quota grants taken by jobs currently running on the server.

3.1.4.2.3.42.1 Columns

The DISCOVER_MEMORYGRANT rowset MUST contain the following columns.

Name	Type	Restrictions	Description
MemoryID	xsd:Long		A number that identifies the memory quota grant. Unique within the context of a single DISCOVER_MEMORYGRANT request.
SPID	xsd:Int	Yes	The session ID.
CreationTime	xsd:dateTime		The time the quota was granted.
LastRequestTime	xsd:dateTime		The time the quota request was last modified.
MemoryUsed	xsd:Int		The amount of memory used in association with the quota.
MemoryGranted	xsd:Int		The amount of memory granted for use by the job that is obtaining the memory quota.
Blocked	xsd:boolean		A Boolean that indicates the block status of the job. True indicates that the job is blocked waiting for another job to release sufficient quota to grant its quota request. False indicates that the job has received its quota and may execute.

The rowset is not sorted.

3.1.4.2.3.43 DISCOVER_LOCKS

This schema rowset provides information about the current standing locks on the server.

3.1.4.2.3.43.1 Columns

The DISCOVER_LOCKS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
SPID	xsd:Int	Yes	The session ID.
LOCK_ID	uuid		The unique identifier of the lock, as a GUID.
LOCK_TRANSACTION_ID	uuid	Yes	The unique identifier of the transaction, as a GUID.
LOCK_OBJECT_ID	xsd:string	Yes	The unique identifier of the object being locked.
LOCK_STATUS	xsd:Int	Yes	The lock status. <ul style="list-style-type: none">0 - The lock is granted.1 - The system is waiting to lock the object.
LOCK_TYPE	xsd:Int	Yes	A bit mask of Lock Types. <ul style="list-style-type: none">LOCK_NONE - No lock.LOCK_SESSION_LOCK (0x0000001) - Inactive session; does not interfere with other locks.LOCK_READ (0x0000002) - Read lock during processing.LOCK_WRITE (0x0000004) - Write lock during processing.LOCK_COMMIT_READ (0x0000008) - Commit lock, shared.LOCK_COMMIT_WRITE (0x0000010) - Commit lock, exclusive.LOCK_COMMIT_ABORTABLE (0x0000020) - Abort at commit progress.LOCK_COMMIT_INPROGRESS (0x0000040) - Commit in progress.LOCK_INVALID (0x0000080) Invalid lock.
LOCK_CREATION_TIME	xsd:dateTime		The UTC server time at the moment the lock was requested.
LOCK_GRANT_TIME	xsd:dateTime		The UTC server time at the moment the lock was granted on the resource.

The rowset is not sorted.

3.1.4.2.3.43.2 Additional Restrictions

In addition to the column restrictions indicated in the previous section, the following additional restrictions may also apply to this rowset.

Name	Type	Description
LOCK_MIN_TOTAL_MS	xsd:int	Include only locks that have been held for at least this number of milliseconds.

3.1.4.2.3.44 DISCOVER_CONNECTIONS

This schema rowset provides resource usage and activity information about the currently opened connections on the server.

3.1.4.2.3.44.1 Columns

The DISCOVER_CONNECTIONS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
CONNECTION_ID	xsd:Int	Yes	A unique number that identifies the connection.
CONNECTION_USER_NAME	xsd:string	Yes	The user name under which the connection was initiated.
CONNECTION_IMPERSONATED_USER_NAME	xsd:string	Yes	The impersonated user name, if any.
CONNECTION_HOST_NAME		Yes	The name of the machine that initiated the connection.
CONNECTION_HOST_APPLICATION	xsd:string		The name of the application that initiated the connection.
CONNECTION_START_TIME	xsd:dateTime		The server UTC date and time when the connection was initiated.
CONNECTION_ELAPSED_TIME_MS	xsd:Long	Yes	Elapsed time, in milliseconds, since the start of the connection.
CONNECTION_LAST_COMMAND_START_TIME	xsd:dateTime		The server UTC date and time

Name	Type	Restrictions	Description
			when the last command initiated its execution.
CONNECTION_LAST_COMMAND_END_TIME	xsd:dateTime		The server UTC date and time when the last command finished its execution.
CONNECTION_LAST_COMMAND_ELAPSED_TIME_MS	xsd:Long	Yes	The time, in milliseconds, since the end of the last command executed.
CONNECTION_IDLE_TIME_MS	xsd:Long	Yes	The idle time, in milliseconds, since the start of the connection.
CONNECTION_BYTES_SENT	xsd:Long		The accumulated number of bytes sent by the connection since the start of the connection.
CONNECTION_DATA_BYTES_SENT	xsd:Long		The accumulated number of data bytes sent by the connection since the start of the connection. Data travels compressed within the connection; this value represents the expanded data sent.
CONNECTION_BYTES_RECEIVED	xsd:Long		The accumulated number of bytes received by the connection since the start of the connection.
CONNECTION_DATA_BYTES_RECEIVED	xsd:Long		The accumulated number of data bytes received by the connection since the start of

Name	Type	Restrictions	Description
			the connection. Data travels compressed within the connection; this value represents the expanded data received.

The rowset is not sorted.

3.1.4.2.3.45 DISCOVER_SESSIONS

This schema rowset provides resource usage and activity information about the currently opened sessions on the server.

3.1.4.2.3.45.1 Columns

The DISCOVER_SESSIONS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
SESSION_ID	xsd:string	Yes	The session unique identifier, as a GUID.
SESSION_SPID	xsd:Int	Yes	The session ID.
SESSION_CONNECTION_ID	xsd:Int	Yes	The connection identifier for the session.
SESSION_USER_NAME	xsd:string	Yes	The session user name.
SESSION_CURRENT_DATABASE	xsd:string	Yes	The name of the database that is being used by the current command execution, or the database that was used by the last command executed.
SESSION_USED_MEMORY	xsd:Int		The current size of memory used by the session in kilobytes.
SESSION_PROPERTIES	xsd:string		Reserved for future use.
SESSION_START_TIME	xsd:dateTime		The date and time the session started as UTC time to the server.
SESSION_ELAPSED_TIME_MS	xsd:unsignedLong	Yes	Elapsed time, in milliseconds, since the start of the session.
SESSION_LAST_COMMAND_START_TIME	xsd:dateTime		The UTC server time at

Name	Type	Restrictions	Description
			the moment the last command started executing.
SESSION_LAST_COMMAND_END_TIME	xsd:dateTime		The UTC server time at the moment the last command finished executing.
SESSION_LAST_COMMAND_ELAPSED_TIME_MS	xsd:unsignedLong		The time, in milliseconds, since the start of SESSION_LAST_COMMAND.
SESSION_IDLE_TIME_MS	xsd:unsignedLong	Yes	The idle time, in milliseconds, since the start of the session.
SESSION_CPU_TIME_MS	xsd:unsignedLong	Yes	The CPU time, in milliseconds, consumed by all requests since the beginning of the session.
SESSION_LAST_COMMAND	xsd:string		The text of the current command executing or the last command executed.
SESSION_LAST_COMMAND_CPU_TIME_MS	xsd:unsignedLong		The CPU time, in milliseconds, consumed by SESSION_LAST_COMMAND.
SESSION_STATUS	xsd:Int	Yes	The activity status of the session. <ul style="list-style-type: none"> ▪ 0 - Idle: No current activity is ongoing. ▪ 1 - Active: The session is executing some requested task. ▪ 2 - "Blocked": The session is waiting for a resource to continue executing the suspended task.
SESSION_READS	xsd:unsignedLong		The accumulated number of disk reads since the start of the session.
SESSION_WRITES	xsd:unsignedLong		The accumulated number of disk writes since the start of the session.

Name	Type	Restrictions	Description
SESSION_READS_KB	xsd:unsignedLong		The accumulated value of data read from disk, in kilobytes, since the start of the session.
SESSION_WRITES_KB	xsd:unsignedLong		The accumulated value of data written to the disk, in kilobytes, since the start of the session.
SESSION_COMMAND_COUNT	xsd:Int		The number of commands that started execution since the beginning of the session.

The rowset is not sorted.

3.1.4.2.3.46 DISCOVER_JOBS

This schema rowset provides information about the active jobs executing on the server. A job is a part of a command that executes a specific task on behalf of the command.

3.1.4.2.3.46.1 Columns

The DISCOVER_JOBS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
SPID	xsd:Int	Yes	The session ID.
JOB_ID	xsd:Int	Yes	The unique identifier of the job.
JOB_DESCRIPTION	xsd:string	Yes	The job description assigned by the server.
JOB_CREATION_TIME	xsd:dateTime		The server UTC date and time when the job was created.
JOB_TOTAL_TIME_MS	xsd:Long		The time, in milliseconds, since the job started.
JOB_START_TIME	xsd:dateTime		The server UTC date and time when the job was started.
JOB_EXECUTION_TIME_MS	xsd:Long		The time, in milliseconds, that the job is active.
JOB_THREADPOOL_ID	xsd:Int	Yes	The thread pool from which the current job was started.

The rowset is not sorted.

3.1.4.2.3.46.2 Additional Restrictions

In addition to the column restrictions indicated in the previous section, the following additional restrictions may also apply to this rowset.

Name	Type	Description
JOB_MIN_TOTAL_TIME_MS	xsd:Long	The minimum time, in milliseconds, since the job started. If present, results will exclude jobs which have been running for less than the specified amount of time.

3.1.4.2.3.47 DISCOVER_TRANSACTIONS

This Discover returns the current set of pending transactions on the system .

3.1.4.2.3.47.1 Columns

The DISCOVER_TRANSACTION rowset MUST contain the following columns.

Name	Type	Restrictions	Description
TRANSACTION_ID	xsd:string	Yes	The transaction unique identifier, as a GUID.
TRANSACTION_SESSION_ID	xsd:string	Yes	The transaction session unique identifier, as a GUID.
TRANSACTION_START_TIME	xsd:dateTime		The server UTC date and time when the transaction was started.
TRANSACTION_ELAPSED_TIME_MS	xsd:Long		Elapsed time, in milliseconds, since the start of the transaction.
TRANSACTION_CPU_TIME_MS	xsd:Long		The CPU time, in milliseconds, consumed by all requests since the beginning of the transaction.

The rowset is not sorted.

3.1.4.2.3.48 DISCOVER_DB_CONNECTIONS

This schema rowset provides resource usage and activity information about the currently opened connections from the server to a database.

3.1.4.2.3.48.1 Columns

The DISCOVER_DB_CONNECTIONS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
CONNECTION_ID	xsd:Int	Yes	A unique number that identifies the connection.
CONNECTION_START_TIME	xsd:Int		The server UTC date and time when the

Name	Type	Restrictions	Description
			connection was initiated.
CONNECTION_LAST_COMMAND_START_TIME	xsd:dateTime		The server UTC date and time when the last command initiated its execution.
CONNECTION_LAST_COMMAND_END_TIME	xsd:dateTime		The server UTC date and time when the last command finished its execution.
CONNECTION_IDLE_TIME_MS	xsd:Long		The idle time, in milliseconds, since the start of the connection.
CONNECTION_USAGE_TIME_MS	xsd:Long		The connection active time, in milliseconds, since the start of the connection.
CONNECTION_IN_USE	xsd:Int	Yes	Indicates if the connection is active (1) or idle (0).
CONNECTION_SERVER_NAME	xsd:string	Yes	The name of the currently connected server.
CONNECTION_CATALOG_NAME	xsd:string	Yes	The database name of the currently connected database.
CONNECTION_SPID	xsd:Int	Yes	The session ID.

The rowset is not sorted.

3.1.4.2.3.49 DISCOVER_MASTER_KEY

Returns the server's master encryption key (the key used by the server to encrypt sensitive data on disk).

3.1.4.2.3.49.1 Columns

The DISCOVER_MASTER_KEY rowset MUST contain the following columns.

Name	Type	Restrictions	Description
KEY	xsd:string	Yes	The server's master encryption key.

The rowset is not sorted.

3.1.4.2.3.50 DISCOVER_PERFORMANCE_COUNTERS

This Discover returns the value of one or more specified performance counters. It does not support counters that return information on usage over time (for example, disk reads/sec, % CPU, and so on).

3.1.4.2.3.50.1 Columns

The DISCOVER_PERFORMANCE_COUNTERS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
PERF_COUNTER_NAME	xsd:string	[Required]	The name of the Performance Counter.
PERF_COUNTER_VALUE	xsd:Double		The value of the PERF_COUNTER.

The rowset is not sorted.

3.1.4.2.3.51 DISCOVER_LOCATIONS

This element returns information about the contents of a backup file. The user issuing the request must have access to the backup file location.

3.1.4.2.3.51.1 Columns

The DISCOVER_LOCATIONS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
LOCATION_BACKUP_FILE_PATHNAME	xsd:string	[Required]	The location of the backup file, as specified in the restrictions.
LOCATION_PARTITION_OBJECTPATH	xsd:string		Path to the partition relative to the data folder.
LOCATION_PARTITION_DATASOURCEID	xsd:string		Datasource ID used for processing the partition.
LOCATION_PARTITION_DATASOURCENAME	xsd:string		The name of the data source used for processing.
LOCATION_PARTITION_NAME	xsd:string		The partition name.
LOCATION_PARTITION_SIZE	xsd:string		Approximate size of the partition.
LOCATION_CONNECTION_STRING	xsd:string		The connection string for the data source used in processing.
LOCATION_PARTITION_FOLDER	xsd:string		Original location of this partition when the backup file was produced.
LOCATION_PASSWORD	xsd:string	Yes	The password used to encrypt the backup file.

The rowset is not sorted.

3.1.4.2.3.51.2 Additional Restrictions

In addition to the column restrictions indicated in the previous section, the following additional restrictions may also apply to this rowset.

Name	Type	Description
LOCATION_PASSWORD	xsd:string	Password to access the backup file. This restriction is Mandatory.

3.1.4.2.3.52 DISCOVER_PARTITION_DIMENSION_STAT

This schema rowset returns statistics on the dimension associated with a partition.

3.1.4.2.3.52.1 Columns

The DISCOVER_PARTITION_DIMENSION_STAT rowset MUST contain the following columns.

Name	Type	Restrictions	Description
DATABASE_NAME	xsd:string	[Required]	The name of the database.
CUBE_NAME	xsd:string	[Required]	The name of the cube.
MEASURE_GROUP_NAME	xsd:string	[Required]	The name of the measure group.
PARTITION_NAME	xsd:string	[Required]	The name of the partition.
DIMENSION_NAME	xsd:string		The name of the dimension.
ATTRIBUTE_NAME	xsd:string		The name of the attribute.
ATTRIBUTE_INDEXED	xsd:boolean		A Boolean that indicates if the attribute is indexed.
ATTRIBUTE_COUNT_MIN	xsd:Long		The minimum attribute count.
ATTRIBUTE_COUNT_MAX	xsd:Long		The maximum attribute count.

The rowset is not sorted.

3.1.4.2.3.53 DISCOVER_PARTITION_STAT

This schema rowset returns statistics on aggregations in a particular partition.

3.1.4.2.3.53.1 Columns

The DISCOVER_PARTITION_STAT rowset MUST contain the following columns.

Name	Type	Restrictions	Description
DATABASE_NAME	xsd:string	[Required]	The name of the database.
CUBE_NAME	xsd:string	[Required]	The name of the cube.

Name	Type	Restrictions	Description
MEASURE_GROUP_NAME	xsd:string	[Required]	The name of the measure group.
PARTITION_NAME	xsd:string	[Required]	The name of the partition.
AGGREGATION_NAME	xsd:string		The name of the aggregation.
AGGREGATION_SIZE	xsd:Long		The size of the aggregation.

The rowset is not sorted.

3.1.4.2.3.54 DISCOVER_DIMENSION_STAT

This schema rowset returns statistics on the specified dimension.

3.1.4.2.3.54.1 Columns

The DISCOVER_DIMENSION_STAT rowset MUST contain the following columns.

Name	Type	Restrictions	Description
DATABASE_NAME	xsd:string	[Required]	The name of the database.
DIMENSION_NAME	xsd:string	[Required]	The name of the dimension.
ATTRIBUTE_NAME	xsd:string		The name of the attribute.
ATTRIBUTE_COUNT	xsd:Long		The attribute count.

The rowset is not sorted.

3.1.4.2.3.55 DISCOVER_COMMANDS

This schema rowset provides resource usage and activity information about the currently executing or last executed commands in the opened connections on the server.

3.1.4.2.3.55.1 Columns

The DISCOVER_COMMANDS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
SESSION_SPID	xsd:Int	Yes	The session ID.
SESSION_COMMAND_COUNT	xsd:Int		The number of commands executed since the start of the session.
COMMAND_START_TIME	xsd:dateTime		The date and time the last command started, expressed as UTC time on the server.
COMMAND_ELAPSED_TIME_MS	xsd:Long		The elapsed time, in milliseconds, since the start of the command.
COMMAND_CPU_TIME_MS	xsd:Long		The CPU time, in milliseconds,

Name	Type	Restrictions	Description
			consumed by the command since the start of the command execution.
COMMAND_READS	xsd:Long		The accumulated number of disk reads since the start of the command.
COMMAND_READ_KB	xsd:Long		The accumulated value of data read from disk, in kilobytes, since the start of the command.
COMMAND_WRITES	xsd:Long		The accumulated number of disk writes since the start of the command.
COMMAND_WRITE_KB	xsd:Long		The accumulated value of data written to disk, in kilobytes, since the start of the command.
COMMAND_TEXT	xsd:string		The command text.
COMMAND_END_TIME	xsd:dateTime		The server UTC date and time when the command finishes its execution.

The rowset is not sorted.

3.1.4.2.3.56 DISCOVER_COMMAND_OBJECTS

This schema rowset provides resource usage and activity information about the objects in use by the referenced command.

3.1.4.2.3.56.1 Columns

The DISCOVER_COMMAND_OBJECTS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
SESSION_SPID	xsd:Int	Yes	The session ID.
SESSION_ID	xsd:string	Yes	The session unique identifier, as a GUID.
SESSION_COMMAND_COUNT	xsd:Int		The command sequence number.
OBJECT_PARENT_PATH	xsd:string	Yes	The path to the parent of the current object.
OBJECT_ID	xsd:string	Yes	The ID of the object as defined when it was created.
OBJECT_VERSION	xsd:Int		The metadata version number of the object. This number changes every time the object is altered.
OBJECT_DATA_VERSION	xsd:Int		The lineage number of the data in the object. This number increments each time the object is processed.
OBJECT_CPU_TIME_MS	xsd:Long		The CPU time, in milliseconds, consumed by the object since the beginning of the

Name	Type	Restrictions	Description
			command.
OBJECTS_READS	xsd:Long		The accumulated number of read operations by the object since the start of the command.
OBJECTS_READ_KB	xsd:Long		The accumulated value of data, in kilobytes, read by the object since the start of the command.
OBJECTS_WRITES	xsd:Long		The accumulated number of write operations by the object since the start of the command.
OBJECTS_WRITE_KB	xsd:Long		The accumulated value of data, in kilobytes, written by the object since the start of the command.
OBJECT_ROWS_SCANNED	xsd:Long		The number of rows scanned by the object since the start of the command.
OBJECT_ROWS_RETURNED	xsd:Long		The number of rows returned by the object to the caller since the start of the command.

The rowset is not sorted.

3.1.4.2.3.57 DISCOVER_OBJECT_ACTIVITY

This schema rowset provides resource usage per object since the start of the service.

3.1.4.2.3.57.1 Columns

The DISCOVER_OBJECT_ACTIVITY rowset **MUST** contain the following columns.

Name	Type	Restrictions	Description
OBJECT_PARENT_PATH	xsd:string	Yes	The path to the parent of current object.
OBJECT_ID	xsd:string	Yes	The ID of the object as defined at creation time.
OBJECT_CPU_TIME_MS	xsd:Long		The CPU time, in milliseconds, consumed by the object since the beginning of the service.
OBJECT_READS	xsd:Long		The accumulated number of read operations by the object since the start of the service.
OBJECT_READ_KB	xsd:Long		The accumulated value of data read by the object since the start of the service, in kilobytes.
OBJECT_WRITES	xsd:Long		The accumulated number of write operations by the object since the start of the service.

Name	Type	Restrictions	Description
OBJECT_WRITE_KB	xsd:Long		The accumulated value of data written by the object since the start of the service, in kilobytes.
OBJECT_AGGREGATION_HIT	xsd:Long		The number of times an aggregation of the object has been hit since the start of the service.
OBJECT_AGGREGATION_MISS	xsd:Long		The number of times an existing aggregation of the object has not been missed (that is, has not been used) since the start of the service.
OBJECT_HIT	xsd:Long		The number of times the object has been hit in the cache since the start of the service.
OBJECT_MISS	xsd:Long		The number of times the object has been missed in the cache since the start of the service.
OBJECT_VERSION	xsd:Int		The metadata version number of the object; this number changes every time the object is altered.
OBJECT_DATA_VERSION	xsd:Int		The lineage number of the data in the object. This number increments each time the object is processed.
OBJECT_ROWS_SCANNED	xsd:Long		The number of rows scanned by the object since the start of the service.
OBJECT_ROWS_RETURNED	xsd:Long		The number of rows returned by the object to the caller since the start of the service.

The rowset is not sorted.

3.1.4.2.3.58 DISCOVER_OBJECT_MEMORY_USAGE

This schema rowset provides information about memory resources used by objects.

3.1.4.2.3.58.1 Columns

The DISCOVER_OBJECT_MEMORY_USAGE rowset MUST contain the following columns.

Name	Type	Restrictions	Description
OBJECT_PARENT_PATH	xsd:string	Yes	The path to the parent of the current object. The format of the string is that each ancestor object ID is listed, separated by '.'.
OBJECT_ID	xsd:string	Yes	The ID of the object as defined at creation time.
OBJECT_MEMORY_SHRINKABLE	xsd:Long		The total amount of memory used

Name	Type	Restrictions	Description
			by all the shrinkable objects that are directly owned by the current object. The current value does not include memory from objects owned by named objects that are owned by the current object.
OBJECT_MEMORY_NONSHRINKABLE	xsd:Long		The amount of memory of all non-shrinkable objects directly owned by current object. The current value does not include memory from objects owned by named objects that are owned by current object.
OBJECT_VERSION	xsd:Int		The metadata version number of the object. This number changes each time the object is altered.
OBJECT_DATA_VERSION	xsd:Int		The lineage number of the data in the object. This number increments each time the object is processed.
OBJECT_TYPE_ID	xsd:Int		Reserved for future use.
OBJECT_TIME_CREATED	xsd:dateTime		The UTC server time at the moment the object was created.

The rowset is not sorted.

3.1.4.2.3.59 DISCOVER_PARTITION_TABLES

This schema rowset returns statistics about in-memory tables available to the server.

3.1.4.2.3.59.1 Columns

The DISCOVER_PARTITION_TABLES rowset MUST contain the following columns.

Name	Type	Restrictions	Description
DATABASE_NAME	xsd:string	Yes	The name of the database.
CUBE_NAME	xsd:string	Yes	The name of the cube.
MEASURE_GROUP_NAME	xsd:string	Yes	The name of the measure group.
PARTITION_NAME	xsd:string	Yes	The name of the partition.
TABLE_NAME	xsd:string		The name of the table.
TABLE_PARTITIONS_COUNT	xsd:Long		The table partition count.
HINT_TABLE_TYPE	xsd:string		The hint of the table type.
ROWS_COUNT	xsd:Long		The row count.

The rowset is not sorted.

3.1.4.2.3.60 DISCOVER_PARTITION_TABLES_COLUMNS

This schema rowset contains the GUID of the DISCOVER_PARTITION_TABLES_COLUMNS schema rowset.

3.1.4.2.3.60.1 Columns

The DISCOVER_PARTITION_TABLES_COLUMNS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
DATABASE_NAME	xsd:string	Yes	The name of the database.
CUBE_NAME	xsd:string	Yes	The name of the cube.
MEASURE_GROUP_NAME	xsd:string	Yes	The name of the measure group.
PARTITION_NAME	xsd:string	Yes	The name of the partition.
TABLE_NAME	xsd:string		The name of the table.
COLUMN_NAME	xsd:string		The name of the column.
COLUMN_TYPE	xsd:string		The type of the column.
COLUMN_ENCODING	xsd:Long		The encoding method used on the column.
HINT_RELATIONALDATATYPE	xsd:string		The hint of the relational type.
HINT_FOREIGNKEY	xsd:boolean		The hint of the foreign key.

The rowset is not sorted.

3.1.4.2.3.61 DISCOVER_PARTITION_TABLES_COLUMNS_SEGMENTS

This schema rowset contains the GUID of the DISCOVER_PARTITION_TABLES_COLUMNS_SEGMENTS schema rowset.

3.1.4.2.3.61.1 Columns

The DISCOVER_PARTITION_TABLES_COLUMNS_SEGMENTS rowset MUST contain the following columns.

Name	Type	Restrictions	Description
DATABASE_NAME	xsd:string	Yes	The name of the database.
CUBE_NAME	xsd:string	Yes	The name of the cube.
MEASURE_GROUP_NAME	xsd:string	Yes	The name of the measure group.
PARTITION_NAME	xsd:string	Yes	The name of the partition.
TABLE_NAME	xsd:string		The name of the table.

Name	Type	Restrictions	Description
COLUMN_NAME	xsd:string		The name of the column.
SEGMENT_NUMBER	xsd:Long		The numeric value of the segment.
TABLE_PARTITION_NUMBER	xsd:Long		The numeric value of the partition table.
RECORDS_COUNT	xsd:Long		The number of records.
ALLOCATED_SIZE	xsd:unsignedLong		The amount of data allocated.
USED_SIZE	xsd:unsignedLong		The size of the data used.
COMPRESSION_TYPE	xsd:string		The type of compression.
BITS_COUNT	xsd:Long		The count of bits.
BOOKMARK_BITS_COUNT	xsd:Long		The bookmark count of BITS.

The rowset is not sorted.

3.1.4.3 Execute

This operation is used for sending commands to the server.

The following WSDL describes the **Execute** operation.

```
<wsdl:operation name="Execute">
  <wsdl:input message="ExecuteSoapIn" />
  <wsdl:output message="ExecuteSoapOut" />
</wsdl:operation>
```

The protocol client sends an **ExecuteSoapIn** request message, and the protocol server responds with an **ExecuteSoapOut** response message.

3.1.4.3.1 Messages

The following WSDL message definitions are specific to this operation.

3.1.4.3.1.1 ExecuteSoapIn

This message is the request message for Execute.

The SOAP Action value of the message is defined as:

```
"urn:schemas-microsoft-com:xml-analysis:Execute"
```

The SOAP Body contains an Execute element.

```
<message name="ExecuteSoapIn">
```

```
<part name="parameters" element="xsla:Execute" />
</message>
```

3.1.4.3.1.2 ExecuteSoapOut

This message is the response message for Execute.

The SOAP Action value of the message is defined as:

```
"urn:schemas-microsoft-com:xml-analysis:Execute"
```

The SOAP Body contains an ExecuteResponse element.

```
<message name="ExecuteSoapOut">
  <part name="parameters" element="xsla:ExecuteResponse" />
</message>
```

3.1.4.3.2 Elements

The following XML Schema element definitions are specific to this operation.

3.1.4.3.2.1 Execute

The Execute element has the following definition:

```
<xsd:complexType name="Execute">
  <xsd:sequence>
    <xsd:element name="Command" type="Command" />
    <xsd:element name="Properties" minOccurs="1" maxOccurs="1" >
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="PropertyList" minOccurs="0" maxOccurs="1" type="PropertyList"
        />
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
  <xsd:element name="Parameters" minOccurs="0">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="Parameter" type="ExecuteParameter" minOccurs="0"
maxOccurs="unbounded" />
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>
</xsd:sequence>
</xsd:complexType>
```

Element	Default	Description
Command	[Required]	The Command element is defined in 3.1.4.3.2.1.1 . The available commands

Element	Default	Description
		are described in the subsections to that section.
Properties	[Required]	The Properties element contains a PropertyList element. The PropertyList element is used to set properties on the server. The available properties to be set are described in 3.1.4.4 .
Parameters	Empty	A collection of Parameter elements of type ExecuteParameter. Some commands accept parameters, and the values for those parameters SHOULD be set in this collection. The ExecuteParameter type is defined in 3.1.4.3.2.1.3 .

3.1.4.3.2.1.1 Command Element

The Command element contains one of the available commands which MAY be sent to the server.

```
<xsd:complexType name="Command">
  <xsd:choice>
    <xsd:element name="Statement" type="xsd:string" minOccurs="0" />
    <xsd:element name="Create" type="Create" minOccurs="0" />
    <xsd:element name="Alter" type="Alter" minOccurs="0" />
    <xsd:element name="Delete" type="Delete" minOccurs="0" />
    <xsd:element name="Process" type="Process" minOccurs="0" />
    <xsd:element name="MergePartitions" type="MergePartitions" minOccurs="0" />
    <xsd:element name="DesignAggregations" type="DesignAggregations" minOccurs="0" />
    <xsd:element name="ClearCache" type="ClearCache" minOccurs="0" />
    <xsd:element name="Subscribe" type="Subscribe" minOccurs="0" />
    <xsd:element name="Cancel" type="Cancel" minOccurs="0" />
    <xsd:element name="BeginTransaction" type="BeginTransaction" minOccurs="0" />
    <xsd:element name="CommitTransaction" type="CommitTransaction" minOccurs="0" />
    <xsd:element name="RollbackTransaction" type="RollbackTransaction" minOccurs="0" />
    <xsd:element name="Lock" type="Lock" minOccurs="0" />
    <xsd:element name="Unlock" type="Unlock" minOccurs="0" />
    <xsd:element name="Backup" type="Backup" minOccurs="0" />
    <xsd:element name="Restore" type="Restore" minOccurs="0" />
    <xsd:element name="Synchronize" type="Synchronize" minOccurs="0" />
    <xsd:element name="Insert" type="Insert" minOccurs="0" />
    <xsd:element name="Update" type="Update" minOccurs="0" />
    <xsd:element name="Drop" type="Drop" minOccurs="0" />
    <xsd:element name="UpdateCells" type="UpdateCells" minOccurs="0" />
    <xsd:element name="NotifyTableChange" type="NotifyTableChange" minOccurs="0" />
    <xsd:element name="Batch" type="Batch" minOccurs="0" />
    <xsd:element name="Attach" type="Attach" minOccurs="0" />
    <xsd:element name="Detach" type="Detach" minOccurs="0" />
  </xsd:choice>
</xsd:complexType>
```

The following subsections define the types for all of the commands.

3.1.4.3.2.1.1.1 ObjectReference Type

Many of the commands require an element that is of type ObjectReference. An ObjectReference consists of a hierarchical list of references that, when concatenated, reference an object by its full path in the server object hierarchy.

Only [2.2.4.2.2.1](#) can be referenced by an ObjectReference.

```
<xsd:complexType name="ObjectReference">
  <xsd:all>
    <xsd:element name="ServerID" type="xsd:string" minOccurs="0"/>
    <xsd:element name="DatabaseID" type="xsd:string" minOccurs="0"/>
    <xsd:element name="RoleID" type="xsd:string" minOccurs="0"/>
    <xsd:element name="TraceID" type="xsd:string" minOccurs="0"/>
    <xsd:element name="AssemblyID" type="xsd:string" minOccurs="0"/>
    <xsd:element name="DimensionID" type="xsd:string" minOccurs="0"/>
    <xsd:element name="DimensionPermissionID" type="xsd:string"
      minOccurs="0"/>
    <xsd:element name="DataSourceID" type="xsd:string" minOccurs="0"/>
    <xsd:element name="DatabasePermissionID" type="xsd:string"
      minOccurs="0"/>
    <xsd:element name="DataSourceViewID" type="xsd:string" minOccurs="0"/>
    <xsd:element name="CubeID" type="xsd:string" minOccurs="0"/>
    <xsd:element name="MiningStructureID" type="xsd:string" minOccurs="0"/>
    <xsd:element name="MeasureGroupID" type="xsd:string" minOccurs="0"/>
    <xsd:element name="PerspectiveID" type="xsd:string" minOccurs="0"/>
    <xsd:element name="CubePermissionID" type="xsd:string" minOccurs="0"/>
    <xsd:element name="MdxScriptID" type="xsd:string" minOccurs="0"/>
    <xsd:element name="PartitionID" type="xsd:string" minOccurs="0"/>
    <xsd:element name="AggregationDesignID" type="xsd:string" minOccurs="0"/>
    <xsd:element name="MiningModelID" type="xsd:string" minOccurs="0"/>
    <xsd:element name="MiningModelPermissionID" type="xsd:string"
      minOccurs="0"/>
    <xsd:element name="MiningStructurePermissionID" type="xsd:string"
      minOccurs="0"/>
  </xsd:all>
</xsd:complexType>
```

The following table lists the elements that are needed to reference each of the major objects.

ServerID is always optional when referencing a major object, because the current server is used.

To Reference this Major Object	Use These Elements
Server	ServerID
Assembly (Server Assembly)	ServerID, AssemblyID
Assembly (Database Assembly)	ServerID, DatabaseID, AssemblyID
Trace	ServerID, TraceID
Database	ServerID, DatabaseID
DatabasePermission	ServerID, DatabaseID, DatabasePermissionID
Role (on Server)	ServerID, RoleID
Role (on Database)	ServerID, RoleID, DatabaseID
DataSource	ServerID, RoleID, DatabaseID, DataSourceID

To Reference this Major Object	Use These Elements
DataSourcePermission	ServerID, RoleID, DatabaseID, DataSourceID, DataSourcePermissionID
DataSourceView	ServerID, RoleID, DatabaseID, DataSourceViewID
Dimension	ServerID, RoleID, DatabaseID, DimensionID
DimensionPermission	ServerID, RoleID, DatabaseID, DimensionID, DimensionPermissionID
MiningStructure	ServerID, RoleID, DatabaseID, MiningStructureID
MiningStructurePermission	ServerID, RoleID, DatabaseID, MiningStructureID, MiningStructurePermissionID
MiningModel	ServerID, RoleID, DatabaseID, MiningStructureID, MiningModelID
MiningModelPermission	ServerID, RoleID, DatabaseID, MiningStructureID, MiningModelID, MiningModelPermissionID
Cube	ServerID, RoleID, DatabaseID, CubeID
CubePermission	ServerID, RoleID, DatabaseID, CubeID, CubePermissionID
MeasureGroup	ServerID, RoleID, DatabaseID, CubeID, MeasureGroupID
AggregationDesign	ServerID, RoleID, DatabaseID, CubeID, MeasureGroupID, AggregationDesignID
Partition	ServerID, RoleID, DatabaseID, CubeID, MeasureGroupID
Perspective	ServerID, RoleID, DatabaseID, CubeID, PerspectiveID
MdxScript	ServerID, RoleID, DatabaseID, CubeID, MdxScriptID

3.1.4.3.2.1.1.2 Statement

The Statement command consists of a string. This MUST be a valid string in a language that is understood by the server, such as MDX, DMX, SQL, or another.

```
<xsd:complexType name="Statement" >
  <xsd:all>
    <xsd:element name="Statement" type="xsd:string" minOccurs="0" />
  </xsd:all>
</xsd:complexType>
```

3.1.4.3.2.1.1.3 Create

The Create command is used to create an object on a server.

```
<xsd:complexType name="Create">
  <xsd:all>
    <xsd:element name="ParentObject" type="ObjectReference" minOccurs="0" />
    <xsd:element name="ObjectDefinition" type="MajorObject" />
  </xsd:all>
</xsd:complexType>
```

```

</xsd:all>
<xsd:attribute name="Scope" >
  <xsd:simpleType>
    <xsd:restriction base="xsd:string" >
      <xsd:enumeration value="Session" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:attribute>
<xsd:attribute name="AllowOverwrite" type="xsd:boolean" />
</xsd:complexType>

```

The following table describes the elements allowed in the Create command.

Element	Default	Description
ParentObject	Server object	The parent object under which the new object is created. The ObjectReference type is defined in 3.1.4.3.2.1.1.1 .
ObjectDefinition	[Required]	The full XML which defines an object that is derived from MajorObject, in 2.2.4.2 .

The following table describes the XML attributes allowed in the Create command.

Attribute	Default	Description
Scope	Empty	If Scope is specified as "Session", the object is created with session scope. If this XML attribute is present, any value other than "Session", including an empty value, will return an error.
AllowOverwrite	False	A Boolean that determines how to handle an object that already exists. If true, the object is overwritten; if false, the server raises an error.

3.1.4.3.2.1.1.4 Alter

The Alter command is used to alter an object which already exists on a server.

```

<xsd:complexType name="Alter">
  <xsd:all>
    <xsd:element name="Object" type="ObjectReference" minOccurs="0" />
    <xsd:element name="ObjectDefinition" type="MajorObject" />
  </xsd:all>
  <xsd:attribute name="Scope" >
    <xsd:simpleType>
      <xsd:restriction base="xsd:string" >
        <xsd:enumeration value="Session" />
      </xsd:restriction>
    </xsd:simpleType>
  </xsd:attribute>
  <xsd:attribute name="AllowCreate" type="xsd:boolean" />
  <xsd:attribute name="ObjectExpansion" >
    <xsd:simpleType>
      <xsd:restriction base="xsd:string" >
        <xsd:enumeration value="ObjectProperties" />
        <xsd:enumeration value="ExpandFull" />
      </xsd:restriction>
    </xsd:simpleType>
  </xsd:attribute>
</xsd:complexType>

```



```

    </xsd:simpleType>
  </xsd:attribute>
</xsd:complexType>

```

The following table describes the XML elements allowed in the Alter command.

Element	Default	Description
Object	Server object	The object to alter. The ObjectReference type is defined in 3.1.4.3.2.1.1.1 .
ObjectDefinition	[Required]	The ObjectDefinition is the full XML that defines an object derived from MajorObject (2.2.4.2.2.1). Depending on the value of ObjectExpansion, objects contained by a major object MAY be defined with the XML.

The following table describes the XML attributes allowed in the Alter command.

Attribute	Default	Description
Scope	Empty	If Scope is specified as "Session", the object is altered as a session object. If this XML attribute is present, any value other than "Session", including an empty value, will return an error.
AllowCreate	False	A Boolean that specifies what to do if the object does not exist. If true, the server creates a new object; if false, the server raises an error.
ObjectExpansion	"ObjectProperties"	An enumeration value that specifies whether to alter only the object, or the object and all of its descendants.

3.1.4.3.2.1.1.5 Delete

The delete command is used to delete an object from a server.

```

<xsd:complexType name="Delete">
  <xsd:all>
    <xsd:element name="Object" type="ObjectReference" />
  </xsd:all>
  <xsd:attribute name="IgnoreFailures" type="xsd:boolean" />
</xsd:complexType>

```

The following table shows the XML elements included in the Delete command.

Element	Default	Description
Object	Server object	The object to delete. The ObjectReference type is defined in 3.1.4.3.2.1.1.1 .

The following table describes the XML attributes allowed in the Delete command.

Attribute	Default	Description
IgnoreFailures	False	A Boolean that indicates how to handle failures related to network and remote partitions. If true, the server ignores failures; if false, the server raises an

Attribute	Default	Description
		error.

3.1.4.3.2.1.1.6 Process

The Process command is used to process objects on the server.

```

<xsd:complexType name="Process">
  <xsd:all>
    <xsd:element name="Type" >
      <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
          <xsd:enumeration value="ProcessFull" />
          <xsd:enumeration value="ProcessAdd" />
          <xsd:enumeration value="ProcessUpdate" />
          <xsd:enumeration value="ProcessIndexes" />
          <xsd:enumeration value="ProcessScriptCache" />
          <xsd:enumeration value="ProcessData" />
          <xsd:enumeration value="ProcessDefault" />
          <xsd:enumeration value="ProcessClear" />
          <xsd:enumeration value="ProcessStructure" />
          <xsd:enumeration value="ProcessClearStructureOnly" />
          <xsd:enumeration value="ProcessClearIndexes" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="Object" type="ObjectReference" />
    <xsd:element name="Bindings" minOccurs="0" >
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Binding" type="OutOfLineBinding" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="DataSource" type="DataSource" minOccurs="0" />
    <xsd:element name="DataSourceView" type="DataSourceView" minOccurs="0" />
    <xsd:element name="ErrorConfiguration" type="ErrorConfiguration"
      minOccurs="0" />
    <xsd:element name="WriteBackTableCreation" minOccurs="0" >
      <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
          <xsd:enumeration value="Create" />
          <xsd:enumeration value="CreateAlways" />
          <xsd:enumeration value="UseExisting" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>

```

The following table shows the XML elements included in the Process command.

Element	Default	Description
---------	---------	-------------

Element	Default	Description
Type	[Required]	An enumeration value that specifies the type of processing being done.
Object	[Required]	The Object to process. The ObjectReference type is defined in 3.1.4.3.2.1.1.1 .
Bindings	Empty	The optional bindings that can be specified for any of the objects that are to be processed. If any are specified, they override the binding specified for the objects that are stored with the object definition on the server.
DataSource	Empty	The optional DataSource that may be specified for any of the objects that are to be processed. If any are specified, they override the DataSource specified for the objects that are stored with the object definition on the server. The DataSource type is defined in 2.2.4.2.2.6
DataSourceView	Empty	The optional DataSourceView that may be specified for any of the objects that are to be processed. If any are specified, they override the DataSourceView specified for the objects that are stored with the object definition on the server. The DataSourceView type is defined in 2.2.4.2.2.7
ErrorConfiguration	Empty	The error configuration used for this processing operation. It overrides any ErrorConfiguration object that is stored as part of object definitions on the server. The ErrorConfiguration type is defined in 2.2.4.2.2.30 .
WriteBackTableCreation	"Create"	An enumeration value that specifies whether to create or use an existing Writeback table.

3.1.4.3.2.1.1.6.1 OutOfLineBinding

The OutOfLineBinding type is used for overriding the bindings on an object set in a Create or Alter command. It consists of a set of IDs that reference the object and the bindings to be overridden. The bindings have the same restrictions as those on the object that they override.

```
<xsd:complexType name="OutOfLineBinding" >
  <xsd:all>
    <xsd:element name="DatabaseID" minOccurs="0" type="xsd:string" />
    <xsd:element name="DimensionID" minOccurs="0" type="xsd:string" />
    <xsd:element name="CubeID" minOccurs="0" type="xsd:string" />
    <xsd:element name="MeasureGroupID" minOccurs="0" type="xsd:string" />
    <xsd:element name="PartitionID" minOccurs="0" type="xsd:string" />
    <xsd:element name="MiningModelID" minOccurs="0" type="xsd:string" />
    <xsd:element name="MiningStructureID" minOccurs="0" type="xsd:string" />
    <xsd:element name="AttributeID" minOccurs="0" type="xsd:string" />
    <xsd:element name="CubeDimensionID" minOccurs="0" type="xsd:string" />
    <xsd:element name="MeasureID" minOccurs="0" type="xsd:string" />
    <xsd:element name="ParentColumnID" minOccurs="0" type="xsd:string" />
    <xsd:element name="ColumnID" minOccurs="0" type="xsd:string" />
    <xsd:element name="Source" minOccurs="0" type="Binding" />
    <xsd:element name="NameColumn" minOccurs="0" />
  <xsd:complexType>
    <xsd:all>
```

```

        <xsd:element name="Source" minOccurs="0" type="Binding" />
    </xsd:all>
</xsd:complexType>
</xsd:element>
<xsd:element name="SkippedLevelsColumn" minOccurs="0" >
    <xsd:complexType>
        <xsd:all>
            <xsd:element name="Source" minOccurs="0" type="Binding" />
        </xsd:all>
    </xsd:complexType>
</xsd:element>
<xsd:element name="CustomRollupColumn" minOccurs="0" >
    <xsd:complexType>
        <xsd:all>
            <xsd:element name="Source" minOccurs="0" type="Binding" />
        </xsd:all>
    </xsd:complexType>
</xsd:element>
<xsd:element name="CustomRollupPropertiesColumn" minOccurs="0" >
    <xsd:complexType>
        <xsd:all>
            <xsd:element name="Source" minOccurs="0" type="Binding" />
        </xsd:all>
    </xsd:complexType>
</xsd:element>
<xsd:element name="ValueColumn" minOccurs="0" >
    <xsd:complexType>
        <xsd:all>
            <xsd:element name="Source" minOccurs="0" type="Binding" />
        </xsd:all>
    </xsd:complexType>
</xsd:element>
<xsd:element name="UnaryOperatorColumn" minOccurs="0" >
    <xsd:complexType>
        <xsd:all>
            <xsd:element name="Source" minOccurs="0" type="Binding" />
        </xsd:all>
    </xsd:complexType>
</xsd:element>
<xsd:element name="KeyColumns" minOccurs="0" >
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element name="KeyColumn" minOccurs="0" maxOccurs="unbounded">
                <xsd:complexType>
                    <xsd:all>
                        <xsd:element name="Source" minOccurs="0" type="Binding" />
                    </xsd:all>
                </xsd:complexType>
            </xsd:element>
        </xsd:sequence>
    </xsd:complexType>
</xsd:element>
<xsd:element name="ForeignKeyColumns" minOccurs="0" >
    <xsd:complexType>
        <xsd:sequence>
            <xsd:element name="ForeignKeyColumn" minOccurs="0"
                maxOccurs="unbounded">
                <xsd:complexType>
                    <xsd:all>

```

```

        <xsd:element name="Source" minOccurs="0" type="Binding" />
      </xsd:all>
    </xsd:complexType>
  </xsd:element>
</xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="Translations" minOccurs="0" >
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Translation" minOccurs="0" maxOccurs="unbounded">
        <xsd:complexType>
          <xsd:all>
            <xsd:element name="Language" type="xsd:int" />
            <xsd:element name="Source" minOccurs="0" type="Binding" />
          </xsd:all>
        </xsd:complexType>
      </xsd:element>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:complexType>

```

Element	Default	Description
DatabaseID	Empty	The ID of the Database that this binding applies to.
DimensionID	Empty	The ID of the Dimension that this binding applies to.
CubeID	Empty	The ID of the Cube that this binding applies to.
MeasureGroupID	Empty	The ID of the MeasureGroup that this binding applies to.
PartitionID	Empty	The ID of the Partition that this binding applies to.
MiningModelID	Empty	The ID of the MiningModel that this binding applies to.
MiningStructureID	Empty	The ID of the MiningStructure that this binding applies to.
AttributeID	Empty	The ID of the Attribute that this binding applies to.
CubeDimensionID	Empty	The ID of the CubeDimension that this binding applies to.
MeasureID	Empty	The ID of the Measure that this binding applies to.
ParentColumnID	Empty	The ID of the column that is the parent column in a nested table.
ColumnID	Empty	The ID of the Column that this binding applies to.
Source	Empty	The Source binding for the referenced object.
NameColumn	Empty	The NameColumn binding for the referenced DimensionAttribute or MiningStructureColumn.
SkippedLevelsColumn	Empty	The SkippedLevelsColumn binding for the referenced DimensionAttribute.

Element	Default	Description
CustomRollupColumn	Empty	The CustomRollupColumn binding for the referenced DimensionAttribute.
CustomRollupPropertiesColumn	Empty	The CustomRollupPropertiesColumn binding for the referenced DimensionAttribute.
ValueColumn	Empty	The ValueColumn binding for the referenced DimensionAttribute.
UnaryOperatorColumn	Empty	The UnaryOperatorColumn binding for the referenced DimensionAttribute.
KeyColumns	Empty	A collection of KeyColumn bindings for the referenced DimensionAttribute or MiningStructureColumn.
ForeignKeyColumns	Empty	A collection of ForeignKeyColumn bindings for the referenced MiningStructureColumn.
Translations	Empty	A collection of CaptionColumn bindings for each Translation of the referenced DimensionAttribute.

3.1.4.3.2.1.1.7 MergePartitions

This command merges the data of one or more source partitions into a target partition and deletes the source partitions. The Source and Target object references must point to distinct partitions in the same measure group, or else an error is raised.

```
<xsd:complexType name="MergePartitions">
  <xsd:all>
    <xsd:element name="Sources" >
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Source" type="ObjectReference" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="Target" type="ObjectReference" />
  </xsd:all>
</xsd:complexType>
```

Element	Default	Description
Sources	[Required]	A collection of ObjectReferences that define the source partitions for the MergePartitions command. This is a collection of <Source> elements, each of type ObjectReference. The ObjectReference type is defined in 3.1.4.3.2.1.1.1 .
Target	[Required]	The target partition for the MergePartitions command.

3.1.4.3.2.1.1.8 DesignAggregations

This command designs aggregations on an AggregationDesign object and returns a rowset containing the statistics of the design. The Object element must point to an existing aggregation design object, or else an error is raised.

```

<xsd:complexType name="DesignAggregations">
  <xsd:all>
    <xsd:element name="Object" type="ObjectReference" />
    <xsd:element name="Time" type="xsd:duration" minOccurs="0" />
    <xsd:element name="Steps" type="xsd:integer" minOccurs="0" />
    <xsd:element name="Optimization" type="xsd:double" minOccurs="0" />
    <xsd:element name="Storage" type="xsd:long" minOccurs="0" />
    <xsd:element name="Materialize" type="xsd:boolean" minOccurs="0" />
    <xsd:element name="Queries" minOccurs="0" >
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Query" type="xsd:string" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>

```

Element	Default	Description
Object	[Required]	An ObjectReference to the AggregationDesign object for which aggregations are being designed. The ObjectReference type is defined in 3.1.4.3.2.1.1.1 .
Time	Zero	A duration that specifies the time limit for aggregation design.
Steps	Zero	An integer that specifies the number of aggregation design steps.
Optimization	Zero	A double that specifies the percent optimization threshold for design of aggregations.
Storage	Zero	A long integer that specifies the storage limit in bytes.
Materialize	False	A Boolean that specifies whether the aggregations should be materialized.
Queries	Empty	A collection of string elements that represent queries, which are used to optimize the aggregation design.

3.1.4.3.2.1.1.9 ClearCache

This command clears the in memory cache of the specified object.

```

<xsd:complexType name="ClearCache">
  <xsd:all>
    <xsd:element name="Object" type="ObjectReference" />
  </xsd:all>
</xsd:complexType>

```

Element	Default	Description
Object	[Required]	The Object to clear from the cache. MUST be one of Database, Dimension, Cube, MeasureGroup. The ObjectReference type is defined in 3.1.4.3.2.1.1.1 .

3.1.4.3.2.1.1.10 Subscribe

This command subscribes to a Trace object for events.

```
<xsd:complexType name="Subscribe">
  <xsd:all>
    <xsd:element name="Object" type="ObjectReference" />
  </xsd:all>
</xsd:complexType>
```

Element	Default	Description
Object	[Required]	The Trace object to be subscribed to. The ObjectReference type is defined in 3.1.4.3.2.1.1.1 .

3.1.4.3.2.1.1.11 Cancel

This command cancels the currently running command on the specified connection.

```
<xsd:complexType name="Cancel">
  <xsd:all>
    <xsd:element name="ConnectionID" type="xsd:integer" minOccurs="0" />
    <xsd:element name="SessionID" type="xsd:string" minOccurs="0" />
    <xsd:element name="SPID" type="xsd:integer" minOccurs="0" />
    <xsd:element name="CancelAssociated" type="xsd:boolean" minOccurs="0" />
  </xsd:all>
</xsd:complexType>
```

Element	Default	Description
ConnectionID	Empty	The connection ID. -1 means current connection.
SessionID	Empty	The session ID. If none of ConnectionID, SessionID, or SPID are specified, the current session is canceled.
SPID	Empty	The SPID. -1 means current session.
CancelAssociated	False	A Boolean that indicates if the associated sessions are to be cancelled.

3.1.4.3.2.1.1.12 BeginTransaction

This command begins a transaction on the current session.

```
<xsd:complexType name="BeginTransaction">
  <xsd:all>
    <xsd:element name="BeginTransaction" >
      <xsd:complexType>
        <xsd:sequence>
          <!--The BeginTransaction command MUST contain NO elements-->
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
```



```
</xsd:complexType>
```

The BeginTransaction command contains only a BeginTransaction element, which MUST be empty. The element has no attributes and no content.

Element	Default	Description
(None.)		

3.1.4.3.2.1.1.13 CommitTransaction

This command commits a transaction on the current session.

```
<xsd:complexType name="CommitTransaction">
  <xsd:all>
    <xsd:element name="CommitTransaction" >
      <xsd:complexType>
        <xsd:sequence>
          <!--The CommitTransaction command MUST contain NO elements-->
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>
```

The CommitTransaction command contains only a CommitTransaction element, which MUST be empty. The element has no attributes and no content.

Element	Default	Description
(None.)		

3.1.4.3.2.1.1.14 RollbackTransaction

This command rolls back a transaction on the current session.

```
<xsd:complexType name="RollbackTransaction">
  <xsd:all>
    <xsd:element name="RollbackTransaction" >
      <xsd:complexType>
        <xsd:sequence>
          <!--The RollbackTransaction command MUST contain NO elements-->
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>
```

The RollbackTransaction command, contains only a RollbackTransaction element, which MUST be empty. The element has no attributes and no content.

Element	Default	Description
(None.)		

3.1.4.3.2.1.1.15 Lock

The Lock command locks an object in the context of the current transaction. [<67>](#)

```

<xsd:complexType name="Lock">
  <xsd:all>
    <xsd:element name="ID">
      <xsd:simpleType>
        <xsd:restriction base="xsd:token">
          <xsd:pattern value="[0-9a-zA-Z]{8}-[0-9a-zA-Z]{4}-[0-9a-zA-Z]{4}-[0-9a-zA-Z]{4}-[0-9a-zA-Z]{12}"/>
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="Object" type="ObjectReference" />
    <xsd:element name="Mode" >
      <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
          <xsd:enumeration value="CommitShared" />
          <xsd:enumeration value="CommitExclusive" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>

```

Element	Default	Description
ID	[Required]	The lock ID.
Object	[Required]	The object to be locked. The ObjectReference type is defined in 3.1.4.3.2.1.1.1 .
Mode	[Required]	An enumeration which specifies the type of locking to apply. The possible values are: CommitShared - A shared lock is established on the specified object. CommitExclusive - An exclusive lock is established on the specified object.

3.1.4.3.2.1.1.16 Unlock

The Unlock command unlocks an object in the context of the current transaction.

```

<xsd:complexType name="Unlock">
  <xsd:all>
    <xsd:element name="ID">
      <xsd:simpleType>
        <xsd:restriction base="xsd:token">
          <xsd:pattern value="[0-9a-zA-Z]{8}-[0-9a-zA-Z]{4}-[0-9a-zA-Z]{4}-[0-9a-zA-Z]{4}-[0-9a-zA-Z]{12}"/>
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>

```

```

    </xsd:element>
  </xsd:all>
</xsd:complexType>

```

Element	Default	Description
ID	[Required]	The ID of the of lock to be released.

3.1.4.3.2.1.1.17 Backup

The Backup command backs up the specified database.

```

<xsd:complexType name="Backup">
  <xsd:all>
    <xsd:element name="Object" type="ObjectReference" />
    <xsd:element name="File" type="xsd:string" />
    <xsd:element name="Security" minOccurs="0" >
      <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
          <xsd:enumeration value="SkipMembership" />
          <xsd:enumeration value="CopyAll" />
          <xsd:enumeration value="IgnoreSecurity" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="ApplyCompression" type="xsd:boolean" minOccurs="0" />
    <xsd:element name="AllowOverwrite" type="xsd:boolean" minOccurs="0" />
    <xsd:element name="Password" type="xsd:string" minOccurs="0" />
    <xsd:element name="BackupRemotePartitions" type="xsd:boolean"
      minOccurs="0" />
    <xsd:element name="Locations" minOccurs="0" >
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Location" type="Location_Backup" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>

```

Element	Default	Description
Object	[Required]	The database object to be backed up. The ObjectReference type is defined in 3.1.4.3.2.1.1.1 .
File	[Required]	The backup file name/path.
Security	"CopyAll"	An enumeration value that specifies how to back up security definitions, such as roles and permissions.
ApplyCompression	True	A Boolean that determines if backup files are compressed.
AllowOverwrite	False	A Boolean that determines if a backup file that already exists will be overwritten.

Element	Default	Description
Password	Empty	The password to use for encrypting the backup file.
BackupRemotePartitions	False	A Boolean that determines if remote partitions will be backed up.
Locations	Empty	A collection of type Location_Backup that stores the location mappings for remote partitions.

3.1.4.3.2.1.1.17.1 Location_Backup

This type identifies remote locations that are to be backed up by a Backup command.

```
<xsd:complexType name="Location_Backup">
  <xsd:all>
    <xsd:element name="File" type="xsd:string" />
    <xsd:element name="DataSourceID" type="xsd:string" />
  </xsd:all>
</xsd:complexType>
```

Element	Default	Description
File	[Required]	The backup file name/path.
DataSourceID	[Required]	The remote partition data source ID.

3.1.4.3.2.1.1.18 Restore

The Restore command restores a database from a backup file.

```
<xsd:complexType name="Restore">
  <xsd:all>
    <xsd:element name="DatabaseName" type="xsd:string" minOccurs="0" />
    <xsd:element name="DatabaseID" type="xsd:string" minOccurs="0" />
    <xsd:element name="File" type="xsd:string" />
    <xsd:element name="Security" minOccurs="0" >
      <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
          <xsd:enumeration value="SkipMembership" />
          <xsd:enumeration value="CopyAll" />
          <xsd:enumeration value="IgnoreSecurity" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="AllowOverwrite" type="xsd:boolean" minOccurs="0" />
    <xsd:element name="Password" type="xsd:string" minOccurs="0" />
    <xsd:element ref="eng100_100:DbStorageLocation" minOccurs="0" />
    <xsd:element name="Locations" minOccurs="0">
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Location" type="Location" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>
```

```

    </xsd:element>
  </xsd:all>
</xsd:complexType>

```

See the Synchronize command ([3.1.4.3.2.1.1.19](#)) for definition of the element DbStorageLocation in namespace eng100_100:

Element	Default	Description
DatabaseName	Empty	The name of the restored database.
DatabaseID	Empty	The ID of the restored database.
File	[Required]	The backup file name/path.
Security	"CopyAll"	An enumeration value that specifies how to restore security definitions.
AllowOverwrite	False	A Boolean that indicates if a database that already exists will be overwritten.
Password	Empty	The password used to encrypt the backup file when it was created.
DbStorageLocation	Empty	Storage location for the restored database.
Locations	Empty	A collection of objects of type Location that stores the location mappings for remote partitions.

3.1.4.3.2.1.1.18.1 Location

The Location type contains the location mappings for remote partitions. It is used by the Restore and the Synchronize commands. It is an extension of the Location_Backup type [3.1.4.3.2.1.1.17.1](#).

```

<xsd:complexType name="Location">
  <xsd:complexContent>
    <xsd:extension base="Location_Backup" >
      <xsd:all>
        <xsd:element name="DataSourceType" minOccurs="0" >
          <xsd:simpleType>
            <xsd:restriction base="xsd:string" >
              <xsd:enumeration value="Remote" />
              <xsd:enumeration value="Local" />
            </xsd:restriction>
          </xsd:simpleType>
        </xsd:element>
        <xsd:element name="ConnectionString" type="xsd:string"
          minOccurs="0" />
        <xsd:element name="Folders" minOccurs="0" >
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Folder" type="Folder" minOccurs="0"
                maxOccurs="unbounded" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
      </xsd:all>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

```

```

    </xsd:all>
  </xsd:extension >
</xsd:complexContent>
</xsd:complexType>

```

The following table only includes the elements that are extended beyond those already contained in location_backup, which are defined in [3.1.4.3.2.1.1.17.1](#):

Element	Default	Description
DataSourceType	"Remote"	An enumeration value that indicates whether the DataSource is remote or local.
ConnectionString	Empty	The data source connection string.
Folders	Empty	A collection of objects of type Folder that indicates the mapping fo the folder name from original name to new name.

3.1.4.3.2.1.1.18.2 Folder

The Folder type contains folder mappings for the restored database.

```

<xsd:complexType name="Folder">
  <xsd:all>
    <xsd:element name="Original" type="xsd:string" />
    <xsd:element name="New" type="xsd:string" />
  </xsd:all>
</xsd:complexType>

```

Element	Default	Description
Original	[Required]	The path for the original folder.
New	[Required]	The path for the new folder.

3.1.4.3.2.1.1.19 Synchronize

The Synchronize command synchronizes the contents of a database from a source server.

```

<xsd:complexType name="Synchronize">
  <xsd:all>
    <xsd:element name="Source" type="Source" />
    <xsd:element name="SynchronizeSecurity" minOccurs="0" >
      <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
          <xsd:enumeration value="SkipMembership" />
          <xsd:enumeration value="CopyAll" />
          <xsd:enumeration value="IgnoreSecurity" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="ApplyCompression" type="xsd:boolean" minOccurs="0" />
    <xsd:element ref="eng100_100:DbStorageLocation" minOccurs="0" />
  </xsd:all>
</xsd:complexType>

```

```

<xsd:element name="Locations" minOccurs="0" >
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="Location" type="Location" minOccurs="0"
        maxOccurs="unbounded"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:complexType>

```

The XSD for Synchronize depends upon the definitions of elements in a namespace other than the default namespace.

The following element is defined in the namespace eng100_100:

```

<xsd:element name="DbStorageLocation" type="xsd:string" minOccurs="0" />

```

Element	Default	Description
Source	[Required]	An object of type Source that indicates the source of synchronization.
SynchronizeSecurity	"SkipMembership"	An enumeration value that specifies how to restore security definitions, including roles and permissions.
ApplyCompression	True	A Boolean that indicates if compression will be applied to a backup file.
DbStorageLocation	Empty	A string that specifies a storage location for the database.
Locations	Empty	A collection of objects of type Location that specifies location mappings for remote partitions. Type Location is defined in 3.1.4.3.2.1.1.18.1 .

3.1.4.3.2.1.1.19.1 Source

The Source type specifies the source for the Synchronization command.

```

<xsd:complexType name="Source">
  <xsd:all>
    <xsd:element name="Object" type="ObjectReference" />
    <xsd:element name="ConnectionString" type="xsd:string" />
  </xsd:all>
</xsd:complexType>

```

Element	Default	Description
Object	[Required]	An ObjectReference to the database that is the source of the synchronization. The ObjectReference type is defined in 3.1.4.3.2.1.1.1 .
ConnectionString	[Required]	The connection string to the source server.

3.1.4.3.2.1.1.20 Attach

The Attach command attaches a database from a database folder.

```

<xsd:complexType name="Attach">
  <xsd:all>
    <xsd:element name="Folder" type="xsd:string" />
    <xsd:element name="ReadWriteMode" minOccurs="0" >
      <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
          <xsd:enumeration value="ReadWrite" />
          <xsd:enumeration value="ReadOnly" />
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="Password" type="xsd:string" minOccurs="0" />
  </xsd:all>
</xsd:complexType>

```

Element	Default	Description
Folder	[Required]	The path to the database folder.
ReadWriteMode	"ReadWrite"	An enumeration value that specifies the ReadWrite mode for the database to be attached.
Password	Empty	An optional password to encrypt secrets.

3.1.4.3.2.1.1.21 Detach

The Detach command detaches a database.

```

<xsd:complexType name="Detach">
  <xsd:all>
    <xsd:element name="Object" type="ObjectReference" />
    <xsd:element name="Password" type="xsd:string" minOccurs="0" />
  </xsd:all>
</xsd:complexType>

```

Element	Default	Description
Object	[Required]	The Database object to detach. The ObjectReference type is defined in 3.1.4.3.2.1.1.1 .
Password	Empty	An optional password to encrypt secrets.

3.1.4.3.2.1.1.22 Insert

This command inserts a new member into a dimension.

```

<xsd:complexType name="Insert">
  <xsd:all>
    <xsd:element name="Object" type="Object" />
    <xsd:element name="Attributes" minOccurs="0" >
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Attribute" type="Attribute_InsertUpdate"

```



```

        minOccurs="0" maxOccurs="unbounded" />
    </xsd:sequence>
</xsd:complexType>
</xsd:element>
</xsd:all>
</xsd:complexType>

```

Element	Default	Description
Object	[required]	Specifies the dimension.
Attributes	Empty	A collection of objects of type Attribute_InsertUpdate, which describes the member to be inserted.

3.1.4.3.2.1.1.22.1 Object

This type identifies the dimension that the Insert, Update, and Drop commands operate on. It differs from an ObjectReference, in that it uses the Name of the objects, rather than the ID.

```

<xsd:complexType name="Object">
  <xsd:all>
    <xsd:element name="Database" type="xsd:string" />
    <xsd:element name="Cube" type="xsd:string" />
    <xsd:element name="Dimension" type="xsd:string" />
  </xsd:all>
</xsd:complexType>

```

Element	Default	Description
Database	[Required]	The Database name.
Cube	[Required]	The Cube name.
Dimension	[Required]	The Dimension name.

3.1.4.3.2.1.1.22.2 Attribute_InsertUpdate

This type contains the data associated with a member of an attribute being inserted into or updated.

```

<xsd:complexType name="Attribute_InsertUpdate">
  <xsd:all>
    <xsd:element name="AttributeName" type="xsd:string" />
    <xsd:element name="Name" type="xsd:string" />
    <xsd:element name="Keys" minOccurs="0" >
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Key" type="xsd:anySimpleType" minOccurs="0"
            maxOccurs="unbounded" />
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="Translations" minOccurs="0" >
      <xsd:complexType>
        <xsd:sequence>

```

```

        <xsd:element name="Translation" type="Translation_InsertUpdate"
            minOccurs="0" maxOccurs="unbounded" />
    </xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="Value" type="xsd:string" minOccurs="0" />
<xsd:element name="CustomRollup" type="xsd:string" minOccurs="0" />
<xsd:element name="CustomRollupProperties" type="xsd:string" minOccurs="0" />
<xsd:element name="UnaryOperator" type="xsd:string" minOccurs="0" />
<xsd:element name="SkippedLevels" type="xsd:integer" minOccurs="0" />
</xsd:all>
</xsd:complexType>

```

Element	Default	Description
AttributeName	[Required]	The name of the Attribute.
Name	[Required]	The name of the member.
Keys	Empty	A collection of keys for the member.
Translations	Empty	A collection of objects of type Translation_InsertUpdate.
Value	Empty	The value of the member.
CustomRollup	Empty	The custom rollup formula of the member.
CustomRollupProperties	Empty	The custom rollup properties of the member.
UnaryOperator	Empty	The unary operator of the member.
SkippedLevels	Zero	The skipped levels of the member.

3.1.4.3.2.1.1.22.3 Translation_InsertUpdate

This type contains the translation data associated with a member of an attribute being inserted into or updated.

```

<xsd:complexType name="Translation_InsertUpdate">
  <xsd:all>
    <xsd:element name="Language" type="xsd:integer" />
    <xsd:element name="Name" type="xsd:string" minOccurs="0" />
  </xsd:all>
</xsd:complexType>

```

Element	Default	Description
Language	[Required]	The LCID that represents the language/locale of the object.
Name	Empty	The caption of the member in the specified language.

3.1.4.3.2.1.1.23 Update

The Update command updates a dimension member.

```

<xsd:complexType name="Update">
  <xsd:all>
    <xsd:element name="Object" type="Object" />
    <xsd:element name="Attributes" minOccurs="0" >
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Attribute" type="Attribute_InsertUpdate"
            minOccurs="0" maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="MoveWithDescendants" type="xsd:boolean"
      minOccurs="0"/>
    <xsd:element name="MoveToRoot" type="xsd:boolean"
      minOccurs="0"/>
    <xsd:element name="Where" type="Where" />
  </xsd:all>
</xsd:complexType>

```

Element	Default	Description
Object	[Required]	Specifies the dimension.
Attributes	Empty	A collection of objects of type Attribute_InsertUpdate that describes the member to be updated.
MoveWithDescendants	False	A Boolean that indicates if the descendants of the member will be moved along with it (can only be used with Parent-Child dimensions).
MoveToRoot	False	A Boolean that causes a member to be moved to the root of a parent-child dimension.
Where	[Required]	A collection of objects of type Where that identify the members to be updated.

3.1.4.3.2.1.1.23.1 Where

This type identifies which members of a dimension are to be updated or dropped.

```

<xsd:complexType name="Where">
  <xsd:all>
    <xsd:element name="Attributes" minOccurs="0" >
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Attribute" type="Where_Attribute" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>

```

Element	Default	Description
---------	---------	-------------

Element	Default	Description
Attributes	Empty	A collection of objects of type Where_Attribute.

3.1.4.3.2.1.1.23.2 Where_Attribute

This type identifies which members of an attribute are to be updated or dropped.

```
<xsd:complexType name="Where_Attribute">
  <xsd:all>
    <xsd:element name="AttributeName" type="xsd:string" />
    <xsd:element name="Keys" minOccurs="0" >
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Key" type="xsd:anySimpleType" minOccurs="0"
            maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>
```

Element	Default	Description
AttributeName	[Required]	The attribute name.
Keys	Empty	The keys for the member. The types that are accepted are a subset of xsd:anySimpleType, and are those enumerated in the DataType element of the DataItem (2.2.4.2.2.19).

3.1.4.3.2.1.1.24 Drop

The Drop command deletes a dimension member.

```
<xsd:complexType name="Drop">
  <xsd:all>
    <xsd:element name="Object" type="ObjectReference" />
    <xsd:element name="DeleteWithDescendants" type="xsd:boolean"
      minOccurs="0" />
    <xsd:element name="Where" type="Where" />
  </xsd:all>
</xsd:complexType>
```

Element	Default	Description
Object	[Required]	Specifies the dimension.
DeleteWithDescendants	False	A Boolean that causes the descendents of the member to be deleted along with it (parent-child dimensions only).
Where	[Required]	A collection of objects of type Where that identify the members to be dropped.

3.1.4.3.2.1.1.25 UpdateCells

The UpdateCells command updates the values of the specified cells.

```
<xsd:complexType name="UpdateCells">
  <xsd:sequence>
    <xsd:element name="Cell" type="Cell" minOccurs="0"
      maxOccurs="unbounded" />
  </xsd:sequence>
</xsd:complexType>
```

Element	Default	Description
Cell	Empty	A collection of objects of type Cell.

The UpdateCells command is stateful and therefore is used in conjunction with SOAP Header elements. When the client as defined an mddataset result which the client desires to update through use of the UpdateCells command, the client MUST tell the server to keep the result available for updating, but adding a KeepResult element to the SOAP hader.

The XSD for the KeepResult Element is as follows.

```
<xsd:element name="KeepResult" >
  <xsd:complexType >
    <xsd:sequence>
      <!--The KeepResult element MUST be empty-->
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
```

The server responds to the presence of a KeepResult element in the SOAP header it receives, with a Result element in the SOAP header of the response. The Result element contains a ResultID attribute, which contains the token that the client and server will use to refer to this Result in subsequent commands. The XSD for the Result element and its complex type are as follows:

```
<xsd:element name="Result" >
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="ResultId" type="xsd:string" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>
```

The client may now include a Result element in the SOAP Header of subsequent commands it sends to the server, in which it may update that result with the UpdateCells command.

When the client is finished with the result, and will no longer utilize the result for futher UpdateCells commands, it includes a ClearResult element in the SOAP Header. The XSD for the ClearResult element and complex type are as follows:

```

<xsd:element name="ClearResult" >
  <xsd:complexType>
    <xsd:sequence>
      <xsd:element name="ResultId" type="xsd:string" />
    </xsd:sequence>
  </xsd:complexType>
</xsd:element>

```

3.1.4.3.2.1.1.25.1 Cell

This type specifies the ordinal of a cell and its new value.

```

<xsd:complexType name="Cell">
  <xsd:all>
    <xsd:element name="Value" type="xsd:anySimpleType" />
  </xsd:all>
  <xsd:attribute name="CellOrdinal" type="xsd:long" />
</xsd:complexType>

```

The following table describes the XML elements of the Cell object:

Element	Default	Description
Value	[Required]	The new value to update cell with.
Attribute	Default	Description.
CellOrdinal	[Required]	The ordinal of a cell to be updated.

3.1.4.3.2.1.1.26 NotifyTableChange

The NotifyTableChange command notifies the server about changes in source tables so that the server can drop any cached data from these tables.

```

<xsd:complexType name="NotifyTableChange">
  <xsd:all>
    <xsd:element name="Object" type="ObjectReference" />
    <xsd:element name="TableNotifications" >
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="TableNotification" type="TableNotification"
            minOccurs="0" maxOccurs="unbounded"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
  </xsd:all>
</xsd:complexType>

```

Element	Default	Description
Object	[Required]	The object that is referenced MUST be a DataSource object. The ObjectReference type is defined in 3.1.4.3.2.1.1.1 .

Element	Default	Description
TableNotifications	[Required]	A collection of objects of type TableNotification. Each TableNotification object gives information about one table. The TableNotification type is defined in 2.2.4.2.2.20.22.1 .

3.1.4.3.2.1.1.27 Batch

The Batch command contains multiple commands that are executed in a single request.

```

<xsd:complexType name="Batch">
  <xsd:sequence>
    <xsd:element name="Parallel" minOccurs="0" maxOccurs="unbounded" >
      <xsd:complexType>
        <xsd:sequence>
          <xsd:element name="Process" type="Process" minOccurs="0"
            maxOccurs="unbounded" />
        </xsd:sequence>
        <xsd:attribute name="MaxParallel" type="xsd:int" default="0" />
      </xsd:complexType>
    </xsd:element>
    <xsd:element name="Bindings" minOccurs="0" type="OutOfLineBinding" />
    <xsd:element name="DataSource" minOccurs="0" type="DataSource" />
    <xsd:element name="DataSourceView" type="DataSourceView"
      minOccurs="0" />
    <xsd:element name="ErrorConfiguration" type="ErrorConfiguration"
      minOccurs="0" />
    <xsd:element name="Create" type="Create" minOccurs="0"
      maxOccurs="unbounded" />
    <xsd:element name="Alter" type="Alter" minOccurs="0"
      maxOccurs="unbounded" />
    <xsd:element name="Delete" type="Delete" minOccurs="0"
      maxOccurs="unbounded" />
    <xsd:element name="Process" type="Process" minOccurs="0"
      maxOccurs="unbounded" />
    <xsd:element name="MergePartitions" type="MergePartitions"
      minOccurs="0" maxOccurs="unbounded" />
    <xsd:element name="DesignAggregations" type="DesignAggregations"
      minOccurs="0" maxOccurs="unbounded" />
    <xsd:element name="NotifyTableChange" type="NotifyTableChange"
      minOccurs="0" maxOccurs="unbounded" />
    <xsd:element name="Insert" minOccurs="0" type="Insert"
      maxOccurs="unbounded" />
    <xsd:element name="Update" minOccurs="0" type="Update"
      maxOccurs="unbounded" />
    <xsd:element name="Drop" minOccurs="0" type="Drop"
      maxOccurs="unbounded" />
    <xsd:element name="UpdateCells" minOccurs="0" type="UpdateCells"
      maxOccurs="unbounded" />
    <xsd:element name="Backup" minOccurs="0" type="Backup"
      maxOccurs="unbounded" />
    <xsd:element name="Restore" minOccurs="0" type="Restore"
      maxOccurs="unbounded" />
    <xsd:element name="Synchronize" minOccurs="0" type="Synchronize"
      maxOccurs="unbounded" />
    <xsd:element name="Cancel" minOccurs="0" type="Cancel"
      maxOccurs="unbounded" />
  </xsd:sequence>
</complexType>

```

```

<xsd:element name="ClearCache" minOccurs="0" type="ClearCache"
    maxOccurs="unbounded" />
<xsd:element name="Detach" minOccurs="0" type="Detach"
    maxOccurs="unbounded" />
<xsd:element name="Attach" minOccurs="0" type="Attach"
    maxOccurs="unbounded" />
<xsd:element name="Lock" minOccurs="0" type="Lock"
    maxOccurs="unbounded" />
<xsd:element name="Unlock" minOccurs="0" type="Unlock"
    maxOccurs="unbounded" />
</xsd:sequence>
<xsd:attribute name="Transaction" type="xsd:boolean" />
<xsd:attribute name="ProcessAffectedObjects" type="xsd:boolean" />
</xsd:complexType>

```

The following table shows the XML elements for the Batch command.

Element	Default	Description
Parallel	Empty	A Parallel element can contain an unbounded number of Process commands. The Process commands are executed in parallel, up to the limit in the maxParallel XML attribute to this element.
Bindings	Empty	A collection of objects of type OutOfLineBinding (see 3.1.4.3.2.1.1.6.1). These bindings replace the bindings that may have been specified for the objects at their creation time.
DataSource	Empty	A DataSource that, if specified, replaces a DataSource that may have been specified for the objects at their creation time.
DataSourceView	Empty	A DataSourceView that, if specified, replaces a DataSourceView that may have been specified for the objects at their creation time.
ErrorConfiguration	Empty	An ErrorConfiguration object that designates the error configuration to be used for processing.

In addition to the above elements, the Batch command may contain any number of each of the Commands defined as available to the Command element ([2.2.4.2.2.10.2](#)), except the Batch command itself. [<68>](#)

The following table shows the XML attributes for the Batch command:

Element	Default	Description
Transaction	True	A Boolean that specifies if all commands in the batch are executed in a single transaction.
ProcessAffectedObjects	False	A Boolean that specifies if affected objects should also be processed.

3.1.4.3.2.1.2 Properties Element

The Properties element is shared between the Discover and Execute methods and is described in [3.1.4.3.2.1.2](#).

3.1.4.3.2.1.3 ExecuteParameter

This type specifies the value of a parameter in a command.

```
<xsd:complexType name="ExecuteParameter">
  <xsd:all>
    <xsd:element name="Name" minOccurs="1" type="xsd:string" />
    <xsd:element name="Value" minOccurs="1" type="xsd:anyType" />
  </xsd:all>
</xsd:complexType>
```

Element	Default	Description
Name	[Required]	The name of the parameter.
Value	[Required]	The value of the parameter. The value can be of type anySimpleType or xmla-rs:root (see 2.2.4.1.3).

3.1.4.3.3 ExecuteResponse

The server response to an execute request contains the **ExecuteResponse** element as the root of the response. The **ExecuteResponse** element has the following definition.

```
<xsd:complexType name="ExecuteResponse" >
  <xsd:sequence>
    <xsd:element name="return" minOccurs="1" maxOccurs="1" type="return" >
  </xsd:element>
</xsd:sequence>
</xsd:complexType>
```

The return element is described in the following section.

3.1.4.3.3.1 return Element

The return element contains the result returned by the server. The content of the result contained in the return element is dependent upon the Command and the Properties that were specified in the Execute method call.

```
<xsd:complexType name="return">
  <xsd:choice>
    <xsd:element ref="xmla-ds:root" />
    <xsd:element ref="xmla-rs:root" />
    <xsd:element ref="xmla-e:root" />
    <xsd:element ref="xmla-m:results" />
  </xsd:choice>
</xsd:complexType>
```

The definition of the xmla-ds:root element is as follows:

```
<xsd:element name="root" type="xmla-ds:mddataset" />
```

```

<xsd:element name="root" type="xmla-rs:rowset" />
<xsd:element name="root" type="xmla-e:emptyresult" />
<xsd:element name="results" type="xmla-m:results" />

```

See [2.2.4.1.1](#) for the definition of the complex type xmla-ds:mddataset.

The definition of the xmla-rs:root element is as follows:

```

<xsd:element name="root" type="xmla-rs:rowset" />
<xsd:element name="root" type="xmla-e:emptyresult" />
<xsd:element name="results" type="xmla-m:results" />

```

See [2.2.4.1.3](#) for the definition of the complex type xmla-rs:rowset.

The definition of the xmla-e:root element is as follows:

```

<xsd:element name="root" type="xmla-e:emptyresult" />
<xsd:element name="results" type="xmla-m:results" />

```

See [2.2.4.1.2](#) for the definition of the complex type xmla-e:emptyresult.

The definition of the xmla-m:results element is as follows:

```

<xsd:element name="results" type="xmla-m:results" />

```

See [2.2.4.1.4](#) for the definition of the complex type xmla-m:multipleresults.

Element	Description
xmla-m:results	A results element is only part of the ExecuteResponse if it is the return result from a Batch command. Xmla-m:results contains a root element for each command in the Batch.
xmla-ds:root	The xmla-ds:root element is returned if the result of the command is of type mddataset. See 2.2.4.1.1 for a description of the xmla-ds:root type.
xmla-rs:root	The xmla-rs:root type is returned if the results of the command is of type rowset. See 2.2.4.1.3 for a description of the xmla-rs:root type.
xmla-e:root	The xmla-e:root is returned if the return result of the command is empty. See 2.2.4.1.2 for a description of the xmla-e:root return type.

3.1.4.4 PropertyList Complex Type

This complex type contains the properties that are associated with a **Discover** or **Execute** request.

```

<xsd:complexType name="PropertyList" >
  <xsd:all>
    <xsd:element name="DataSourceInfo" type="xsd:string" minOccurs="0" />
    <xsd:element name="Timeout" type="xsd:integer" minOccurs="0" />
  </xsd:all>
</xsd:complexType>

```

```

<xsd:element name="UserName" type="xsd:string" minOccurs="0" />
<xsd:element name="Password" type="xsd:string" minOccurs="0" />
<xsd:element name="LocaleIdentifier" type="xsd:integer"
    minOccurs="0" />
<xsd:element name="Catalog" type="xsd:string" minOccurs="0" />
<xsd:element name="StateSupport" minOccurs="0">
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="None" />
            <xsd:enumeration value="Sessions" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="Content" minOccurs="0" >
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="None" />
            <xsd:enumeration value="Schema" />
            <xsd:enumeration value="Data" />
            <xsd:enumeration value="SchemaData" />
            <xsd:enumeration value="Metadata" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="Format" minOccurs="0" >
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="Tabular" />
            <xsd:enumeration value="Multidimensional" />
            <xsd:enumeration value="Native" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="AxisFormat" minOccurs="0" >
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="ClusterFormat" />
            <xsd:enumeration value="CustomFormat" />
            <xsd:enumeration value="TupleFormat" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="BeginRange" type="xsd:Integer" minOccurs="0" />
<xsd:element name="EndRange" type="xsd:integer" minOccurs="0" />
<xsd:element name="MDXSupport" minOccurs="0" >
    <xsd:simpleType>
        <xsd:restriction base="xsd:string" >
            <xsd:enumeration value="Core" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="ProviderName" type="xsd:string" minOccurs="0" />
<xsd:element name="ProviderVersion" type="xsd:string" minOccurs="0" />
<xsd:element name="DBMSVersion" type="xsd:string" minOccurs="0" />
<xsd:element name="ProviderType" type="xsd:integer" minOccurs="0" >
    <xsd:simpleType>
        <xsd:restriction base="xsd:integer" >
            <xsd:enumeration value="1" />
            <xsd:enumeration value="2" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>

```

```

        <xsd:enumeration value="3" />
        <xsd:enumeration value="4" />
    </xsd:restriction>
</xsd:simpleType>
</xsd:element>
<xsd:element name="ShowHiddenCubes" type="xsd:boolean" minOccurs="0" />
<xsd:element name="SQLSupport" type="xsd:integer" minOccurs="0" />
<xsd:element name="TransactionDDL" type="xsd:integer" minOccurs="0" />
<xsd:element name="MaximumRows" type="xsd:integer" minOccurs="0" />
<xsd:element name="Roles" type="xsd:string" minOccurs="0" />
<xsd:element name="VisualMode" minOccurs="0" >
    <xsd:simpleType>
        <xsd:restriction base="xsd:integer" >
            <xsd:enumeration value="0" />
            <xsd:enumeration value="1" />
            <xsd:enumeration value="2" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="EffectiveRoles" type="xsd:string" minOccurs="0" />
<xsd:element name="EffectiveUserName" type="xsd:string" minOccurs="0" />
<xsd:element name="ServerName" type="xsd:string" minOccurs="0" />
<xsd:element name="CatalogLocation" type="xsd:integer" minOccurs="0" >
    <xsd:simpleType>
        <xsd:restriction base="xsd:integer">
            <xsd:enumeration value="1" />
            <xsd:enumeration value="2" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="DbpropCatalogTerm" type="xsd:string" minOccurs="0" />
<xsd:element name="DbpropCatalogUsage" type="xsd:integer" minOccurs="0" />
<xsd:element name="DbpropColumnDefinition" type="xsd:integer"
    minOccurs="0" />
<xsd:element name="DbpropConcatNullBehavior" minOccurs="0" >
    <xsd:simpleType>
        <xsd:restriction base="xsd:integer">
            <xsd:enumeration value="1" />
            <xsd:enumeration value="2" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="DbpropDataSourceReadOnly" type="xsd:boolean"
    minOccurs="0" />
<xsd:element name="DbpropGroupBy" minOccurs="0" type="xsd:integer" />
<xsd:element name="DbpropHeterogeneousTables" type="xsd:integer"
    minOccurs="0" />
<xsd:element name="DbpropIdentifierCase" type="xsd:integer"
    minOccurs="0" />
<xsd:element name="DbpropMaxIndexSize" type="xsd:integer" minOccurs="0" />
<xsd:element name="DbpropMaxOpenChapters" type="xsd:integer"
    minOccurs="0" />
<xsd:element name="DbpropMaxRowSize" type="xsd:integer" minOccurs="0" />
<xsd:element name="DbpropMaxRowSizeIncludeBlob" type="xsd:boolean"
    minOccurs="0" />
<xsd:element name="DbpropMaxTablesInSelect" type="xsd:integer"
    minOccurs="0" />
<xsd:element name="DbpropMultiTableUpdate" type="xsd:boolean"
    minOccurs="0" />

```

```

<xsd:element name="DbpropNullCollation" minOccurs="0" >
  <xsd:simpleType>
    <xsd:restriction base="xsd:integer">
      <xsd:enumeration value="1" />
      <xsd:enumeration value="2" />
      <xsd:enumeration value="4" />
      <xsd:enumeration value="8" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="DbpropOrderByColumnsInSelect" type="xsd:boolean"
  minOccurs="0" />
<xsd:element name="DbpropOutputParameterAvailable" minOccurs="0" >
  <xsd:simpleType>
    <xsd:restriction base="xsd:integer">
      <xsd:enumeration value="1" />
      <xsd:enumeration value="2" />
      <xsd:enumeration value="4" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="DbpropPersistentIdType" minOccurs="0" >
  <xsd:simpleType>
    <xsd:restriction base="xsd:integer">
      <xsd:enumeration value="1" />
      <xsd:enumeration value="2" />
      <xsd:enumeration value="4" />
      <xsd:enumeration value="8" />
      <xsd:enumeration value="16" />
      <xsd:enumeration value="32" />
      <xsd:enumeration value="64" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="DbpropPrepareAbortBehavior" minOccurs="0" >
  <xsd:simpleType>
    <xsd:restriction base="xsd:integer">
      <xsd:enumeration value="1" />
      <xsd:enumeration value="2" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="DbpropPrepareCommitBehavior" minOccurs="0" >
  <xsd:simpleType>
    <xsd:restriction base="xsd:integer">
      <xsd:enumeration value="1" />
      <xsd:enumeration value="2" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="DbpropProcedureTerm" type="xsd:string" minOccurs="0" />
<xsd:element name="DbpropQuotedIdentifierCase" minOccurs="0" >
  <xsd:simpleType>
    <xsd:restriction base="xsd:integer">
      <xsd:enumeration value="1" />
      <xsd:enumeration value="2" />
      <xsd:enumeration value="4" />
      <xsd:enumeration value="8" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>

```

```

    </xsd:simpleType>
</xsd:element>
<xsd:element name="DbpropSchemaUsage" type="xsd:integer" minOccurs="0" />
<xsd:element name="DbpropSqlSupport" type="xsd:integer" minOccurs="0" />
<xsd:element name="DbpropSubqueries" type="xsd:integer" minOccurs="0" />
<xsd:element name="DbpropSupportedTxnDdl" type="xsd:integer"
    minOccurs="0" />
<xsd:element name="MdpropMdxSubqueries" type="xsd:integer"
    minOccurs="0" />
<xsd:element name="DbpropSupportedTxnIsoLevels" type="xsd:integer"
    minOccurs="0" />
<xsd:element name="DbpropSupportedTxnIsoRetain" type="xsd:integer"
    minOccurs="0" />
<xsd:element name="DbpropTableTerm" type="xsd:string" minOccurs="0" />
<xsd:element name="MdpropAggregateCellUpdate" minOccurs="0" >
    <xsd:simpleType>
        <xsd:restriction base="xsd:integer">
            <xsd:enumeration value="0" />
            <xsd:enumeration value="1" />
            <xsd:enumeration value="2" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="MdpropAxes" type="xsd:integer" minOccurs="0" />
<xsd:element name="MdpropFlatteningSupport" minOccurs="0" >
    <xsd:simpleType>
        <xsd:restriction base="xsd:integer">
            <xsd:enumeration value="0" />
            <xsd:enumeration value="1" />
            <xsd:enumeration value="2" />
            <xsd:enumeration value="3" />
            <xsd:enumeration value="4" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="MdpropMdxCaseSupport" type="xsd:integer"
    minOccurs="0" />
<xsd:element name="MdpropMdxDescFlags" type="xsd:integer" minOccurs="0" />
<xsd:element name="MdpropMdxDrillFunctions" type="xsd:integer"
    minOccurs="0" />
<xsd:element name="MdpropMdxFormulas" type="xsd:integer" minOccurs="0" />
<xsd:element name="MdpropMdxJoinCubes" type="xsd:integer"
    minOccurs="0" />
<xsd:element name="MdpropMdxMemberFunctions" type="xsd:integer"
    minOccurs="0" />
<xsd:element name="MdpropMdxNonMeasureExpressions" minOccurs="0" >
    <xsd:simpleType>
        <xsd:restriction base="xsd:integer">
            <xsd:enumeration value="0" />
            <xsd:enumeration value="1" />
        </xsd:restriction>
    </xsd:simpleType>
</xsd:element>
<xsd:element name="MdpropMdxNumericFunctions" type="xsd:integer"
    minOccurs="0" />
<xsd:element name="MdpropMdxObjQualification" type="xsd:integer"
    minOccurs="0" />
<xsd:element name="MdpropMdxOuterReference" type="xsd:integer"
    minOccurs="0" />

```

```

<xsd:element name="MdpropMdxQueryByProperty" type="xsd:boolean"
    minOccurs="0" />
<xsd:element name="MdpropMdxRangeRowset" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:integer" >
      <xsd:enumeration value="1" />
      <xsd:enumeration value="2" />
      <xsd:enumeration value="4" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="MdpropMdxSetFunctions" type="xsd:integer"
    minOccurs="0" />
<xsd:element name="MdpropMdxSlicer" minOccurs="0" >
  <xsd:simpleType>
    <xsd:restriction base="xsd:integer" >
      <xsd:enumeration value="1" />
      <xsd:enumeration value="2" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="MdpropMdxStringCompop" type="xsd:integer"
    minOccurs="0"/>
<xsd:element name="MdpropNamedLevels" type="xsd:integer" minOccurs="0" />
<xsd:element name="DbpropMsmdMDXCompatibility" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:integer" >
      <xsd:enumeration value="0" />
      <xsd:enumeration value="1" />
      <xsd:enumeration value="2" />
      <xsd:enumeration value="3" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="DbpropMsmdSqlCompatibility" type="xsd:integer"
    minOccurs="0" />
<xsd:element name="DbpropMsmdMDXUniqueNameStyle" type="xsd:integer"
    minOccurs="0"/>
<xsd:element name="DbpropMsmdCachePolicy" type="xsd:integer"
    minOccurs="0"/>
<xsd:element name="DbpropMsmdCacheRatio" type="xsd:integer"
    minOccurs="0"/>
<xsd:element name="DbpropMsmdCacheMode" type="xsd:integer" minOccurs="0"/>
<xsd:element name="DbpropMsmdCompareCaseSensitiveStringFlags"
    minOccurs="0" >
  <xsd:simpleType>
    <xsd:restriction base="xsd:integer" >
      <xsd:enumeration value="1" />
      <xsd:enumeration value="2" />
      <xsd:enumeration value="16" />
      <xsd:enumeration value="256" />
      <xsd:enumeration value="4096" />
      <xsd:enumeration value="65536" />
      <xsd:enumeration value="1048576" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="DbpropMsmdCompareCaseNotSensitiveStringFlags"
    Type="xsd:integer" minOccurs="0" />

```

```

</xsd:simpleType>
</xsd:element>
<xsd:element name="DbpropMsmidFlattened2" type="xsd:boolean"
  minOccurs="0" />
<xsd:element name="DbpropInitMode" type="xsd:integer" minOccurs="0"/>
<xsd:element name="SspropInitAppName" type="xsd:string" minOccurs="0"/>
<xsd:element name="SspropInitWsid" type="xsd:string" minOccurs="0" />
<xsd:element name="SspropInitPacketSize" type="xsd:integer"
  minOccurs="0"/>
<xsd:element name="ReadOnlySession" type="xsd:integer" minOccurs="0" />
<xsd:element name="SecuredCellValue" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:integer" >
      <xsd:enumeration value="0" />
      <xsd:enumeration value="1" />
      <xsd:enumeration value="2" />
      <xsd:enumeration value="3" />
      <xsd:enumeration value="4" />
      <xsd:enumeration value="5" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="NonEmptyThreshold" type="xsd:integer" minOccurs="0"/>
<xsd:element name="SafetyOptions" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:integer" >
      <xsd:enumeration value="0" />
      <xsd:enumeration value="1" />
      <xsd:enumeration value="2" />
      <xsd:enumeration value="3" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="DbpropMsmidCacheRatio2" type="xsd:double"
  minOccurs="0"/>
<xsd:element name="DbpropMsmidUseFormulaCache" type="xsd:string"
  minOccurs="0"/>
<xsd:element name="DbpropMsmidDynamicDebugLimit" type="xsd:integer"
  minOccurs="0"/>
<xsd:element name="DbpropMsmidDebugMode" type="xsd:string" minOccurs="0"/>
<xsd:element name="Dialect" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string" >
      <xsd:enumeration value="MDX" />
      <xsd:enumeration value="DM" />
      <xsd:enumeration value="DMX" />
      <xsd:enumeration value="SQL" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="ImpactAnalysis" type="xsd:boolean" minOccurs="0" />
<xsd:element name="SQLQueryMode" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string" >
      <xsd:enumeration value="Data" />
      <xsd:enumeration value="Calculated" />
      <xsd:enumeration value="IncludeEmpty" />
    </xsd:restriction>
  </xsd:simpleType>

```



```

</xsd:element>
<xsd:element name="ClientProcessID" type="xsd:integer"
  minOccurs="0"/>
<xsd:element name="Cube" type="xsd:string" minOccurs="0" />
<xsd:element name="ReturnCellProperties" type="xsd:boolean"
  minOccurs="0" />
<xsd:element name="CommitTimeout" type="xsd:integer" minOccurs="0"/>
<xsd:element name="ForceCommitTimeout" type="xsd:integer"
  minOccurs="0"/>
<xsd:element name="ExecutionMode" type="xsd:string" minOccurs="0"/>
<xsd:element name="RealTimeOlap" type="xsd:boolean" minOccurs="0" />
<xsd:element name="MdxMissingMemberMode" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string" >
      <xsd:enumeration value="Default" />
      <xsd:enumeration value="Ignore" />
      <xsd:enumeration value="Error" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="MdpropMdxNamedSets" type="xsd:integer"
  minOccurs="0" />
<xsd:element name="DbpropMsmdSubqueries" minOccurs="0" >
  <xsd:simpleType>
    <xsd:restriction base="xsd:integer" >
      <xsd:enumeration value="0" />
      <xsd:enumeration value="1" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="DbpropMsmdAutoExists" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:integer" >
      <xsd:enumeration value="0" />
      <xsd:enumeration value="1" />
      <xsd:enumeration value="2" />
      <xsd:enumeration value="3" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="CustomData" type="xsd:string" minOccurs="0"/>
<xsd:element name="DisablePrefetchFacts" type="xsd:boolean"
  minOccurs="0" />
<xsd:element name="UpdateIsolationLevel" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:integer" >
      <xsd:enumeration value="0" />
      <xsd:enumeration value="1" />
      <xsd:enumeration value="2" />
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="DbpropMsmdErrorMessageMode" type="xsd:integer"
  minOccurs="0"/>
<xsd:element name="MdpropMdxDdlExtensions" type="xsd:integer"
  minOccurs="0" />
<xsd:element name="CharacterEncoding" minOccurs="0">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string" >

```

```

        <xsd:enumeration value="Default" />
        <xsd:enumeration value="UTF-8" />
        <xsd:enumeration value="UTF-16" />
    </xsd:restriction>
</xsd:simpleType>
</xsd:element>
</xsd:all>
</xsd:complexType>

```

Name	Usage	Default	Description
DatasourceInfo	R/W	Empty.	Contains the information, such as the instance name, required to connect to the data source.
LocaleIdentifier	R/W		An integer that represents an LCID. This property represents the locale identifier (LCID) currently in effect.
Timeout	R/W	0	An integer value that specifies, in seconds, the maximum time that the server should wait for a request to be successful before returning an error.
Username	R		The user name.
Catalog	R/W		The current database for the session.
Password	W		Password for the session.
StateSupport	R	"Sessions"	Reserved for future use.
Content	W	"SchemaData"	<p>An enumeration value that determines the type of data that is returned from the Discover and Execute methods. This property can have one of the following values:</p> <ul style="list-style-type: none"> ▪ None - Allows the structure of the command to be verified, but not run. ▪ Schema - Returns the XML schema that relates to the requested command. The XML schema indicates columns and other information. ▪ Data - Returns only the data that was requested. ▪ SchemaData - Returns the schema information and the data. ▪ Metadata - Includes the schema plus the OlapInfo result section. See 2.2.4.1.1.1 for information about the Olapinfo result section.
Format	W	"Native"	An enumeration value that determines the

Name	Usage	Default	Description
			<p>type of result set that is returned from the Discover and Execute methods. This property can have one of the following values:</p> <ul style="list-style-type: none"> ▪ Tabular - Returns a result set using the Rowset data type. See 2.2.4.1.3.1.1 for the definition of the Rowset type. ▪ Multidimensional - Returns a rowset using the MDDataset data type. See 2.2.4.1.1 for the definition of the MDDataset type. ▪ Native - No format is explicitly specified.
AxisFormat	W	"TupleFormat"	<p>An enumeration value that determines the format used within an MDDataset result set to describe the axes of the multidimensional dataset. This property can have one of the following values:</p> <ul style="list-style-type: none"> ▪ ClusterFormat - The MDDataset axis is made up of one or more CrossProduct elements. ▪ CustomFormat - A vendor MAY use this value to indicate a vendor-specific format. ▪ TupleFormat - The MDDataset axis contains one or more Tuple elements. <69>
BeginRange	W	-1	<p>Contains a zero-based integer value corresponding to a CellOrdinal attribute value, which indicates the beginning of the range of cells to include in the result. The CellOrdinal attribute is part of the Cell element in the CellData section of MDDataset.</p>
EndRange	W	-1	<p>Specifies a zero-based integer value corresponding to a CellOrdinal attribute value, indicating the end of the range of cells to include in the result. The CellOrdinal attribute is part of the Cell element in the CellData section of MDDataset.</p>
ProviderName	R		<p>This property is equivalent to the OLE DB property, DBPROP_DBMSNAME. Indicates the name of the server product.</p>

Name	Usage	Default	Description
ProviderVersion	R		This property is equivalent to the OLE DB property, DBPROP_DBMSVER. Indicates the version of the server product.
DBMSVersion	R		This property is equivalent to the OLE DB property, DBPROP_DBMSVER. Indicates the server version number.
ProviderType	R	6	<p>This property is equivalent to the OLE DB property, DBPROP_DATASOURCE_TYPE. This property can have one of the following values:</p> <ul style="list-style-type: none"> ▪ DBPROPVAL_DST_TDP(0x0000001L) - The provider is a tabular data provider. ▪ DBPROPVAL_DST_MDP(0x0000002L) - The provider is a multidimensional provider. ▪ DBPROPVAL_DST_TDPANDMDP(0x0000003L) - The provider is both a TDP and an MDP. ▪ DBPROPVAL_DST_DOCSOURCE(0x0000004L) - The provider supports direct URL binding and is a document source provider. <70>
ShowHiddenCubes	R/W		This property is reserved for future use.
SQLSupport	R	512 (DBPROPVAL_SQL_S UBMINIMUM)	<p>This property is equivalent to the OLE DB property, DBPROP_SQLSUPPORT, which is a bitmask displaying the level of support for the SQL Language.</p> <p>This property can have a combination of zero or more of the following values:</p> <ul style="list-style-type: none"> ▪ (0x0000000L)DBPROPVAL_SQL_NONE - SQL is not supported. ▪ (0x0000001L)DBPROPVAL_SQL_ODBC_MINIMUM. ▪ (0x0000002L)DBPROPVAL_SQL_ODBC_CORE. ▪ (0x0000004L)DBPROPVAL_SQL_ODBC_EXTENDED - These levels correspond to the levels of SQL conformance defined in ODBC version 2.5. These levels are cumulative. That is, if the provider supports one level, it also sets the bits

Name	Usage	Default	Description
			<p>for all lower levels.</p> <ul style="list-style-type: none"> ▪ (0x00000100L)DBPROPVAL_SQL_ESCAPECLAUSES - The provider supports the ODBC escape clause syntax. ▪ (0x00000010L)DBPROPVAL_SQL_ANSI92_ENTRY. ▪ (0x00000020L)DBPROPVAL_SQL_FIPS_TRANSITIONAL. ▪ (0x00000040L)DBPROPVAL_SQL_ANSI92_INTERMEDIATE. ▪ (0x00000080L)DBPROPVAL_SQL_ANSI92_FULL - These levels correspond to the levels in ANSI SQL-92. These levels are cumulative. That is, if the provider supports one level, it also sets the bits for all lower levels. ▪ (0x00000008L)DBPROPVAL_SQL_ANSI89_IEF - The provider supports the ANSI89 Integrity Enhancement Facility. ▪ (0x00000200L)DBPROPVAL_SQL_SUBMINIMUM - The provider supports the DBGUID_SQL dialect and parses the command text according to SQL rules but does not support either the minimum ODBC level or the ANSI SQL-92 Entry level. This level is not cumulative; providers that support at least the minimal ODBC Level or ANSI SQL-92 Entry Level do not set this bit. <71>
TransactionDDL	R		Reserved for future use.
MaximumRows	W		Reserved for future use.
Roles	R/W		Specifies a comma-delimited string of the role names for this request.
VisualMode	W	0	This property is equivalent to the OLE DB property, MDPROP_VISUALMODE. Indicates whether the provider is to calculate visual totals, which dynamically totals child members of parent members specified in a set. This property can have

Name	Usage	Default	Description
			<p>one of the following values:</p> <ul style="list-style-type: none"> ▪ MDPROPVAL_VISUAL_MODE_DEFAULT (0) - Default mode for a server; each server may define this for their server. ▪ MDPROPVAL_VISUAL_MODE_VISUAL (1) - Visual totals on. ▪ MDPROPVAL_VISUAL_MODE_VISUALOFF (2) - Visual totals off.
EffectiveRoles	W		Reserved for future use.
EffectiveUserName	W		Specifies the name of an account to use to override the user name when connecting to the server.
ServerName	R		Indicates the name of the server.
CatalogLocation	R		<p>An integer enumeration value that is equivalent to the OLE DB property, DBPROP_CATALOGLOCATION, and which identified where the Catalog name appears within a text string that represents a fully qualified name. This property can be one of the following values:</p> <ul style="list-style-type: none"> ▪ DBPROPVAL_CL_START (0x00000001L) - The catalog name is at the start of the fully qualified name. ▪ DBPROPVAL_CL_END (0x00000002L) - The catalog name is at the end of the fully qualified name. <72>
DbpropCatalogTerm	R		This string property is equivalent to the OLE DB property, DBPROP_CATALOGTERM, which lists the term that the server uses to describe a catalog. <73>
DbpropCatalogUsage	R		<p>This property is equivalent to the OLE DB property, DBPROP_CATALOGUSAGE. A bitmask that specifies how catalog names can be used in text commands. This property can have a combination of zero or more of the following values:</p> <ul style="list-style-type: none"> ▪ DBPROPVAL_CU_DML_STATEMENTS(0x00000001L) - Catalog names are supported in all data manipulation language (DML) statements.

Name	Usage	Default	Description
			<ul style="list-style-type: none"> ▪ DBPROPVAL_CU_TABLE_DEFINITION(0x00000002L) - Catalog names are supported in all table definition statements. ▪ DBPROPVAL_CU_INDEX_DEFINITION(0x00000004L) - Catalog names are supported in all index definition statements and may apply only to the table name, not the index name, depending on the SQL implementation. ▪ DBPROPVAL_CU_PRIVILEGE_DEFINITION(0x00000008L) - Catalog names are supported in all privilege definition statements. <74>
DbpropColumnDefinition	R/W		<p>This property is equivalent to the OLE DB property, DBPROP_COLUMNDEFINITION. A bitmask defining the valid clauses for the definition of a column. This property can have a combination of zero or more of the following values:</p> <ul style="list-style-type: none"> ▪ DBPROPVAL_CD_NOTNULL(0x00000001L) Columns can be created non-nullable. <75>
DbpropConcatNullBehavior	R		<p>This property is equivalent to the OLE DB property, DBPROP_CONCATNULLBEHAVIOR. An enumeration value that indicates how the data source object handles the concatenation of NULL-valued character data type columns with non-NULL-valued character data type columns. This property can have one of the following values:</p> <ul style="list-style-type: none"> ▪ DBPROPVAL_CB_NULL (1) - The result is NULL-valued. ▪ DBPROPVAL_CB_NON_NULL (2) - The result is the concatenation of the non-NULL-valued column or columns. <76>
DbpropDataSourceReadOnly	R		<p>A Boolean that is equivalent to the OLE DB property, DBPROP_DATASOURCEONLY. Indicates if the data store is read-only. <77></p>

Name	Usage	Default	Description
DbpropGroupBy	R		<p>This property is equivalent to the OLE DB property, DBPROP_GROUPBY.</p> <p>A partial bitmask that indicates the relationship between the columns in a GROUP BY clause and the non-aggregated columns in the select list.</p> <p>The first value in the following list can be used in an OR operation with any of the other values in the list:</p> <ul style="list-style-type: none"> ▪ DBPROPVAL_GB_COLLATE(0x00000010L) - A COLLATE clause can be specified at the end of each grouping column. ▪ DBPROPVAL_GB_EQUALS_SELECT(0x0000002L) - The GROUP BY clause must contain all nonaggregated columns in the select list. ▪ DBPROPVAL_GB_CONTAINS_SELECT(0x0000004L) - The GROUP BY clause must contain all nonaggregated columns in the select list. ▪ DBPROPVAL_GB_NO_RELATION(0x0000008L) - The columns in the GROUP BY clause and the select list are not related. <78>
DbpropHeterogeneousTables	R		<p>This property is equivalent to the OLE DB property, DBPROP_HETEROGENEOUSTABLES. A bitmask that specifies whether the provider can join tables from different catalogs or providers. This property can be a combination of zero or more of the following values:</p> <ul style="list-style-type: none"> ▪ DBPROPVAL_HT_DIFFERENT_CATALOGS(0x00000001L) ▪ DBPROPVAL_HT_DIFFERENT_PROVIDERS(0x00000002L) <79>
DbpropIdentifierCase	R	8	<p>This property is equivalent to the OLE DB property, DBPROP_IDENTIFIER_CASE. A bitmask that indicates how identifiers treat case in data definition commands or interfaces. This property can have one of</p>

Name	Usage	Default	Description
			<p>the following values:</p> <ul style="list-style-type: none"> ▪ DBPROPVAL_IC_UPPER(0x00000001L) - Identifiers in SQL are case-insensitive and are stored in uppercase. ▪ DBPROPVAL_IC_LOWER(0x00000002L) - Identifiers in SQL are case-insensitive and are stored in lowercase. ▪ DBPROPVAL_IC_SENSITIVE(0x00000004L) - Identifiers in SQL are case-sensitive and are stored in mixed case. ▪ DBPROPVAL_IC_MIXED(0x00000008L) - Identifiers in SQL are case-insensitive and are stored in mixed case. .<80>
DbpropMaxIndexSize	R		<p>This property is equivalent to the OLE DB property, DBPROP_MAXINDEXSIZE. Indicates the maximum number of bytes allowed in the combined columns of an index. If there is no specified limit or the limit is unknown, this value is set to zero. .<81></p>
DbpropMaxOpenChapters	R		<p>This integer property is equivalent to the OLE DB property, DBPROP_MAXOPENCHAPTERS. If a chapter must be released before a new chapter can be opened, this value is "1"; if the provider has no limit on the number of open chapters or does not support chapters, this value is "0". .<82></p>
DbpropMaxRowSize	R		<p>This integer property is equivalent to the OLE DB property, DBPROP_MAXROWSIZE. Indicates the maximum length of a single row in a table. If there is no specified limit or the limit is unknown, this value is set to zero. .<83></p>
DbpropMaxRowSizeIncludeBlob	R		<p>This property is equivalent to the OLE DB property, DBPROP_MAXROWSIZEINCLUDESBLOB. A Boolean that indicates whether the maximum row size includes any blob present in the row. .<84></p>
DbpropMaxTablesInSelect	R		<p>This integer property is equivalent to the OLE DB property</p>

Name	Usage	Default	Description
			DBPROP_MAXTABLESINSELECT. Indicates the maximum number of tables allowed in the FROM clause of a SELECT statement. If there is no specified limit or the limit is unknown, this value is set to zero. <85>
DbpropMultiTableUpdate	R		This Boolean property is equivalent to the OLE DB property, DBPROP_MULTITABLEUPDATE. Indicates if the provider can do a multitable update. <86>
DbpropNullCollation	R		This enumeration value is equivalent to the OLE DB property, DBPROP_NULLCOLLATION. Indicates where NULLs are sorted in a list. This property can have one of the following values: <ul style="list-style-type: none"> ▪ DBPROPVAL_NC_END(0x00000001L) - NULLs are sorted at the end of the list, regardless of the sort order. ▪ DBPROPVAL_NC_HIGH(0x00000002L) - NULLs are sorted at the high end of the list. ▪ DBPROPVAL_NC_LOW(0x00000004L) - NULLs are sorted at the low end of the list. ▪ DBPROPVAL_NC_START(0x00000008L) - NULLs are sorted at the start of the list, regardless of the sort order. <87>
DbpropOrderByColumnsInSelect	R		This Boolean property is equivalent to the OLE DB property, DBPROP_ORDERBYCOLUMNSINSELECT. It indicates whether to order by columns in the select list. <88>
DbpropOutputParameterAvailable	R		This property is equivalent to the OLE DB property, DBPROP_OUTPUTPARAMETERAVAILABILITY. It is an integer enumeration which indicates the time at which output parameter values become available. This property can have one of the following values: <ul style="list-style-type: none"> ▪ DBPROPVAL_OA_NOTSUPPORTED(0x00000001L) - Output parameters are not supported. ▪

Name	Usage	Default	Description
			<p>DBPROPVAL_OA_ATEXECUTE(0x0000002L) - Output parameter data is available immediately after a command is executed.</p> <ul style="list-style-type: none"> DBPROPVAL_OA_ATROWRELEASE(0x0000004L) - If a command returns a single result that is a rowset, output parameter data is available at the time the rowset is completely released. If a command returns multiple results, output parameter data is available when a multiple results object is completely released, whichever occurs first. <89>
DbpropPersistentIdType	R		<p>This property is equivalent to the OLE DB property, DBPROP_PERSISTENTIDTYPE. An integer specifying the type of DBID that the provider uses when persisting DBIDs that name entities in the data store, such as tables, indexes, columns, commands, or constraints. This is generally the type of DBID that the provider considers the most permanent under schema changes and physical data reorganizations. This property can have one of the following values:</p> <ul style="list-style-type: none"> DBPROPVAL_PT_NAME(0x0000004L) DBPROPVAL_PT_PROPID(0x0000010L) DBPROPVAL_PT_GUID(0x0000008L) DBPROPVAL_PT_GUID_NAME(0x0000001L) DBPROPVAL_PT_GUID_PROPID(0x0000002L) DBPROPVAL_PT_PGUID_NAME(0x0000020L) DBPROPVAL_PT_PGUID_PROPID(0x0000040L) <90>
DbpropPrepareAbortBehavior	R		<p>This enumeration value is equivalent to the OLE DB property, DBPROP_PREPAREABORTBEHAVIOR. It indicates how aborting a transaction affects prepared commands. This property</p>

Name	Usage	Default	Description
			<p>can have one of the following values:</p> <ul style="list-style-type: none"> ▪ DBPROPVAL_CB_DELETE(0x00000002L) - Aborting a transaction deletes prepared commands. The application must reprepare commands before executing them. ▪ DBPROPVAL_CB_PRESERVE(0x00000001L) - Aborting a transaction preserves prepared commands. The application can reexecute commands without repreparing them. <91>
DbpropPrepareCommitBehavior	R		<p>This integer enumeration value is equivalent to the OLE DB property, DBPROP_PREPARECOMMITBEHAVIOR. It indicates how committing a transaction affects prepared commands. This property can have one of the following values:</p> <ul style="list-style-type: none"> ▪ DBPROPVAL_CB_DELETE(0x00000002L) - Aborting a transaction deletes prepared commands. The application must reprepare commands before executing them. ▪ DBPROPVAL_CB_PRESERVE(0x00000001L) - Aborting a transaction preserves prepared commands. The application can reexecute commands without repreparing them. <92>
DbpropProcedureTerm	R		<p>This property is equivalent to the OLE DB property, DBPROP_PROCEDURETERM. A character string with the data store vendor's name for a procedure - for example, "database procedure", "stored procedure", or "procedure". This is used for building user interfaces. <93></p>
DbpropQuotedIdentifierCase	R		<p>This enumeration value is equivalent to the OLE DB property, DBPROP_QUOTEDIDENTIFIERCASE. It indicates how quoted identifiers treat case. This property can have one of the following values:</p> <ul style="list-style-type: none"> ▪ DBPROPVAL_IC_UPPER(0x00000001L) - Quoted identifiers in SQL are case-insensitive and are stored in uppercase in the system catalog.

Name	Usage	Default	Description
			<ul style="list-style-type: none"> ▪ DBPROPVAL_IC_LOWER(0x0000002L) - Quoted identifiers in SQL are case-insensitive and are stored in lowercase in the system catalog. ▪ DBPROPVAL_IC_SENSITIVE(0x00000004L) - Quoted identifiers in SQL are case-sensitive and are stored in mixed case in the system catalog. ▪ DBPROPVAL_IC_MIXED(0x00000008L) - Quoted identifiers in SQL are case-insensitive and are stored in mixed case in the system catalog. <94>
DbpropSchemaUsage	R		<p>This property is equivalent to the OLE DB property, DBPROP_SCHEMAUSAGE. A bitmask specifying how schema names can be used in text commands. This property can have a combination of zero or more of the following values:</p> <ul style="list-style-type: none"> ▪ DBPROPVAL_SU_DML_STATEMENTS(0x0000001L) - Schema names are supported in all data manipulation language (DML) statements. ▪ DBPROPVAL_SU_TABLE_DEFINITION(0x0000002L) - Schema names are supported in all table definition statements. ▪ DBPROPVAL_SU_INDEX_DEFINITION(0x0000004L) - Schema names are supported in all index definition statements and may apply only to the table name, not the index name, depending on the SQL implementation. ▪ DBPROPVAL_SU_PRIVILEGE_DEFINITION(0x0000008L) - Schema names are supported in all privilege definition statements. <95>
DbpropSqlSupport	R	512	<p>This property is equivalent to the OLE DB property, DBPROP_SQLSUPPORT. A bitmask specifying the level of support for SQL. This property can have a combination of zero or more of the following values:</p>

Name	Usage	Default	Description
			<ul style="list-style-type: none"> <li data-bbox="976 247 1435 317">▪ DBPROPVAL_SQL_NONE(0x0000000L) - SQL is not supported. <li data-bbox="976 363 1435 415">▪ DBPROPVAL_SQL_ODBC_MINIMUM(0x0000001L) <li data-bbox="976 462 1435 514">▪ DBPROPVAL_SQL_ODBC_CORE(0x0000002L) <li data-bbox="976 560 1435 869">▪ DBPROPVAL_SQL_ODBC_EXTENDED(0x0000004L) - These levels correspond to the levels of SQL conformance defined in ODBC version 2.5. These levels are cumulative. That is, if the provider supports one level, it also sets the bits for all lower levels. For example, if the provider sets the DBPROPVAL_SQL_ODBC_CORE bit, it also sets the DBPROPVAL_SQL_ODBC_MINIMUM bit. <li data-bbox="976 915 1435 995">▪ DBPROPVAL_SQL_ESCAPECLAUSES(0x0000100L) - The provider supports the ODBC escape clause syntax. <li data-bbox="976 1041 1435 1094">▪ DBPROPVAL_SQL_ANSI92_ENTRY(0x0000010L) <li data-bbox="976 1140 1435 1192">▪ DBPROPVAL_SQL_FIPS_TRANSITIONAL(0x0000020L) <li data-bbox="976 1239 1435 1291">▪ DBPROPVAL_SQL_ANSI92_INTERMEDIATE(0x0000040L) <li data-bbox="976 1337 1435 1493">▪ DBPROPVAL_SQL_ANSI92_FULL(0x0000080L) - These levels correspond to the levels in ANSI SQL-92. These levels are cumulative. That is, if the provider supports one level, it also sets the bits for all lower levels. <li data-bbox="976 1539 1435 1646">▪ DBPROPVAL_SQL_ANSI89_IEF(0x0000008L) - The provider supports the ANSI89 Integrity Enhancement Facility. <li data-bbox="976 1692 1435 1719">▪ DBPROPVAL_SQL_SUBMINIMUM(0x00

Name	Usage	Default	Description
			<p>000200L)- The provider supports the DBGUID_SQL dialect and parses the command text according to SQL rules but does not support either the minimum ODBC level or the ANSI SQL-92 Entry level. This level is not cumulative; providers that support at least the minimal ODBC Level or ANSI SQL-92 Entry Level do not set this bit. OLE DB consumers can determine whether or not the provider supports the DBGUID_SQL dialect by verifying that the DBPROPVAL_SQL_NONE bit is not set. <96></p>
DbpropSubqueries	R	0	<p>This property is equivalent to the OLE DB property, DBPROP_SUBQUERIES. A bitmask specifying the predicates in text commands that support subqueries. This property can have a combination of zero or more of the following values:</p> <ul style="list-style-type: none"> ▪ DBPROPVAL_SQL_CORRELATEDSUBQUERIES(0x0000001L) ▪ DBPROPVAL_SQL_COMPARISON(0x0000002L) ▪ DBPROPVAL_SQL_EXISTS(0x0000004L) ▪ DBPROPVAL_SQL_IN(0x0000008L) ▪ DBPROPVAL_SQL_QUANTIFIED(0x0000010L) ▪ DBPROPVAL_SQL_TABLE(0x0000020L) <97>
DbpropSupportedTxnDdl	R		<p>This property is equivalent to the OLE DB property, DBPROP_SUPPORTEDTXNDDL. An integer that indicates the relationship of transactions to table and index modification data definition language (DDL) statements. This property can have one of the following values:</p> <ul style="list-style-type: none"> ▪ DBPROPVAL_TC_NONE(0x0000000L) - Transactions are not supported. ▪ DBPROPVAL_TC_DML(0x0000001L) - Transactions can contain only data manipulation language (DML)

Name	Usage	Default	Description
			<p>statements. Attempting to modify tables or indexes within a transaction causes an error.</p> <ul style="list-style-type: none"> ▪ DBPROPVAL_TC_DDL_COMMIT(0x00000002L) - Transactions can contain only DML statements. Modifying tables or indexes within a transaction causes the transaction to be committed. The provider's commit mode remains unchanged in accordance with the value of DBPROP_COMMITPRESERVE. If the provider was in auto-commit mode, it remains in auto-commit mode, and likewise for manual-commit mode. ▪ DBPROPVAL_TC_DDL_IGNORE(0x00000004L) - Transactions can contain only DML statements. Attempts to modify tables or indexes within a transaction are ignored. <98>
DbpropSupportedTxnIsoLevels	R		<p>This property is equivalent to the OLE DB property DBPROP_SUPPORTEDTXNISOLEVELS. A bitmask specifying the supported transaction isolation levels. This property can have a combination of zero or more of the following values:</p> <ul style="list-style-type: none"> ▪ DBPROPVAL_TI_CHAOS(0x00000010L) ▪ DBPROPVAL_TI_READUNCOMMITTED(0x00000100L) ▪ DBPROPVAL_TI_BROWSE(0x00000100L) ▪ DBPROPVAL_TI_CURSORSTABILITY(0x00001000L) ▪ DBPROPVAL_TI_READCOMMITTED(0x0001000L) ▪ DBPROPVAL_TI_REPEATABLEREAD(0x00010000L) ▪ DBPROPVAL_TI_SERIALIZABLE(0x001

Name	Usage	Default	Description
			00000L) <ul style="list-style-type: none"> ▪ DBPROPVAL_TI_ISOLATED(0x00100000L) <99>
DbpropSupportedTxnIsoRetain	R	292	This property is equivalent to the OLE DB property, DBPROP_SUPPORTEDTXNISORETAIN. A bitmask specifying the supported transaction isolation retention levels. This property can have a combination of zero or more of the following values: <ul style="list-style-type: none"> ▪ DBPROPVAL_TR_COMMIT_DC(0x00000001L) - The transaction may either preserve or dispose of isolation context across a retaining commit. ▪ DBPROPVAL_TR_COMMIT(0x00000002L) - The transaction preserves its isolation context (that is, it preserves its locks, if that is how isolation is implemented) across a retaining commit. ▪ DBPROPVAL_TR_COMMIT_NO(0x00000004L) - The transaction is explicitly not to preserve isolation across a retaining commit. ▪ DBPROPVAL_TR_ABORT_DC(0x00000008L) - The transaction may either preserve or dispose of isolation context across a retaining abort. ▪ DBPROPVAL_TR_ABORT(0x00000010L) - The transaction preserves its isolation context across a retaining abort. ▪ DBPROPVAL_TR_ABORT_NO(0x00000020L) - The transaction is explicitly not to preserve isolation across a retaining abort. ▪ DBPROPVAL_TR_DONTCARE(0x00000040L) - The transaction may preserve or dispose of isolation context across a retaining commit or abort. ▪ DBPROPVAL_TR_BOTH(0x00000080L)

Name	Usage	Default	Description
			<p>- Isolation is preserved across both a retaining commit and a retaining abort.</p> <ul style="list-style-type: none"> ▪ DBPROPVAL_TR_NONE(0x00000100L) - Isolation is explicitly not to be retained across either a retaining commit or a retaining abort. ▪ DBPROPVAL_TR_OPTIMISTIC(0x00000200L) - Optimistic concurrency control is used. When this value is specified, and then whatever isolation technology is in place (such as locking), it must be the case that other transactions' ability to make changes to the data and resources manipulated by this transaction is not in any way affected by the data read or updated by this transaction. That is, optimistic control is used for all data in the transaction. <100>
DbpropTableTerm	R		<p>This property is equivalent to the OLE DB property, DBPROP_TABLETERM. A string value that indicates the name the data source object uses for a table - for example, "table" or "file". This property is used for building user interfaces. <101></p>
MdpropAggregateCellUpdate	R		<p>This property is equivalent to the OLE DB property, MDPROP_AGGREGATECELL_UPDATE. An integer enumeration value that indicates support for updating aggregated cells. This property can have one of the following values:</p> <ul style="list-style-type: none"> ▪ MDPROPVAL_AU_UNSUPPORTED(0x0000000L) - The provider does not support updating nonatomic cells. ▪ MDPROPVAL_AU_UNCHANGED(0x00000001L) - The provider supports updating of aggregated cells, but the value of cells beneath an aggregated cell remains unchanged. ▪ MDPROPVAL_AU_UNKNOWN(0x00000002L) - The provider supports updating of aggregated cells, and the value of cells beneath an aggregated cell remains undefined. <102>

Name	Usage	Default	Description
MdpropAxes	R		This property is equivalent to the OLE DB property, MDPROP_AXES. This is an OLE DB for OLAP property. The value of this property is the maximum number of axes that the provider supports in the dataset. To be compliant with OLE DB for OLAP, this value must be at least 3. <103>
MdpropFlatteningSupport	R		This property is equivalent to the OLE DB property, MDPROP_FLATTENING_SUPPORT. An integer that indicates if a provider supports flattening, and if so, of what type. This property can have one of the following values: <ul style="list-style-type: none"> ▪ MDPROPVAL_FS_FULL_SUPPORT(0x0000001L) - The provider supports flattening as described in [MS-FDPR]. ▪ MDPROPVAL_FS_GENERATED_COLUMN(0x0000002L) - The provider supports flattening by using dummy names, as described in [MS-SLNL]. ▪ MDPROPVAL_FS_GENERATED_DIMENSION(0x0000003L) - The provider supports flattening by generating one column per dimension as described in [MS-SLNL]. ▪ MDPROPVAL_FS_NO_SUPPORT(0x0000004L) - The provider does not support flattening. <104>
MdpropMdxCaseSupport	R		This property is equivalent to the OLE DB property, MDPROP_MDX_CASESUPPORT. A bitmask that represents the type of CASE statement in MDX that the provider supports. This property can have one of the following values: <ul style="list-style-type: none"> ▪ MDPROPVAL_MC_SINGLECASE(0x0000002L) - The provider supports a simple case expression. ▪ MDPROPVAL_MC_SEARCHEDCASE(0x0000002L) - The provider supports a searched case expression. <105>
MdpropMdxDescFlags	R		This property is equivalent to the OLE DB

Name	Usage	Default	Description
			<p>property, MDPROP_MDX_DESCFLAGS. It is a bitmask that indicates which desc flag values in the DESCENDANTS MDX function are supported by the provider. This property can have a combination of zero or more of the following values:</p> <ul style="list-style-type: none"> ▪ MDPROPVAL_MD_BEFORE (0x00000002L) - The provider supports the flag BEFORE. ▪ MDPROPVAL_MD_AFTER(0x00000004L) - The provider supports the flag AFTER. ▪ MDPROPVAL_MD_SELF(0x00000001L) - The provider supports the flag SELF. This bit must be set by all providers because support for SELF is mandatory. <106>
MdpropMdxDrillFunctions	R		<p>A bitmask indicating support for drilldown and drillup groups of functions. These functions indicate provider support for drill down and drill up on tuples as well as members. This property is a combination of zero or more of the following values:</p> <ul style="list-style-type: none"> ▪ MDPROPVAL_MDF_BASIC(0x01) ▪ MDPROPVAL_MDF_ASYMMETRIC(0x02) <107>
MdpropMdxFormulas	R	63	<p>This property is equivalent to the OLE DB property MDPROP_MDX_FORMULAS. A bitmask that indicates what support the provider has for the creation of named sets and calculated members. This property can have a combination of zero or more of the following values:</p> <ul style="list-style-type: none"> ▪ MDPROPVAL_MF_WITH_CALC_MEMBERS(0x00000001L) - The provider supports the creation of calculated members by using the WITH clause before a SELECT. ▪ MDPROPVAL_MF_WITH_NAMEDSETS(0x00000002L) - The provider supports the creation of named sets by using the WITH clause before a SELECT. ▪

Name	Usage	Default	Description
			<p>MDPROPVAL_MF_CREATE_CALCMEMBERS(0x00000004L) - The provider supports the creation of named calculated members by using the CREATE clause.</p> <ul style="list-style-type: none"> ▪ MDPROPVAL_MF_CREATE_NAMEDSET S(0x00000008L) - The provider supports the creation of named sets by using the CREATE clause. ▪ MDPROPVAL_MF_SCOPE_SESSION() - The provider supports the scope value of SESSION during the creation of named sets and calculated members. ▪ MDPROPVAL_MF_SCOPE_GLOBAL() - The provider supports the scope value of GLOBAL during the creation of named sets and calculated members. <108>
MdpropMdxJoinCubes	R	1	<p>This property is equivalent to the OLE DB property, MDPROP_MDX_JOINCUBES. A bitmask that indicates what support the provider has for queries joining multiple cubes.</p> <p>This property can have a combination of zero or more of the following values:</p> <ul style="list-style-type: none"> ▪ MDPROPVAL_MJC_IMPLICITCUBE(0x00000004L) - The provider supports an empty FROM clause. The cube is implicitly resolved by the axis and slicer dimensions. ▪ MDPROPVAL_MJC_SINGLECUBE(0x00000001) - The provider supports only one cube in the FROM clause of the MDX statement. ▪ MDPROPVAL_MJC_MULTICUBES(0x00000002L) - The provider supports more than one cube in the FROM clause of the MDX statement. <109>
MdpropMdxMemberFunctions	R	15	<p>This property is equivalent to the OLE DB property, MDPROP_MDX_MEMBER_FUNCTIONS. A bitmask indicating support for various MDX member functions. This property can have a combination of zero or more of the following values:</p>

Name	Usage	Default	Description
			<ul style="list-style-type: none"> ▪ MDPROPVAL_MMF_COUSIN(0x00000001L) - The provider supports the function COUSIN. ▪ MDPROPVAL_MMF_PARALLELPERIOD(0x00000002L) - The provider supports the function PARALLELPERIOD. ▪ MDPROPVAL_MMF_OPENINGPERIOD(0x00000004L) - The provider supports the function OPENINGPERIOD. ▪ MDPROPVAL_MMF_CLOSINGPERIOD(0x00000008L) - The provider supports the function CLOSINGPERIOD. <110>
MdpropMdxNonMeasureExpressions	R		<p>This property is equivalent to the OLE DB property, MDPROP_MDX_NONMEASURE_EXPRESSIONS. An enumeration value that indicates the capabilities in the <numeric_value_expression> argument of MDX set functions. This property can have one of the following values:</p> <ul style="list-style-type: none"> ▪ MDPROPVAL_NME_MEASURESONLY(0x00000001L) - The provider supports only expressions involving Measures dimension members. ▪ MDPROPVAL_NME_ALLDIMENSIONS(0x00000000L) - The provider supports expressions involving members from any dimension. <111>
MdpropMdxNumericFunctions	R		<p>This property is equivalent to the OLE DB property, MDPROP_MDX_NUMERIC_FUNCTIONS. A bitmask that indicates support for various numeric functions. This property can have a combination of zero or more of the following values:</p> <ul style="list-style-type: none"> ▪ MDPROPVAL_MNF_MEDIAN(0x00000008L) - The provider supports the function MEDIAN. ▪ MDPROPVAL_MNF_VAR(0x00000002L) - The provider supports the function

Name	Usage	Default	Description
			<p>VAR.</p> <ul style="list-style-type: none"> ▪ MDPROPVAL_MNF_STDDEV(0x0000004L) - The provider supports the function STDDEV. ▪ MDPROPVAL_MNF_RANK(0x00000008L) - The provider supports the function RANK. ▪ MDPROPVAL_MNF_AGGREGATE(0x0000010L) - The provider supports the function AGGREGATE. ▪ MDPROPVAL_MNF_COVARIANCE(0x0000020L) - The provider supports the function COVARIANCE. ▪ MDPROPVAL_MNF_CORRELATION(0x0000040L) - The provider supports the function CORRELATION. ▪ MDPROPVAL_MNF_LINREGSLOPE(0x0000080L) - The provider supports the function LINREGSLOPE. ▪ MDPROPVAL_MNF_LINREGVARIANCE(0x0000100L) - The provider supports the function LINREGVARIANCE. ▪ MDPROPVAL_MNF_LINREGR2(0x0000200L) - The provider supports the function LINREGR2. ▪ MDPROPVAL_MNF_LINREGPOINT(0x0000400L) - The provider supports the function LINREGPOINT. .<112>
MdpropMdxObjQualification	R		<p>This property is equivalent to the OLE DB property MDPROP_MDX_OBJQUALIFICATION. This property is a bitmask specifying how multidimensional schema object names can be qualified in an MDX statement. This property can have a combination of zero or more of the following values:</p> <p>MDPROP_MDX_OBJQUALIFICATION(0x00000105L) - represents the Provider's ability to qualify a cube name. It can</p>

Name	Usage	Default	Description
			<p>contain the following values:</p> <ul style="list-style-type: none"> ▪ MDPROPVAL_MOQ_DATASOURCE_CUBE(0x00000001L) - Cubes can be qualified by the data source name. ▪ MDPROPVAL_MOQ_CATALOG_CUBE(0x00000002L) - Cubes can be qualified by the catalog name. ▪ MDPROPVAL_MOQ_SCHEMA_CUBE(0x00000004L) - Cubes can be qualified by the schema name. ▪ MDPROPVAL_MOQ_CUBE_DIM(0x00000008L) - Dimensions can be qualified by cube name. ▪ MDPROPVAL_MOQ_DIM_HIER(0x00000010L) - Hierarchies can be qualified by dimension names. ▪ MDPROPVAL_MOQ_DIMHIER_LEVEL(0x00000020L) - Levels can be qualified by the dimension name and/or hierarchy name. This property applies only if named levels are supported, which can be checked by the property. ▪ MDPROP_NAMED_LEVELS(0x0000000fL) - If named levels are not supported, this bit must be set. ▪ MDPROPVAL_MOQ_DIMHIER_MEMBER(0x00000100L) -Members can be qualified by a dimension name and/or a hierarchy name. ▪ MDPROPVAL_MOQ_LEVEL_MEMBER(0x00000040L) - Members can be qualified by a level name. ▪ MDPROPVAL_MOQ_MEMBER_MEMBER(0x00000080L) - Members can be qualified by their ancestor names. <113>
MdpropMdxOuterReference	R		This property is equivalent to the OLE DB property

Name	Usage	Default	Description
			MDPROP_MDX_OUTERREFERENCE. This integer indicates whether <tuple>[.VALUE] can be qualified by <cube_name> in an MDX value expression. 0 means TRUE and 1 means FALSE. <114>
MdpropMdxQueryByProperty	R	"TRUE"	This property is equivalent to the OLE DB property MDPROP_MDX_QUERYBYPROPERTY. A Boolean that indicates whether or not the provider supports for querying by property values in an MDX statement. <115>
MdpropMdxRangeRowset	R		<p>This property is equivalent to the OLE DB property MDPROP_MDX_RANGEROWSET . An enumeration value that defines the type of support for cell updates provided by the provider. This property can have one of the following values:</p> <ul style="list-style-type: none"> ▪ MDPROPVAL_RR_NORANGEROWSET(0x00000001L) - The provider does not support a range rowset. ▪ MDPROPVAL_RR_READONLY(0x00000002L) - The provider supports a read-only range rowset. ▪ MDPROPVAL_RR_UPDATE(0x00000004L) - The provider supports an updatable range rowset. <116>
MdpropMdxSetFunctions	R		<p>This property is equivalent to the OLE DB property, MDPROP_MDX_SET_FUNCTIONS. A bitmask that indicates support for various set functions. This property can have a combination of zero or more of the following values:</p> <ul style="list-style-type: none"> ▪ MDPROPVAL_MSF_BOTTOMSUM(0x00000008L) - The provider supports the function BOTTOMSUM. ▪ MDPROPVAL_MSF_DRILLDOWNLEVEL(0x00000800L) - The provider supports the function DRILLDOWNLEVEL. ▪ MDPROPVAL_MSF_DRILLDOWNMEMBER(0x00000400L) - The provider

Name	Usage	Default	Description
			<p>supports the function DRILLDOWNMEMBER.</p> <ul style="list-style-type: none"> ▪ MDPROPVAL_MSF_DRILLDOWNMEMBERTOP(0x00001000L) - The provider supports the function DRILLDOWNMEMBERTOP. ▪ MDPROPVAL_MSF_DRILLDOWNMEMBERBOTTOM(0x00002000L) - The provider supports the function DRILLDOWNMEMBERBOTTOM. ▪ MDPROPVAL_MSF_DRILLDOWNLEVELTOP(0x00004000L) - The provider supports the function DRILLDOWNLEVELTOP. ▪ MDPROPVAL_MSF_DRILLDOWNLEVELBOTTOM(0x00008000L) - The provider supports the function DRILLDOWNLEVELBOTTOM. ▪ MDPROPVAL_MSF_DRILLUPMEMBER(0x00010000L) - The provider supports the function DRILLUPMEMBER. ▪ MDPROPVAL_MSF_DRILLUPLEVEL(0x00020000L) - The provider supports the function DRILLUPLEVEL. ▪ MDPROPVAL_MSF_PERIODSTODATE(0x00000010L) - The provider supports the function PERIODSTODATE. ▪ MDPROPVAL_MSF_LASTPERIODS(0x00000020L) - The provider supports the function LASTPERIODS. ▪ MDPROPVAL_MSF_YTD(0x00000040L) - The provider supports the function YTD. ▪ MDPROPVAL_MSF_QTD(0x00000080L) - The provider supports the function QTD. ▪ MDPROPVAL_MSF_MTD(0x00000100L) - The provider supports the function MTD. ▪

Name	Usage	Default	Description
			MDPROPVAL_MSF_WTD(0x00000200L) - The provider supports the function WTD. <117>
MdpropMdxSlicer	R		<p>This property is equivalent to the OLE DB property, MDPROP_MDX_SLICER. An enumeration value that indicates the capabilities available in the WHERE clause of an MDX statement. This property can have one of the following values:</p> <ul style="list-style-type: none"> ▪ MDPROPVAL_MS_SINGLETUPLE(0x00000002L) - The provider supports only one tuple in the WHERE clause. ▪ MDPROPVAL_MS_MULTIPLETUPLES(0x00000001L) - The provider supports more than one tuple in the WHERE clause. <118>
MdpropMdxStringCompop	R		<p>This property is equivalent to the OLE DB property, MDPROP_MDX_STRING_COMPOP. A bitmask that indicates support for string comparison operators other than equals and not-equals operators. This property can have a combination of zero or more of the following values:</p> <ul style="list-style-type: none"> ▪ MDPROPVAL_MSC_LESSTHAN(0x00000001L) - The provider supports the less-than operator. ▪ MDPROPVAL_MSC_GREATERTHAN(0x00000002L) - The provider supports the greater-than operator. ▪ MDPROPVAL_MSC_LESSTHANEQUAL(0x00000004L) - The provider supports the less-than-or-equal-to operator. ▪ MDPROPVAL_MSC_GREATERTHANEQUAL(0x00000008L) - The provider supports the greater-than-or-equal-to operator. <119>
MdpropNamedLevels	R		<p>This property is equivalent to the OLE DB property, MDPROP_NAMED_LEVELS. A bitmask that indicates support for named levels. This property can have a combination of zero or more of the</p>

Name	Usage	Default	Description
			<p>following values:</p> <ul style="list-style-type: none"> ▪ MDPROPVAL_NL_NAMEDLEVELST(0x0000001L) - The provider supports named levels. ▪ MDPROPVAL_NL_NUMBEREDLEVELS(0x0000002L) - The provider supports numbered levels using the LEVELS(n) function. ▪ MDPROPVAL_NL_SCHEMAONLY(0x0000004L) - The provider supports "dummy" named levels. These level names are for display only and are frequently just provider-generated names for a given level number. These names cannot be used in an MDX statement (such as in <level_name>.MEMBERS). These names appear in the LEVEL_NAME and LEVEL_UNIQUE_NAME columns of the schema rowset; providers may choose to have the same name in both the columns, or they can generate LEVEL_UNIQUE_NAME by appropriately qualifying the LEVEL_NAME. It is provider-specific whether these dummy names also appear in the LEVEL_UNIQUE_NAME column of the MEMBERS and PROPERTIES rowsets. .<120>
MDXSupport	R	Core	<p>An enumeration value that specifies the degree of MDX support.</p> <p>This enumeration has only one value, "Core". .<121></p>
DbpropMsmdMDXCompatibility	R/W	0	<p>An enumeration value that determines how placeholder members in a ragged or unbalanced hierarchy are treated. This property can have one of the following values:</p> <ul style="list-style-type: none"> ▪ 0 - This value is equivalent to 1. ▪ 1 - Hierarchies in role-playing dimensions receive a caption that includes the dimension name and the hierarchy name. The caption has the following format: [Dimension].[Hierarchy] ▪ Placeholder members are exposed.

Name	Usage	Default	Description
			<ul style="list-style-type: none"> ▪ 2 - Hierarchies in role-playing dimensions receive a caption that includes the dimension name and the hierarchy name. The caption has the following format: [Dimension].[Hierarchy] ▪ Placeholder members are not exposed. ▪ 3 - Placeholder members are not exposed.
DbpropMsmdSQLCompatibility	R/W	0	Reserved for future use.
DbpropMsmdMDXUniqueNameStyle	R/W	0	<p>A bitmask that determines the algorithm for generating the unique names of members in a dimension. This property can have a combination of zero or more of the following values:</p> <ul style="list-style-type: none"> ▪ 0 - For compatibility with earlier versions of Analysis Services, this value is equivalent to 3. ▪ 1 - Uses a key path algorithm that has the following format: [dim].&[key1].&[key2] ▪ 2 - Uses a name path algorithm that has the following format: [dim].[name1].&[name2] ▪ 3 - Uses guaranteed unique names that are stable over time.
DbpropMsmdCachePolicy	R/W		Reserved for future use.
DbpropMsmdCacheRatio	R/W		Reserved for future use.
DbpropMsmdCacheMode	R/W		Reserved for future use.
DbpropMsmdCompareCaseSensitiveStringFlags	R/W	1	<p>A bitmask that determines case-sensitive string comparison and sort order functionality. This property controls how comparisons are made in character sets that do not support uppercase and lowercase characters, such as Hindi and Japanese katakana. This property can have a combination of zero or more of the following values:</p> <ul style="list-style-type: none"> ▪ NORM_IGNORECASE(0x00000001) - Case is ignored. ▪ NORM_BINARY(0x00000002) - Binary comparison. Characters are compared based on their underlying value in the

Name	Usage	Default	Description
			<p>character set, not on their order in their particular alphabet.</p> <ul style="list-style-type: none"> ▪ NORM_IGNORENONSPACE(0x00000010) - Nonspacing characters are ignored. ▪ NORM_IGNORESYMBOLS(0x00000100) - Symbols are ignored. ▪ NORM_IGNOREKANATYPE(0x00001000) - No differentiation is made between hiragana and katakana characters. When compared, corresponding hiragana and katakana characters are considered to be equal. ▪ NORM_IGNOREWIDTH(0x00010000) - No differentiation is made between single-byte and double-byte versions of the same character. ▪ SORT_STRINGSORT(0x00100000) - Punctuation is treated the same as symbols.
DbpropMsmCompareCaseNotSensitiveStringFlags	R/W	69633	<p>A bitmask that determines case-insensitive string comparison and sort order functionality. This property controls how comparisons are made in character sets that do not support uppercase and lowercase characters, such as Hindi and Japanese katakana. This property can have a combination of zero or more of the following values:</p> <ul style="list-style-type: none"> ▪ NORM_IGNORECASE(0x00000001) - Case is ignored. ▪ NORM_BINARY(0x00000002) - Binary comparison. Characters are compared based on their underlying value in the character set, not on their order in their particular alphabet. ▪ NORM_IGNORENONSPACE(0x00000010) - Nonspacing characters are ignored. ▪ NORM_IGNORESYMBOLS(0x00000100) - Symbols are ignored.

Name	Usage	Default	Description
			<p>NORM_IGNOREKANATYPE(0x00001000) - No differentiation is made between hiragana and katakana characters. When compared, corresponding hiragana and katakana characters are considered to be equal.</p> <ul style="list-style-type: none"> NORM_IGNOREWIDTH(0x00010000) - No differentiation is made between single-byte and double-byte versions of the same character. SORT_STRINGSORT(0x00100000) - Punctuation is treated the same as symbols.
DbpropMsmidFlattened2	R/W	False	A Boolean property that outputs all members of a parent-child hierarchy in a single table column in the flattened result, unless the parent-child hierarchy is requested on Axis 0. The Level template for output columns is not used.
DbpropInitMode	R/W		<p>This property is a bitmask specifying access permissions, and is equivalent to the OLE DB property, DBPROP_INIT_MODE.</p> <p>The only supported values for this property are DB_MODE_READWRITE (0x03) and DB_MODE_READ (0x01). <122></p>
SspropInitAppName	R/W		The name of the client application.
SspropInitWsid	R/W		The ID of the client workstation.
SspropInitPacketSize	R/W		The ID of the client application.
ReadOnlySession	R/W		Reserved for future use.
SecuredCellValue	R/W	0	<p>An integer enumeration that specifies the error code and the values for the Value and Formatted Value cell properties to be returned when a query tries to access a secured cell.</p> <p>This property can have one of the following values:</p> <ul style="list-style-type: none"> 0 - this value is the same as 1. 1 - The return Value property of the cell contains the result as a variant data type. The string "#N/A" is returned in the Formatted Value property. 2 - Returns an error in the Cell

Name	Usage	Default	Description
			<p>element for this cell, of the mddataset that is returned.</p> <ul style="list-style-type: none"> ▪ 3 - Returns NULL in both the Value and Formatted Value properties. ▪ 4 - Returns a numeric zero (0) in the Value property, and returns a formatted zero in the Formatted Value property. For example, 0.00 is returned in the Formatted Value property for a cell whose Format property is "#.##". ▪ 5 - Returns the string "#SEC" in both the Value and Formatted Value properties.
NonEmptyThreshold	R/W		Reserved for future use.
SafetyOptions	R/W	0	<p>An enumeration value that determines whether unsafe libraries can be registered and loaded by client applications. This property can have one of the following values:</p> <ul style="list-style-type: none"> ▪ DBPROPVAL_MSMD_SAFETY_OPTIONS_DEFAULT(0)- This value is treated as DBPROPVAL_MSMD_SAFETY_OPTIONS_ALLOW_SAFE. ▪ DBPROPVAL_MSMD_SAFETY_OPTIONS_ALLOW_ALL(1) -This value enables all user-defined function libraries without verifying that they are safe for initialization and scripting. ▪ DBPROPVAL_MSMD_SAFETY_OPTIONS_ALLOW_SAFE(2) -This value makes sure that all classes for a particular user-defined function library are checked to make sure that they are safe for initialization and scripting. ▪ DBPROPVAL_MSMD_SAFETY_OPTIONS_ALLOW_NONE(3) - This value prevents user-defined functions from being used during the session.
DbpropMsmdCacheRatio2	R/W		Reserved for future use.
DbpropMsmdUseFormulaCache	R/W		Reserved for future use.

Name	Usage	Default	Description
DbpropMsmDynamicDebugLimit	R/W		Reserved for future use.
DbpropMsmDebugMode	R/W		Reserved for future use.
Dialect	R/W		<p>A server SHOULD attempt to deduce the command dialect from the content of the statement element. The dialect property establishes the dialect used in the following situations:</p> <ul style="list-style-type: none"> ▪ The dialect that the provider will use the first time that the provider tries to run a query. ▪ The dialect used to return execution errors as the result of query failures. ▪ The dialect that is used when it is ambiguous as to what dialect was used in the query. ▪ If the Dialect property is not set, query execution returns errors in the dialect last used. <123>
ImpactAnalysis	W	False	When this Boolean is set to TRUE, the command will return a rowset that lists the objects that would be impacted if the command were executed.
SQLQueryMode	R/W	"Calculated"	<p>An enumeration value that modifies the behavior of calculations which are included in SQL queries. This property can have one of the following values:</p> <ul style="list-style-type: none"> ▪ Data - No calculations are included. ▪ Calculated - Calculations are returned. ▪ IncludeEmpty - Calculations and empty rows are returned. ▪ DataKeys - No calculations are included and keys associated with columns instead of the key captions for the columns are returned.
ClientProcessID	R/W	0	The ID of the client process.
Cube	W	Empty.	The name of the cube that sets the context for the command. If the command itself contains a cube name, such as within the FROM clause of a Multidimensional Expressions (MDX) SELECT statement, the setting of this

Name	Usage	Default	Description
			property is ignored.
ReturnCellProperties	R/W	"FALSE"	A Boolean that determines if the cell properties should be returned in query results.
CommitTimeout	W	0	An integer that determines how long, in seconds, the commit phase of a command waits for locks before rolling back. A value of zero (0) indicates that the instance waits indefinitely.
ForceCommitTimeout	W	0	An integer that determines for how long, in seconds, the commit phase of a command waits before forcing previously issued commands to roll back. A value of zero (0) indicates that the instance waits indefinitely.
ExecutionMode	W	"Execute"	Reserved for future use.
RealTimeOlap	R/W	"FALSE"	A Boolean that, when set to TRUE, indicates that all the partitions listening for table notifications are queried in real time, bypassing caching. This property is equivalent to the OLE DB property, DBPROP_MSMD_REAL_TIME_OLAP.
MdxMissingMemberMode	W	"Default"	Indicates how missing members are handled in MDX statements. This property can have one of the following values: <ul style="list-style-type: none"> ▪ Default -Default behavior of the server. ▪ Error - Generate an error. ▪ Ignore - Always ignore missing members.
CustomData		Empty.	A string value that defines a value that will be returned by the customdata() MDX function.
MdpropMdxSubqueries	R		A bitmask that indicates the level of support for subqueries in MDX. This property can have a combination of zero or more of the following values: <ul style="list-style-type: none"> ▪ MDPROPVAL_MSQ_BASIC(0x01) ▪ MDPROPVAL_MSQ_ARBITRARYSHAPE(0x02) ▪ MDPROPVAL_MSQ_NONVISUAL(0x04)

Name	Usage	Default	Description
			<ul style="list-style-type: none"> ▪ MDPROPVAL_MSQ_CALC MEMBERS (0x08) ▪ MDPROPVAL_MSQ_CALC MEMBERS2(0x10)<124>
DbpropMsm�ErrorMessageMode	R/W	2	<p>If a cell security MDX expression does not return "TRUE" or "FALSE", but in fact itself returns an error, the integer this property is set to controls what happens. If set to "2", the result returns the error message associated with the error that the evaluation of the cell security expression returns.</p> <p>If this property is set to any other value, the result is treated the same as if the cell security expression evaluated to false, and access to the cell data is denied.</p> <p>This property will be recognized only for Administrator connections.</p>
DisablePrefetchFacts	RW	"FALSE"	<p>A Boolean that indicates to the server whether it should disable the prefetching of fact data when executing MDX queries. By default, the server does prefetch fact data, so the default value for this property, "FALSE", leaves the server default in effect.</p>
UpdateIsolationLevel	R/W	2	<p>An enumeration value that specifies whether the cells in a single UPDATE CUBE are isolated from each other. When the property is set to isolated, the server evaluates each cell update without any consideration for the others, resulting in better performance.</p> <p>This property is a performance hint and must be used with care. Specifying the property as isolated when the cells actually overlap can produce incorrect results.</p> <p>This property can have one of the following values:</p> <ul style="list-style-type: none"> ▪ 0 - Not isolated ▪ 1 - Isolated ▪ 2 - Not isolated
MdpropMdxNamedSets	R	15	<p>A bitmask that indicates the type of support for named sets. This property can be a combination of zero or more of the</p>

Name	Usage	Default	Description
			following values: <ul style="list-style-type: none"> ▪ MDPROPVAL_MNS_BASIC(0x01) ▪ MDPROPVAL_MNS_DYNAMIC(0x02) ▪ MDPROPVAL_MNS_DISPLAYFOLDER(0x04) ▪ MDPROPVAL_MNS_CAPTION(0x08)
DbpropMsmdSubqueries	R/W	0	An enumeration value that determines the behavior of subqueries. This property can have one of the following values: <ul style="list-style-type: none"> ▪ 0 - Calculated members are not restricted by subselects. ▪ 1 - Calculated members are restricted by subselects. ▪ 2 - Calculated members are restricted by subselects.
DbpropMsmdAutoExists	R/W	0	Determines the behavior of autoexists. This property can have one of the following values: <ul style="list-style-type: none"> ▪ 0 - Default value, same as 1. ▪ 1 - Apply deep autoexists for query axes and named sets. Includes WHERE clauses and subselects. ▪ 2 - Apply deep autoexists for query axes and exclude named sets from autoexists. Includes WHERE clauses and subselects. ▪ 3 - Apply no autoexists for named sets with WHERE clause. Apply shallow autoexists for query axes with WHERE clause. Apply deep autoexists for query axes with subselects and named sets with subselects. <125>
MdpropMdxDdlExtensions	R		A bitmask that indicates one or more of the following: <ul style="list-style-type: none"> ▪ DBPROPVAL_MDX_DDL_CREATECUBE (0x1). Create Cube is supported. ▪ DBPROPVAL_MDX_DDL_INSERTINTO (0x2). InsertInto is supported. ▪

Name	Usage	Default	Description
			DBPROPVAL_MDX_DDL_REFRESHCUBE (0x4). Refresh Cube is supported. <ul style="list-style-type: none"> ▪ DBPROPVAL_MDX_DLL_CREATESESSIONCUBE (0x8). Create Session is supported. ▪ DBPROPVAL_MDX_DLL_CREATEGLOBALCUBE (0x10). Create Global Cube is supported. <126>
CharacterEncoding	R/W	"Default"	Determines the character encoding for the server's XML response.

3.1.5 Timer Events

None. All protocol requests are initiated by the client.

3.1.6 Other Local Events

None.

3.2 Transport-Specific Protocol Details

3.2.1 Connection

To connect to a server using TCP or HTTP/HTTPS, the client MUST know the IP address and port number of the server. The default HTTP port number is 80 and the default HTTPS port number is 443. However, the server MAY be configured to listen on other port numbers. [<127>](#)

3.2.2 Authentication and Encryption

To use an authenticated or encrypted connection using TCP, both the client and server MUST use GSS-API [\[RFC4178\]](#). This requires the exchange of [security tokens](#) between the client and server. The client sends its UTF-8 encoded security token using the **Authenticate** request ([AuthenticateSoapIn](#)) and the server responds with its UTF-8 encoded security token in the **AuthenticateResponse** message ([AuthenticateSoapOut](#)). This exchange of security tokens MUST continue back and forth until GSS-API reports completion or error. After it has completed, the client and server can call the GSS-API to determine if encryption or hashing is turned on for the connection.

When using HTTP/HTTPS, the server MAY or MAY NOT support authenticated connections. If the client requires messages to be encrypted, it SHOULD use the HTTPS protocol.

3.2.3 Content Type Negotiation

Because the support for binary XML [\[MS-BINXML\]](#) and compression is optional, the client and server MUST negotiate the content type of the messages for the duration of the connection. The negotiation is based on the preferences and capabilities of the client and server.

The first request sent by the client and the server response are both always text XML. Depending on whether the transport is TCP or HTTP/HTTPS, the **DIME OPTIONS** field or the **HTTP X-Transport-Caps-Negotiation-Flags** header is used by client and server to indicate the content type of the messages for the connection.

The process of negotiation is controlled by the client and the server does not need to remember the current state of negotiation between requests. The NEGO flag is used by the client to inform the server that negotiation is in progress. The client SHOULD set this flag to 1 in the first request and set it to 0 in all subsequent requests (since the negotiation is complete).

The REQ_SX, REQ_XPRESS, RESP_SX and RESP_XPRESS flags are used for the negotiation to represent binary XML in requests, compression in requests, binary XML in responses and compression in responses. The value 0 indicates that the capability is off or not supported. The value 1 indicates that the capability is on or supported.

The client uses the RESP_SX and RESP_XPRESS flags to inform the server whether it supports responses with binary XML and compression.

The server uses the RESP_SX and RESP_XPRESS flags to inform the client whether it will use binary XML and compression in its responses. This decision is based on what the client supports as well as the server capabilities.

Because the server does not remember the current state of negotiation, the client and server MUST send these flags in every request and response.

3.2.4 Generating and Parsing Messages

After the connection has been established and authentication and content type negotiation has been completed, the client and server know whether encryption, compression and binary XML are enabled for requests and responses.

To generate a message, the following steps MUST be followed.

TCP

1. Generate the SOAP envelope.
2. If binary XML is enabled, encode the SOAP message as described in [2.3.5](#) and [\[MS-BINXML\]](#). Otherwise, encode the SOAP message in text XML.
3. If compression is enabled, compress the message as described in [Compression](#). The message MAY optionally be divided into multiple compression data blocks.
4. If encryption is enabled, encrypt the message using GSS-API. The message MAY optionally be divided into multiple encryption data blocks.
5. Compose the message into DIME records and send it via TCP. The message MAY optionally be divided into multiple DIME records.

HTTP/HTTPS

1. Generate the SOAP envelope.
2. If binary XML is enabled, encode the SOAP message as described in [2.3.5](#) and [\[MS-BINXML\]](#). Otherwise, encode the SOAP message in text XML.

3. If compression is enabled, compress the message as described in **Compression**. The message MAY optionally be divided into multiple compression data blocks.
4. Send the message via HTTP/HTTPS along with the appropriate HTTP headers.

To parse a message, the following steps MUST be followed.

TCP

1. Combine all the DIME records into a single data block.
2. If encryption is enabled, decrypt all the encryption data blocks and combine them into a single decrypted data block.
3. If compression is enabled, decompress all the compression data blocks as described in **Compression**, and then combine them into a single decompressed data block.
4. If binary XML is enabled, decode the data block as described in [2.3.5](#) and [MS-BINXML]. Otherwise, decode the data block as text XML.
5. Parse the SOAP envelope.

HTTP/HTTPS

1. If compression is enabled, decompress all the compression data blocks as described in **Compression**, and then combine them into a single decompressed data block.
2. If binary XML is enabled, decode the data block as described in [2.3.5](#) and [MS-BINXML]. Otherwise, decode the data block as text XML.
3. Parse the SOAP envelope.

3.2.5 Compression

The client or server can choose any compression algorithm as long as the compressed data blocks can be decompressed using the following decompression algorithm.

The decompression algorithm takes a buffer of compressed data in the form of a byte array (**InputBuffer**), an output buffer in the form of a byte array (**OutputBuffer**), and the size of the output buffer (**OutputBufferSize**).

```

SET KindBit to 0
SET HaveNibble to FALSE
SET OutputBufferIndex to 0
SET InputBufferIndex to 0
WHILE OutputBufferIndex < OutputBufferSize
  IF KindBit is 0 THEN
    SET Kind to InputBuffer[InputBufferIndex] +
      (InputBuffer[InputBufferIndex+1] << 8) +
      (InputBuffer[InputBufferIndex+2] << 16) +
      (InputBuffer[InputBufferIndex+3] << 24)
    INCREMENT InputBufferIndex by 4
    SET KindBit to 32
  ENDF
  DECREMENT KindBit
  IF (Kind & (1 << KindBit)) is 0 THEN
    SET OutputBuffer[OutputBufferIndex] to InputBuffer[InputBufferIndex]
    INCREMENT InputBufferIndex

```

```

INCREMENT OutputBufferIndex
ELSE
SET Length to InputBuffer[InputBufferIndex] +
    (InputBuffer[InputBufferIndex+1] << 8)
INCREMENT InputBufferIndex by 2
SET Offset to (Length >> 3)
SET Length to (Length & 7)
IF Length is 7 THEN
    IF HaveNibble is FALSE THEN
        SET HaveNibble to TRUE
        Set NibbleValue to InputBuffer[InputBufferIndex]
        SET Length to (InputBuffer[InputBufferIndex] & 15)
        INCREMENT InputBufferIndex
    ELSE
        SET Length to (NibbleValue >> 4)
        SET HaveNibble to FALSE
    ENDIF
    IF Length is 15 THEN
        SET Length to InputBuffer[InputBufferIndex]
        INCREMENT InputBufferIndex
        IF Length is 255 THEN
            SET Length to InputBuffer[InputBufferIndex] +
                (InputBuffer[InputBufferIndex+1] << 8)
            INCREMENT InputBufferIndex by 2
            DECREMENT Length by 22
        ENDIF
        INCREMENT Length by 15
    ENDIF
    INCREMENT Length by 7
ENDIF
INCREMENT Length by 3
WHILE Length is not 0
    SET OutputBuffer[OutputBufferIndex] to
        OutputBuffer[OutputBufferIndex-Offset-1]
    INCREMENT OutputBufferIndex
    DECREMENT Length
ENDWHILE
ENDIF
ENDWHILE

```


- ID_LENGTH: 0
- TYPE_LENGTH: 8
- DATA_LENGTH: 316
- OPTIONS:
- NEGO: 0
- REQ_SX: 0
- REQ_XPRESS: 0
- RESP_SX: 0
- RESP_XPRESS: 0
- RESERVED: 0
- TYPE: text/xml

The server responds with an authentication handshake response; that is, an initial negotiation between a peer and an authenticator that establishes the parameters of their transactions:

```

0E 10 00 04 00 00 00 08 00 00 02 95 00 00 00 00 .....?....
74 65 78 74 2F 78 6D 6C 3C 73 6F 61 70 3A 45 6E text/xml<soap:En
76 65 6C 6F 70 65 20 78 6D 6C 6E 73 3A 73 6F 61 velope xmlns:soa
70 3D 22 68 74 74 70 3A 2F 2F 73 63 68 65 6D 61 p="http://schema
73 2E 78 6D 6C 73 6F 61 70 2E 6F 72 67 2F 73 6F s.xmlsoap.org/so
61 70 2F 65 6E 76 65 6C 6F 70 65 2F 22 3E 3C 73 ap/envelope/"><s
6F 61 70 3A 42 6F 64 79 3E 3C 41 75 74 68 65 6E oap:Body><Authen
74 69 63 61 74 65 52 65 73 70 6F 6E 73 65 20 78 ticateResponse x
6D 6C 6E 73 3D 22 68 74 74 70 3A 2F 2F 73 63 68 mlns="http://sch
65 6D 61 73 2E 6D 69 63 72 6F 73 6F 66 74 2E 63 emas.microsoft.c
6F 6D 2F 61 6E 61 6C 79 73 69 73 73 65 72 76 69 om/analysisservi
63 65 73 2F 32 30 30 33 2F 65 78 74 22 3E 3C 72 ces/2003/ext"><r
65 74 75 72 6E 3E 3C 53 73 70 69 48 61 6E 64 73 eturn><SspiHand
68 61 6B 65 3E 54 6C 52 4D 54 56 4E 54 55 41 41 hake>TlRMTVNTUAAA
43 41 41 41 41 44 67 41 4F 41 44 67 41 41 41 41 CAAAADgAOADgAAAA
46 77 6F 6D 69 30 34 54 6F 55 79 59 54 71 38 70 Fwomi04ToUyYtq8p
67 71 4A 6F 41 41 41 41 41 41 4E 67 41 32 41 42 gqJoAAAAAANgA2AB
47 41 41 41 41 42 51 4C 4F 44 67 41 41 41 41 39 GAAAABQLODgAAA9
53 20 0A 41 45 55 41 52 41 42 4E 41 45 38 41 54 S .AEUARABNAE8AT
67 42 45 41 41 49 41 44 67 42 53 41 45 55 41 52 gBEAAIADgBSAEUAR
41 42 4E 41 45 38 41 54 67 42 45 41 41 45 41 45 ABNAE8ATgBEAAEAE
67 42 57 41 45 45 41 54 41 42 46 41 46 49 41 53 gBWAEETABFAFIAS
51 42 4C 41 44 41 41 4D 77 41 45 41 44 51 41 20 QBLADAAmWAEADQA
0A 63 67 42 6C 41 47 51 41 62 51 42 76 41 47 34 .cgBLAGQAbQBvAG4
41 5A 41 41 75 41 47 4D 41 62 77 42 79 41 48 41 AZAAuAGMAbwByAHA
41 4C 67 42 74 41 47 6B 41 59 77 42 79 41 47 38 ALgBtAGkAYwByAG8
41 63 77 42 76 41 47 59 41 64 41 41 75 41 47 4D AcwBvAGYAdAAuAGM
41 62 77 42 74 41 41 4D 41 53 41 42 32 20 0A 41 AbwBtAAMASAB2 .A
47 45 41 62 41 42 6C 41 48 49 41 61 51 42 72 41 GEAbABlAH IAaQB rA
44 41 41 4D 77 41 75 41 48 49 41 5A 51 42 6B 41 DAAMwAuAH IAZQBkA
47 30 41 62 77 42 75 41 47 51 41 4C 67 42 6A 41 G0AbwBuAGQALgBjA
47 38 41 63 67 42 77 41 43 34 41 62 51 42 70 41 G8AcgBwAC 4AbQBpA
47 4D 41 63 67 42 76 41 48 4D 41 20 0A 62 77 42 GMACgBvAHMA .bwB

```

6D 41 48 51	41 4C 67 42	6A 41 47 38	41 62 51 41	mAHQALgBjAG8AbQA
46 41 43 51	41 59 77 42	76 41 48 49	41 63 41 41	FACQAYwBvAHIAcAA
75 41 47 30	41 61 51 42	6A 41 48 49	41 62 77 42	uAG0AaQBjAHIAbwB
7A 41 47 38	41 5A 67 42	30 41 43 34	41 59 77 42	zAG8AZgB0AC4AYwB
76 41 47 30	41 41 41 41	41 20 0A 41	41 3D 3D 20	vAG0AAAAA .AA==
0A 3C 2F 53	73 70 69 48	61 6E 64 73	68 61 6B 65	.</SspiHandshake
3E 3C 2F 72	65 74 75 72	6E 3E 3C 2F	41 75 74 68	></return></Auth
65 6E 74 69	63 61 74 65	52 65 73 70	6F 6E 73 65	enticateResponse
3E 3C 2F 73	6F 61 70 3A	42 6F 64 79	3E 3C 2F 73	></soap:Body></s
6F 61 70 3A	45 6E 76 65	6C 6F 70 65	3E CC CC CC	oap:Envelope>???

Highlighted is the DIME header and the padding required for the 4 byte alignment:

- VERSION: 1
- MB: 1
- ME: 1
- CF: 0
- TYPE_T: 1
- RESERVED: 0
- OPTIONS_LENGTH: 4
- ID_LENGTH: 0
- TYPE_LENGTH: 8
- DATA_LENGTH: 661
- OPTIONS:
- NEGO: 0
- REQ_SX: 0
- REQ_XPRESS: 0
- RESP_SX: 0
- RESP_XPRESS: 0
- RESERVED: 0
- TYPE: text/xml

The client continues the authentication handshake:

0E 10 00 04	00 00 00 08	00 00 01 50	01 00 00 00P....
74 65 78 74	2F 78 6D 6C	EF BB BF 3C	45 6E 76 65	text/xml??<Enve
6C 6F 70 65	20 78 6D 6C	6E 73 3D 22	68 74 74 70	lope xmlns="http
3A 2F 2F 73	63 68 65 6D	61 73 2E 78	6D 6C 73 6F	://schemas.xmlso
61 70 2E 6F	72 67 2F 73	6F 61 70 2F	65 6E 76 65	ap.org/soap/enve
6C 6F 70 65	2F 22 3E 0D	0A 20 20 3C	42 6F 64 79	lope/">.. <Body

3E 0D 0A 20	20 20 20 3C	41 75 74 68	65 6E 74 69	>.. <Authenti
63 61 74 65	20 78 6D 6C	6E 73 3D 22	68 74 74 70	cate xmlns="http
3A 2F 2F 73	63 68 65 6D	61 73 2E 6D	69 63 72 6F	://schemas.micro
73 6F 66 74	2E 63 6F 6D	2F 61 6E 61	6C 79 73 69	soft.com/analysi
73 73 65 72	76 69 63 65	73 2F 32 30	30 33 2F 65	sservices/2003/e
78 74 22 3E	0D 0A 20 20	20 20 20 20	3C 53 73 70	xt">.. <Ssp
69 48 61 6E	64 73 68 61	6B 65 3E 54	6C 52 4D 54	iHandshake>TlRMT
56 4E 54 55	41 41 44 41	41 41 41 41	41 41 41 41	VNTUAADAAAAAAAA
45 67 41 41	41 41 41 41	41 41 41 53	41 41 41 41	EgAAAAAAAAASAAA
41 41 41 41	41 42 49 41	41 41 41 41	41 41 41 41	AAAAABIAAAAAAAA
45 67 41 41	41 41 41 41	41 41 41 53	41 41 41 41	EgAAAAAAAAASAAA
41 41 41 41	41 42 49 41	41 41 41 42	63 4B 49 6F	AAAAABIAAAABcKI
67 55 43 7A	67 34 41 41	41 41 50 3C	2F 53 73 70	gUCzg4AAAP</Ssp
69 48 61 6E	64 73 68 61	6B 65 3E 0D	0A 20 20 20	iHandshake>..
20 3C 2F 41	75 74 68 65	6E 74 69 63	61 74 65 3E	</Authenticate>
0D 0A 20 20	3C 2F 42 6F	64 79 3E 0D	0A 3C 2F 45	.. </Body>..</E
6E 76 65 6C	6F 70 65 3E	nvelope>

Highlighted is the DIME header:

- VERSION: 1
- MB: 1
- ME: 1
- CF: 0
- TYPE_T: 1
- RESERVED: 0
- OPTIONS_LENGTH: 4
- ID_LENGTH: 0
- TYPE_LENGTH: 8
- DATA_LENGTH: 336
- OPTIONS:
- NEGO: 1
- REQ_SX: 0
- REQ_XPRESS: 0
- RESP_SX: 0
- RESP_XPRESS: 0
- RESERVED: 0
- TYPE: text/xml

The server responds with the authentication handshake completion:

```

0E 10 00 04 00 00 00 08 00 00 00 FA 00 00 00 00 .....?....
74 65 78 74 2F 78 6D 6C 3C 73 6F 61 70 3A 45 6E text/xml<soap:En
76 65 6C 6F 70 65 20 78 6D 6C 6E 73 3A 73 6F 61 velope xmlns:soa
70 3D 22 68 74 74 70 3A 2F 2F 73 63 68 65 6D 61 p="http://schema
73 2E 78 6D 6C 73 6F 61 70 2E 6F 72 67 2F 73 6F s.xmlsoap.org/so
61 70 2F 65 6E 76 65 6C 6F 70 65 2F 22 3E 3C 73 ap/envelope/"><s
6F 61 70 3A 42 6F 64 79 3E 3C 41 75 74 68 65 6E oap:Body><Authen
74 69 63 61 74 65 52 65 73 70 6F 6E 73 65 20 78 ticateResponse x
6D 6C 6E 73 3D 22 68 74 74 70 3A 2F 2F 73 63 68 mlns="http://sch
65 6D 61 73 2E 6D 69 63 72 6F 73 6F 66 74 2E 63 emas.microsoft.c
6F 6D 2F 61 6E 61 6C 79 73 69 73 73 65 72 76 69 om/analysisse
63 65 73 2F 32 30 30 33 2F 65 78 74 22 3E 3C 72 ces/2003/ext"><r
65 74 75 72 6E 3E 3C 53 73 70 69 48 61 6E 64 73 eturn><SspiHand
68 61 6B 65 2F 3E 3C 2F 72 65 74 75 72 6E 3E 3C hake/></return><
2F 41 75 74 68 65 6E 74 69 63 61 74 65 52 65 73 /AuthenticateRes
70 6F 6E 73 65 3E 3C 2F 73 6F 61 70 3A 42 6F 64 ponse></soap:Bo
79 3E 3C 2F 73 6F 61 70 3A 45 6E 76 65 6C 6F 70 dy></soap:Envelop
65 3E CC CC .. .. .. .. .. .. .. .. .. .. .. .. e>??

```

Highlighted is the DIME header and the padding required for the 4 byte alignment:

- VERSION: 1
- MB: 1
- ME: 1
- CF: 0
- TYPE_T: 1
- RESERVED: 0
- OPTIONS_LENGTH: 4
- ID_LENGTH: 0
- TYPE_LENGTH: 8
- DATA_LENGTH: 250
- OPTIONS:
- NEGO: 0
- REQ_SX: 0
- REQ_XPRESS: 0
- RESP_SX: 0
- RESP_XPRESS: 0
- RESERVED: 0
- TYPE: text/xml

- TYPE_T: 1
- RESERVED: 0
- OPTIONS_LENGTH: 4
- ID_LENGTH: 0
- TYPE_LENGTH: 8
- DATA_LENGTH: 649
- OPTIONS:
- NEGO: 1
- REQ_SX: 0
- REQ_XPRESS: 0
- RESP_SX: 0
- RESP_XPRESS: 0
- RESERVED: 0
- TYPE: text/xml

The server responds with the ID of a newly-created session:

```

0E 10 00 04 00 00 00 08 00 00 01 91 00 00 00 00 .....?....
74 65 78 74 2F 78 6D 6C 3C 73 6F 61 70 3A 45 6E text/xml<soap:En
76 65 6C 6F 70 65 20 78 6D 6C 6E 73 3A 73 6F 61 velope xmlns:soa
70 3D 22 68 74 74 70 3A 2F 2F 73 63 68 65 6D 61 p="http://schema
73 2E 78 6D 6C 73 6F 61 70 2E 6F 72 67 2F 73 6F s.xmlsoap.org/so
61 70 2F 65 6E 76 65 6C 6F 70 65 2F 22 3E 3C 73 ap/envelope/"><s
6F 61 70 3A 48 65 61 64 65 72 3E 3C 53 65 73 73 oap:Header><Sess
69 6F 6E 20 78 6D 6C 6E 73 3D 22 75 72 6E 3A 73 ion xmlns="urn:s
63 68 65 6D 61 73 2D 6D 69 63 72 6F 73 6F 66 74 chemas-microsoft
2D 63 6F 6D 3A 78 6D 6C 2D 61 6E 61 6C 79 73 69 -com:xml-analysi
73 22 20 53 65 73 73 69 6F 6E 49 64 3D 22 46 39 s" SessionId="F9
44 37 44 42 37 30 2D 32 42 45 32 2D 34 43 35 32 D7DB70-2BE2-4C52
2D 38 46 46 44 2D 31 31 33 44 39 44 31 46 39 44 -8FFD-113D9D1F9D
32 34 22 2F 3E 3C 2F 73 6F 61 70 3A 48 65 61 64 24"/></soap:Head
65 72 3E 3C 73 6F 61 70 3A 42 6F 64 79 3E 3C 45 er><soap:Body><E
78 65 63 75 74 65 52 65 73 70 6F 6E 73 65 20 78 xecuteResponse x
6D 6C 6E 73 3D 22 75 72 6E 3A 73 63 68 65 6D 61 mlns="urn:schema
73 2D 6D 69 63 72 6F 73 6F 66 74 2D 63 6F 6D 3A s-microsoft-com:
78 6D 6C 2D 61 6E 61 6C 79 73 69 73 22 3E 3C 72 xml-analysis"><r
65 74 75 72 6E 3E 3C 72 6F 6F 74 20 78 6D 6C 6E eturn><root xmln
73 3D 22 75 72 6E 3A 73 63 68 65 6D 61 73 2D 6D s="urn:schemas-m
69 63 72 6F 73 6F 66 74 2D 63 6F 6D 3A 78 6D 6C icrosoft-com:xml
2D 61 6E 61 6C 79 73 69 73 3A 65 6D 70 74 79 22 -analysis:empty"
2F 3E 3C 2F 72 65 74 75 72 6E 3E 3C 2F 45 78 65 /></return></Exe
63 75 74 65 52 65 73 70 6F 6E 73 65 3E 3C 2F 73 cuteResponse></s
6F 61 70 3A 42 6F 64 79 3E 3C 2F 73 6F 61 70 3A oap:Body></soap:
45 6E 76 65 6C 6F 70 65 3E CC CC CC . . . . . Envelope>??

```

Highlighted is the DIME header and the padding required for the 4 byte alignment:

- VERSION: 1
- MB: 1
- ME: 1
- CF: 0
- TYPE_T: 1
- RESERVED: 0
- OPTIONS_LENGTH: 4
- ID_LENGTH: 0
- TYPE_LENGTH: 8
- DATA_LENGTH: 401
- OPTIONS:
- NEGO: 0
- REQ_SX: 0
- REQ_XPRESS: 0
- RESP_SX: 0
- RESP_XPRESS: 0
- RESERVED: 0
- TYPE: text/xml

4.1.4 Request for List of Catalogs

The client sends a DBSCHEMA_CATALOGS request:

0E 10 00 04	00 00 00 08	00 00 02 3E	01 00 00 00>....
74 65 78 74	2F 78 6D 6C	EF BB BF 3C	45 6E 76 65	text/xml???<Enve
6C 6F 70 65	20 78 6D 6C	6E 73 3D 22	68 74 74 70	lope xmlns="http
3A 2F 2F 73	63 68 65 6D	61 73 2E 78	6D 6C 73 6F	://schemas.xmlso
61 70 2E 6F	72 67 2F 73	6F 61 70 2F	65 6E 76 65	ap.org/soap/enve
6C 6F 70 65	2F 22 3E 0D	0A 20 20 3C	48 65 61 64	lope/">.. <Head
65 72 3E 0D	0A 20 20 20	20 3C 58 41	3A 53 65 73	er>.. <XA: Ses
73 69 6F 6E	20 73 6F 61	70 3A 6D 75	73 74 55 6E	sion soap:mustUn
64 65 72 73	74 61 6E 64	3D 22 31 22	20 53 65 73	derstand="1" Ses
73 69 6F 6E	49 64 3D 22	46 39 44 37	44 42 37 30	sionId="F9D7DB70
2D 32 42 45	32 2D 34 43	35 32 2D 38	46 46 44 2D	-2BE2-4C52-8FFD-
31 31 33 44	39 44 31 46	39 44 32 34	22 20 78 6D	113D9D1F9D24" xm
6C 6E 73 3A	73 6F 61 70	3D 22 68 74	74 70 3A 2F	lns:soap="http:/
2F 73 63 68	65 6D 61 73	2E 78 6D 6C	73 6F 61 70	/schemas.xmlsoap
2E 6F 72 67	2F 73 6F 61	70 2F 65 6E	76 65 6C 6F	.org/soap/envelo
70 65 2F 22	20 78 6D 6C	6E 73 3A 58	41 3D 22 75	pe/" xmlns:XA="u

72 6E 3A 73	63 68 65 6D	61 73 2D 6D	69 63 72 6F	rn:schemas-micro
73 6F 66 74	2D 63 6F 6D	3A 78 6D 6C	2D 61 6E 61	soft-com:xml-ana
6C 79 73 69	73 22 20 2F	3E 0D 0A 20	20 3C 2F 48	lysis" />.. </H
65 61 64 65	72 3E 0D 0A	20 20 3C 42	6F 64 79 3E	header>.. <Body>
0D 0A 20 20	20 20 3C 44	69 73 63 6F	76 65 72 20	.. <Discover
78 6D 6C 6E	73 3D 22 75	72 6E 3A 73	63 68 65 6D	xmlns="urn:schem
61 73 2D 6D	69 63 72 6F	73 6F 66 74	2D 63 6F 6D	as-microsoft-com
3A 78 6D 6C	2D 61 6E 61	6C 79 73 69	73 22 3E 0D	:xml-analysis">.
0A 20 20 20	20 20 20 3C	52 65 71 75	65 73 74 54	. <RequestT
79 70 65 3E	44 42 53 43	48 45 4D 41	5F 43 41 54	ype>DBSCHEMA_CAT
41 4C 4F 47	53 3C 2F 52	65 71 75 65	73 74 54 79	ALOGS</RequestTy
70 65 3E 0D	0A 20 20 20	20 20 20 3C	52 65 73 74	pe>.. <Rest
72 69 63 74	69 6F 6E 73	3E 3C 2F 52	65 73 74 72	rictions></Restr
69 63 74 69	6F 6E 73 3E	0D 0A 20 20	20 20 20 20	ictions>..
3C 50 72 6F	70 65 72 74	69 65 73 3E	3C 50 72 6F	<Properties><Pro
70 65 72 74	79 4C 69 73	74 3E 3C 43	6F 6E 74 65	pertyList><Conte
6E 74 3E 44	61 74 61 3C	2F 43 6F 6E	74 65 6E 74	nt>Data</Content
3E 3C 2F 50	72 6F 70 65	72 74 79 4C	69 73 74 3E	></PropertyList>
3C 2F 50 72	6F 70 65 72	74 69 65 73	3E 0D 0A 20	</Properties>..
20 20 20 3C	2F 44 69 73	63 6F 76 65	72 3E 0D 0A	</Discover>..
20 20 3C 2F	42 6F 64 79	3E 0D 0A 3C	2F 45 6E 76	</Body>..</Env
65 6C 6F 70	65 3E CC CC	elope>??

Highlighted is the DIME header and the padding required for the 4 byte alignment:

- VERSION: 1
- MB: 1
- ME: 1
- CF: 0
- TYPE_T: 1
- RESERVED: 0
- OPTIONS_LENGTH: 4
- ID_LENGTH: 0
- TYPE_LENGTH: 8
- DATA_LENGTH: 574
- OPTIONS:
- NEGO: 1
- REQ_SX: 0
- REQ_XPRESS: 0
- RESP_SX: 0
- RESP_XPRESS: 0
- RESERVED: 0

- TYPE: text/xml

The server responds with the list of catalogs:

```
0E 10 00 04 00 00 00 08 00 00 03 5D 00 00 00 00 .....]....
74 65 78 74 2F 78 6D 6C 3C 73 6F 61 70 3A 45 6E text/xml<soap:En
76 65 6C 6F 70 65 20 78 6D 6C 6E 73 3A 73 6F 61 velope xmlns:soa
70 3D 22 68 74 74 70 3A 2F 2F 73 63 68 65 6D 61 p="http://schema
73 2E 78 6D 6C 73 6F 61 70 2E 6F 72 67 2F 73 6F s.xmlsoap.org/so
61 70 2F 65 6E 76 65 6C 6F 70 65 2F 22 3E 3C 73 ap/envelope/"><s
6F 61 70 3A 42 6F 64 79 3E 3C 44 69 73 63 6F 76 oap:Body><Discover
65 72 52 65 73 70 6F 6E 73 65 20 78 6D 6C 6E 73 erResponse xmlns
3D 22 75 72 6E 3A 73 63 68 65 6D 61 73 2D 6D 69 ="urn:schemas-mi
63 72 6F 73 6F 66 74 2D 63 6F 6D 3A 78 6D 6C 2D crosoft-com:xml-
61 6E 61 6C 79 73 69 73 22 20 78 6D 6C 6E 73 3A analysis" xmlns:
64 64 6C 32 3D 22 68 74 74 70 3A 2F 2F 73 63 68 ddl2="http://sch
65 6D 61 73 2E 6D 69 63 72 6F 73 6F 66 74 2E 63 emas.microsoft.c
6F 6D 2F 61 6E 61 6C 79 73 69 73 73 65 72 76 69 om/analysisservi
63 65 73 2F 32 30 30 33 2F 65 6E 67 69 6E 65 2F ces/2003/engine/
32 22 20 78 6D 6C 6E 73 3A 64 64 6C 32 5F 32 3D 2" xmlns:ddl2_2=
22 68 74 74 70 3A 2F 2F 73 63 68 65 6D 61 73 2E "http://schemas.
6D 69 63 72 6F 73 6F 66 74 2E 63 6F 6D 2F 61 6E microsoft.com/an
61 6C 79 73 69 73 73 65 72 76 69 63 65 73 2F 32 alysisservices/2
30 30 33 2F 65 6E 67 69 6E 65 2F 32 2F 32 22 20 003/engine/2/2"
78 6D 6C 6E 73 3A 64 64 6C 31 30 30 3D 22 68 74 xmlns:ddl100="ht
74 70 3A 2F 2F 73 63 68 65 6D 61 73 2E 6D 69 63 tp://schemas.mic
72 6F 73 6F 66 74 2E 63 6F 6D 2F 61 6E 61 6C 79 rosoft.com/analy
73 69 73 73 65 72 76 69 63 65 73 2F 32 30 30 38 sisservices/2008
2F 65 6E 67 69 6E 65 2F 31 30 30 22 20 78 6D 6C /engine/100" xml
6E 73 3A 64 64 6C 31 30 30 5F 31 30 30 3D 22 68 ns:ddl100_100="h
74 74 70 3A 2F 2F 73 63 68 65 6D 61 73 2E 6D 69 tt://schemas.mi
63 72 6F 73 6F 66 74 2E 63 6F 6D 2F 61 6E 61 6C crosoft.com/anal
79 73 69 73 73 65 72 76 69 69 63 65 73 2F 32 30 30 ysiservices/200
38 2F 65 6E 67 69 6E 65 2F 31 30 30 2F 31 30 30 8/engine/100/100
22 3E 3C 72 65 74 75 72 6E 3E 3C 72 6F 6F 74 20 "><return><root
78 6D 6C 6E 73 3D 22 75 72 6E 3A 73 63 68 65 6D xmlns="urn:schem
61 73 2D 6D 69 63 72 6F 73 6F 66 74 2D 63 6F 6D as-microsoft-com
3A 78 6D 6C 2D 61 6E 61 6C 79 73 69 73 3A 72 6F :xml-analysis:ro
77 73 65 74 22 20 78 6D 6C 6E 73 3A 78 73 69 3D wset" xmlns:xsi=
22 68 74 74 70 3A 2F 2F 77 77 77 2E 77 33 2E 6F "http://www.w3.o
72 67 2F 32 30 30 31 2F 58 4D 4C 53 63 68 65 6D rg/2001/XMLSchema
61 2D 69 6E 73 74 61 6E 63 65 22 20 78 6D 6C 6E a-instance" xmln
73 3A 78 73 64 3D 22 68 74 74 70 3A 2F 2F 77 77 s:xsd="http://ww
77 2E 77 33 2E 6F 72 67 2F 32 30 30 31 2F 58 4D w.w3.org/2001/XM
4C 53 63 68 65 6D 61 22 3E 3C 72 6F 77 3E 3C 43 LSchema"><row><C
41 54 41 4C 4F 47 5F 4E 41 4D 45 3E 44 44 4C 54 ATALOG_NAME>DDLIT
65 73 74 44 42 3C 2F 43 41 54 41 4C 4F 47 5F 4E estDB</CATALOG_N
41 4D 45 3E 3C 44 45 53 43 52 49 50 54 49 4F 4E AME><DESCRIPTION
3E 4D 69 63 72 6F 73 6F 66 74 20 53 61 6D 70 6C >Microsoft Sampl
65 20 44 61 74 61 62 61 73 65 3C 2F 44 45 53 43 e Database</DESC
52 49 50 54 49 4F 4E 3E 3C 52 4F 4C 45 53 3E 2A RIPTION><ROLES>*
2C 72 61 2C 72 62 3C 2F 52 4F 4C 45 53 3E 3C 44 ,ra,rb</ROLES><D
41 54 45 5F 4D 4F 44 49 46 49 45 44 3E 32 30 30 ATE_MODIFIED>200
38 2D 30 32 2D 30 38 54 30 32 3A 34 37 3A 35 34 8-02-08T02:47:54
3C 2F 44 41 54 45 5F 4D 4F 44 49 46 49 45 44 3E </DATE_MODIFIED>
3C 2F 72 6F 77 3E 3C 2F 72 6F 6F 74 3E 3C 2F 72 </row></root></r
65 74 75 72 6E 3E 3C 2F 44 69 73 63 6F 76 65 72 eturn></Discover
52 65 73 70 6F 6E 73 65 3E 3C 2F 73 6F 61 70 3A Response></soap:
```

```

42 6F 64 79 3E 3C 2F 73 6F 61 70 3A 45 6E 76 65 Body></soap:Enve
6C 6F 70 65 3E CC CC CC .. .. .. .. .. .. .. .. .. .. lope>???
```

Highlighted is the DIME header and the padding required for the 4 byte alignment:

- VERSION: 1
- MB: 1
- ME: 1
- CF: 0
- TYPE_T: 1
- RESERVED: 0
- OPTIONS_LENGTH: 4
- ID_LENGTH: 0
- TYPE_LENGTH: 8
- DATA_LENGTH: 861
- OPTIONS:
- NEGO: 0
- REQ_SX: 0
- REQ_XPRESS: 0
- RESP_SX: 0
- RESP_XPRESS: 0
- RESERVED: 0
- TYPE: text/xml

4.1.5 End of Session

The client sends a request to end this session:

```

0E 10 00 04 00 00 00 08 00 00 02 54 01 00 00 00 .....T....
74 65 78 74 2F 78 6D 6C EF BB BF 3C 45 6E 76 65 text/xml??<Enve
6C 6F 70 65 20 78 6D 6C 6E 73 3D 22 68 74 74 70 lope xmlns="http
3A 2F 2F 73 63 68 65 6D 61 73 2E 78 6D 6C 73 6F ://schemas.xmlso
61 70 2E 6F 72 67 2F 73 6F 61 70 2F 65 6E 76 65 ap.org/soap/enve
6C 6F 70 65 2F 22 3E 0D 0A 20 20 3C 48 65 61 64 lope/>.. <Head
65 72 3E 0D 0A 20 20 20 20 3C 45 6E 64 53 65 73 er>.. <EndSes
73 69 6F 6E 20 73 6F 61 70 3A 6D 75 73 74 55 6E sion soap:mustUn
64 65 72 73 74 61 6E 64 3D 22 31 22 20 53 65 73 derstand="1" Ses
73 69 6F 6E 49 64 3D 22 46 39 44 37 44 42 37 30 sionId="F9D7DB70
2D 32 42 45 32 2D 34 43 35 32 2D 38 46 46 44 2D -2BE2-4C52-8FFD-
```

31 31 33 44	39 44 31 46	39 44 32 34	22 20 78 6D	113D9D1F9D24" xm
6C 6E 73 3A	73 6F 61 70	3D 22 68 74	74 70 3A 2F	lns:soap="http:/
2F 73 63 68	65 6D 61 73	2E 78 6D 6C	73 6F 61 70	/schemas.xmlsoap
2E 6F 72 67	2F 73 6F 61	70 2F 65 6E	76 65 6C 6F	.org/soap/envelo
70 65 2F 22	20 78 6D 6C	6E 73 3D 22	75 72 6E 3A	pe/" xmlns="urn:
73 63 68 65	6D 61 73 2D	6D 69 63 72	6F 73 6F 66	schemas-microsof
74 2D 63 6F	6D 3A 78 6D	6C 2D 61 6E	61 6C 79 73	t-com:xml-analys
69 73 22 20	2F 3E 0D 0A	20 20 3C 2F	48 65 61 64	is" />.. </Head
65 72 3E 0D	0A 20 20 3C	42 6F 64 79	3E 0D 0A 20	er>.. <Body>..
20 20 20 3C	45 78 65 63	75 74 65 20	78 6D 6C 6E	<Execute xmln
73 3D 22 75	72 6E 3A 73	63 68 65 6D	61 73 2D 6D	s="urn:schemas-m
69 63 72 6F	73 6F 66 74	2D 63 6F 6D	3A 78 6D 6C	icrosoft-com:xml
2D 61 6E 61	6C 79 73 69	73 22 3E 0D	0A 20 20 20	-analysis">..
20 20 20 3C	43 6F 6D 6D	61 6E 64 3E	0D 0A 20 20	<Command>..
20 20 20 20	20 20 3C 53	74 61 74 65	6D 65 6E 74	<Statement
20 2F 3E 0D	0A 20 20 20	20 20 20 3C	2F 43 6F 6D	/>.. </Com
6D 61 6E 64	3E 0D 0A 20	20 20 20 20	20 3C 50 72	mand>.. <Pr
6F 70 65 72	74 69 65 73	3E 0D 0A 20	20 20 20 20	operties>..
20 20 20 3C	50 72 6F 70	65 72 74 79	4C 69 73 74	<PropertyList
3E 0D 0A 20	20 20 20 20	20 20 20 20	20 3C 4C 6F	>.. <Lo
63 61 6C 65	49 64 65 6E	74 69 66 69	65 72 3E 31	caleIdentifier>1
30 33 33 3C	2F 4C 6F 63	61 6C 65 49	64 65 6E 74	033</LocaleIdent
69 66 69 65	72 3E 0D 0A	20 20 20 20	20 20 20 20	ifier>..
3C 2F 50 72	6F 70 65 72	74 79 4C 69	73 74 3E 0D	</PropertyList>.
0A 20 20 20	20 20 20 3C	2F 50 72 6F	70 65 72 74	. </Propert
69 65 73 3E	0D 0A 20 20	20 20 3C 2F	45 78 65 63	ies>.. </Exec
75 74 65 3E	0D 0A 20 20	3C 2F 42 6F	64 79 3E 0D	ute>.. </Body>.
0A 3C 2F 45	6E 76 65 6C	6F 70 65 3E</Envelope>

Highlighted is the DIME header:

- VERSION: 1
- MB: 1
- ME: 1
- CF: 0
- TYPE_T: 1
- RESERVED: 0
- OPTIONS_LENGTH: 4
- ID_LENGTH: 0
- TYPE_LENGTH: 8
- DATA_LENGTH: 596
- OPTIONS:
- NEGO: 1
- REQ_SX: 0
- REQ_XPRESS: 0

- RESP_SX: 0
- RESP_XPRESS: 0
- RESERVED: 0
- TYPE: text/xml

The server responds with a confirmation:

<pre> 0E 10 00 04 00 00 00 08 00 00 01 0C 00 00 00 00 74 65 78 74 2F 78 6D 6C 3C 73 6F 61 70 3A 45 6E 76 65 6C 6F 70 65 20 78 6D 6C 6E 73 3A 73 6F 61 70 3D 22 68 74 74 70 3A 2F 2F 73 63 68 65 6D 61 73 2E 78 6D 6C 73 6F 61 70 2E 6F 72 67 2F 73 6F 61 70 2F 65 6E 76 65 6C 6F 70 65 2F 22 3E 3C 73 6F 61 70 3A 42 6F 64 79 3E 3C 45 78 65 63 75 74 65 52 65 73 70 6F 6E 73 65 20 78 6D 6C 6E 73 3D 22 75 72 6E 3A 73 63 68 65 6D 61 73 2D 6D 69 63 72 6F 73 6F 66 74 2D 63 6F 6D 3A 78 6D 6C 2D 61 6E 61 6C 79 73 69 73 22 3E 3C 72 65 74 75 72 6E 3E 3C 72 6F 6F 74 20 78 6D 6C 6E 73 3D 22 75 72 6E 3A 73 63 68 65 6D 61 73 2D 6D 69 63 72 6F 73 6F 66 74 2D 63 6F 6D 3A 78 6D 6C 2D 61 6E 61 6C 79 73 69 73 3A 65 6D 70 74 79 22 2F 3E 3C 2F 72 65 74 75 72 6E 3E 3C 2F 45 78 65 63 75 74 65 52 65 73 70 6F 6E 73 65 3E 3C 2F 73 6F 61 70 3A 42 6F 64 79 3E 3C 2F 73 6F 61 70 3A 45 6E 76 65 6C 6F 70 65 3E </pre>	<pre> text/xml<soap:En velope xmlns:soa p="http://schema s.xmlsoap.org/so ap/envelope/"><s oap:Body><Execut eResponse xmlns= "urn:schemas-mic rosoft-com:xml-a nalysis"><return ><root xmlns="ur n:schemas-micros oft-com:xml-anal ysis:empty"/></r eturn></ExecuteR esponse></soap:B ody></soap:Envel ope> </pre>
--	--

Highlighted is the DIME header:

- VERSION: 1
- MB: 1
- ME: 1
- CF: 0
- TYPE_T: 1
- RESERVED: 0
- OPTIONS_LENGTH: 4
- ID_LENGTH: 0
- TYPE_LENGTH: 8
- DATA_LENGTH: 268
- OPTIONS:
- NEGO: 0
- REQ_SX: 0

- REQ_XPRESS: 0
- RESP_SX: 0
- RESP_XPRESS: 0
- RESERVED: 0
- TYPE: text/xml

The client disconnects from the server.

4.2 Client Obtains a List of Cubes from the Server over HTTP

In this example, the client creates an unauthenticated connection to the server using HTTP and sends a MDSHEMA_CUBES request.

4.2.1 Connection

The server listens on a TCP port for incoming HTTP requests from clients. The client creates a new TCP connection to the server.

4.2.2 New Session Request

The client sends an HTTP header with the request to create new session:

```
POST /as/msmdpump.dll HTTP/1.1
User-Agent: XmlaClient
Content-Type: text/xml
SOAPAction: "urn:schemas-microsoft-com:xml-analysis:Execute"
X-Transport-Caps-Negotiation-Flags: 0,0,0,0,1
Host: testserver:2390
Content-Length: 647
Expect: 100-continue
Connection: Keep-Alive
```

The server responds with a confirmation:

```
HTTP/1.1 100 Continue
```

The client sends the payload part of the request:

```
<Envelope xmlns="http://schemas.xmlsoap.org/soap/envelope/">
  <Header>
    <BeginSession soap:mustUnderstand="1"
xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns="urn:schemas-microsoft-com:xml-
analysis" />
  </Header>
  <Body>
    <Execute xmlns="urn:schemas-microsoft-com:xml-analysis">
      <Command>
        <Statement />
      </Command>
    </Execute>
  </Body>
</Envelope>
```

```

    </Command>
  <Properties>
    <PropertyList>
      <LocaleIdentifier>1033</LocaleIdentifier>
    </PropertyList>
  </Properties>
</Execute>
</Body>
</Envelope>

```

The server responds with the newly-created session ID:

```

HTTP/1.1 200 OK
Date: Sat, 16 Feb 2008 00:30:34 GMT
Server: Microsoft-IIS/6.0
X-Powered-By: ASP.NET
Transfer-Encoding: chunked
X-Transport-Caps-Negotiation-Flags: 0,0,0,0,0
Content-Type: text/xml
191
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Header><Session xmlns="urn:schemas-microsoft-com:xml-analysis" SessionId="537C61C6-
827C-4305-83A6-C8CE4A91001B"/>
  </soap:Header>
  <soap:Body>
    <ExecuteResponse xmlns="urn:schemas-microsoft-com:xml-analysis">
      <return>
        <root xmlns="urn:schemas-microsoft-com:xml-analysis:empty"/>
      </return>
    </ExecuteResponse>
  </soap:Body>
</soap:Envelope>
0

```

4.2.3 Request for List of Cubes

The client sends a header for a MDSCHEMA_CUBES request:

```

POST /as/msmdpump.dll HTTP/1.1
User-Agent: XmlaClient
Content-Type: text/xml
SOAPAction: "urn:schemas-microsoft-com:xml-analysis:Discover"
X-Transport-Caps-Negotiation-Flags: 1,0,0,0,0
Host: testserver:2390
Content-Length: 571
Expect: 100-continue

```

The server responds with a confirmation:

```

HTTP/1.1 100 Continue

```

The client sends the payload portion of the request:

```
<Envelope xmlns="http://schemas.xmlsoap.org/soap/envelope/">
  <Header>
    <XA:Session soap:mustUnderstand="1" SessionId="537C61C6-827C-4305-83A6-C8CE4A91001B"
xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:XA="urn:schemas-microsoft-
com:xml-analysis" />
  </Header>
  <Body>
    <Discover xmlns="urn:schemas-microsoft-com:xml-analysis">
      <RequestType>MDSHEMA_CUBES</RequestType>
      <Restrictions></Restrictions>
      <Properties><PropertyList><Content>Data</Content></PropertyList></Properties>
    </Discover>
  </Body>
</Envelope>
```

The server responds with an empty list of cubes:

```
HTTP/1.1 200 OK
Date: Sat, 16 Feb 2008 00:30:34 GMT
Server: Microsoft-IIS/6.0
X-Powered-By: ASP.NET
Transfer-Encoding: chunked
X-Transport-Caps-Negotiation-Flags: 0,0,0,0,0
Content-Type: text/xml
208
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <DiscoverResponse xmlns="urn:schemas-microsoft-com:xml-analysis"
xmlns:ddl2="http://schemas.microsoft.com/analysiservices/2003/engine/2"
xmlns:ddl2_2="http://schemas.microsoft.com/analysiservices/2003/engine/2/2">
      <return>
        <root xmlns="urn:schemas-microsoft-com:xml-analysis:rowset"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"/>
      </return>
    </DiscoverResponse>
  </soap:Body>
</soap:Envelope>
0
```

4.2.4 End of Session

The client sends a header of the request to end this session:

```
POST /as/msmdpump.dll HTTP/1.1
User-Agent: XmlaClient
Content-Type: text/xml
SOAPAction: "urn:schemas-microsoft-com:xml-analysis:Execute"
X-Transport-Caps-Negotiation-Flags: 1,0,0,0,0
Host: testserver:2390
Content-Length: 596
```


Expect: 100-continue

The server responds with a confirmation:

```
HTTP/1.1 100 Continue
```

The client sends the payload portion of the request:

```
<Envelope xmlns="http://schemas.xmlsoap.org/soap/envelope/">
  <Header>
    <EndSession soap:mustUnderstand="1" SessionId="537C61C6-827C-4305-83A6-C8CE4A91001B"
xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns="urn:schemas-microsoft-com:xml-
analysis" />
  </Header>
  <Body>
    <Execute xmlns="urn:schemas-microsoft-com:xml-analysis">
      <Command>
        <Statement />
      </Command>
      <Properties>
        <PropertyList>
          <LocaleIdentifier>1033</LocaleIdentifier>
        </PropertyList>
      </Properties>
    </Execute>
  </Body>
</Envelope>
```

The server responds with a confirmation:

```
HTTP/1.1 200 OK
Date: Sat, 16 Feb 2008 00:30:35 GMT
Server: Microsoft-IIS/6.0
X-Powered-By: ASP.NET
Transfer-Encoding: chunked
X-Transport-Caps-Negotiation-Flags: 0,0,0,0,0
Content-Type: text/xml
10c
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <ExecuteResponse xmlns="urn:schemas-microsoft-com:xml-analysis">
      <return>
        <root xmlns="urn:schemas-microsoft-com:xml-analysis:empty"/>
      </return>
    </ExecuteResponse>
  </soap:Body>
</soap:Envelope>
0
```

The client closes the connection.

4.3 Client Obtains a List of Measures from the Server

In this example, the client sends a MDSHEMA_MEASURES request.

4.3.1 Client Sends Request

The client sends the following discover request:

```
<Envelope xmlns="http://schemas.xmlsoap.org/soap/envelope/">
  <Header>
    <XA:Session soap:mustUnderstand="1" SessionId="24AD6CD1-2341-4BCE-AC06-740B5AA88CA2"
xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:XA="urn:schemas-microsoft-
com:xml-analysis" />
  </Header>
  <Body>
    <Discover xmlns="urn:schemas-microsoft-com:xml-analysis">
      <RequestType>MDSHEMA_MEASURES</RequestType>
      <Restrictions></Restrictions>
      <Properties><PropertyList><Content>Data</Content></PropertyList></Properties>
    </Discover>
  </Body>
</Envelope>
```

4.3.2 Server Response

The server responds with a list of measures:

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <DiscoverResponse xmlns="urn:schemas-microsoft-com:xml-analysis"
xmlns:ddl2="http://schemas.microsoft.com/analysiservices/2003/engine/2"
xmlns:ddl2_2="http://schemas.microsoft.com/analysiservices/2003/engine/2/2"
xmlns:ddl100="http://schemas.microsoft.com/analysiservices/2008/engine/100"
xmlns:ddl100_100="http://schemas.microsoft.com/analysiservices/2008/engine/100/100">
      <return>
        <root xmlns="urn:schemas-microsoft-com:xml-analysis:rowset"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
          <row>
            <CATALOG_NAME>AdventureWorks_SSAS</CATALOG_NAME>
            <CUBE_NAME>AdventureWorksDW2008Cube</CUBE_NAME>
            <MEASURE_NAME>Order Quantity</MEASURE_NAME>
            <MEASURE_UNIQUE_NAME>[Measures].[Order Quantity]</MEASURE_UNIQUE_NAME>
            <MEASURE_CAPTION>Order Quantity</MEASURE_CAPTION>
            <MEASURE_AGGREGATOR>1</MEASURE_AGGREGATOR>
            <DATA_TYPE>3</DATA_TYPE>
            <NUMERIC_PRECISION>10</NUMERIC_PRECISION>
            <NUMERIC_SCALE>-1</NUMERIC_SCALE>
            <DESCRIPTION />
            <MEASURE_IS_VISIBLE>true</MEASURE_IS_VISIBLE>
            <MEASURE_NAME_SQL_COLUMN_NAME>Order Quantity</MEASURE_NAME_SQL_COLUMN_NAME>
            <MEASURE_UNQUALIFIED_CAPTION>Order Quantity</MEASURE_UNQUALIFIED_CAPTION>
            <MEASUREGROUP_NAME>Fact Internet Sales</MEASUREGROUP_NAME>
            <MEASURE_DISPLAY_FOLDER />
            <DEFAULT_FORMAT_STRING />
          </row>
        </root>
      </return>
    </DiscoverResponse>
  </soap:Body>
</soap:Envelope>
```

```

</row>
<row>
  <CATALOG_NAME>AdventureWorks_SSAS</CATALOG_NAME>
  <CUBE_NAME>AdventureWorksDW2008Cube</CUBE_NAME>
  <MEASURE_NAME>Sales Amount</MEASURE_NAME>
  <MEASURE_UNIQUE_NAME>[Measures].[Sales Amount]</MEASURE_UNIQUE_NAME>
  <MEASURE_CAPTION>Sales Amount</MEASURE_CAPTION>
  <MEASURE_AGGREGATOR>1</MEASURE_AGGREGATOR>
  <DATA_TYPE>5</DATA_TYPE>
  <NUMERIC_PRECISION>16</NUMERIC_PRECISION>
  <NUMERIC_SCALE>-1</NUMERIC_SCALE>
  <DESCRIPTION />
  <MEASURE_IS_VISIBLE>true</MEASURE_IS_VISIBLE>
  <MEASURE_NAME_SQL_COLUMN_NAME>Sales Amount</MEASURE_NAME_SQL_COLUMN_NAME>
  <MEASURE_UNQUALIFIED_CAPTION>Sales Amount</MEASURE_UNQUALIFIED_CAPTION>
  <MEASUREGROUP_NAME>Fact Internet Sales</MEASUREGROUP_NAME>
  <MEASURE_DISPLAY_FOLDER />
  <DEFAULT_FORMAT_STRING />
</row>
<row>
  <CATALOG_NAME>AdventureWorks_SSAS</CATALOG_NAME>
  <CUBE_NAME>AdventureWorksDW2008Cube</CUBE_NAME>
  <MEASURE_NAME>Tax Amt</MEASURE_NAME>
  <MEASURE_UNIQUE_NAME>[Measures].[Tax Amt]</MEASURE_UNIQUE_NAME>
  <MEASURE_CAPTION>Tax Amt</MEASURE_CAPTION>
  <MEASURE_AGGREGATOR>1</MEASURE_AGGREGATOR>
  <DATA_TYPE>5</DATA_TYPE>
  <NUMERIC_PRECISION>16</NUMERIC_PRECISION>
  <NUMERIC_SCALE>-1</NUMERIC_SCALE>
  <DESCRIPTION />
  <MEASURE_IS_VISIBLE>true</MEASURE_IS_VISIBLE>
  <MEASURE_NAME_SQL_COLUMN_NAME>Tax Amt</MEASURE_NAME_SQL_COLUMN_NAME>
  <MEASURE_UNQUALIFIED_CAPTION>Tax Amt</MEASURE_UNQUALIFIED_CAPTION>
  <MEASUREGROUP_NAME>Fact Internet Sales</MEASUREGROUP_NAME>
  <MEASURE_DISPLAY_FOLDER />
  <DEFAULT_FORMAT_STRING />
</row>
<row>
  <CATALOG_NAME>AdventureWorks_SSAS</CATALOG_NAME>
  <CUBE_NAME>AdventureWorksDW2008Cube</CUBE_NAME>
  <MEASURE_NAME>Fact Internet Sales Count</MEASURE_NAME>
  <MEASURE_UNIQUE_NAME>[Measures].[Fact Internet Sales Count]</MEASURE_UNIQUE_NAME>
  <MEASURE_CAPTION>Fact Internet Sales Count</MEASURE_CAPTION>
  <MEASURE_AGGREGATOR>2</MEASURE_AGGREGATOR>
  <DATA_TYPE>3</DATA_TYPE>
  <NUMERIC_PRECISION>10</NUMERIC_PRECISION>
  <NUMERIC_SCALE>-1</NUMERIC_SCALE>
  <DESCRIPTION />
  <MEASURE_IS_VISIBLE>true</MEASURE_IS_VISIBLE>
  <MEASURE_NAME_SQL_COLUMN_NAME>Fact Internet Sales
Count</MEASURE_NAME_SQL_COLUMN_NAME>
  <MEASURE_UNQUALIFIED_CAPTION>Fact Internet Sales
Count</MEASURE_UNQUALIFIED_CAPTION>
  <MEASUREGROUP_NAME>Fact Internet Sales</MEASUREGROUP_NAME>
  <MEASURE_DISPLAY_FOLDER />
  <DEFAULT_FORMAT_STRING />
</row>
<row>
  <CATALOG_NAME>AdventureWorks_SSAS</CATALOG_NAME>

```

```

    <CUBE_NAME>AdventureWorksDW2008Cube</CUBE_NAME>
    <MEASURE_NAME>Total Amount</MEASURE_NAME>
    <MEASURE_UNIQUE_NAME>[Measures].[Total Amount]</MEASURE_UNIQUE_NAME>
    <MEASURE_CAPTION>Total Amount</MEASURE_CAPTION>
    <MEASURE_AGGREGATOR>1</MEASURE_AGGREGATOR>
    <DATA_TYPE>5</DATA_TYPE>
    <NUMERIC_PRECISION>16</NUMERIC_PRECISION>
    <NUMERIC_SCALE>-1</NUMERIC_SCALE>
    <DESCRIPTION />
    <MEASURE_IS_VISIBLE>true</MEASURE_IS_VISIBLE>
    <MEASURE_NAME_SQL_COLUMN_NAME>Total Amount</MEASURE_NAME_SQL_COLUMN_NAME>
    <MEASURE_UNQUALIFIED_CAPTION>Total Amount</MEASURE_UNQUALIFIED_CAPTION>
    <MEASUREGROUP_NAME>Fact Internet Sales</MEASUREGROUP_NAME>
    <MEASURE_DISPLAY_FOLDER />
    <DEFAULT_FORMAT_STRING />
  </row>
</root>
</return>
</DiscoverResponse>
</soap:Body>
</soap:Envelope>

```

4.4 Client Obtains a List of Properties from the Server

In this example, the client sends a DISCOVER_PROPERTIES request.

4.4.1 Client Sends Request

The client sends the following request:

```

<Envelope xmlns="http://schemas.xmlsoap.org/soap/envelope/">
  <Header>
    <XA:Session soap:mustUnderstand="1" SessionId="24AD6CD1-2341-4BCE-AC06-740B5AA88CA2"
    xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:XA="urn:schemas-microsoft-
    com:xml-analysis" />
  </Header>
  <Body>
    <Discover xmlns="urn:schemas-microsoft-com:xml-analysis">
      <RequestType>DISCOVER_PROPERTIES</RequestType>
      <Restrictions></Restrictions>
      <Properties><PropertyList><Content>Data</Content></PropertyList></Properties>
    </Discover>
  </Body>
</Envelope>

```

4.4.2 Server Response

The server responds with a list of properties:

```

<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <DiscoverResponse xmlns="urn:schemas-microsoft-com:xml-analysis"
    xmlns:ddl2="http://schemas.microsoft.com/analysis/services/2003/engine/2"

```

```

xmlns:ddl2_2="http://schemas.microsoft.com/analysiservices/2003/engine/2/2"
xmlns:ddl100="http://schemas.microsoft.com/analysiservices/2008/engine/100"
xmlns:ddl100_100="http://schemas.microsoft.com/analysiservices/2008/engine/100/100">
  <return>
    <root xmlns="urn:schemas-microsoft-com:xml-analysis:rowset"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
      <row>
        <PropertyName>Catalog</PropertyName>
        <PropertyDescription>Catalog</PropertyDescription>
        <PropertyType>string</PropertyType>
        <PropertyAccessType>ReadWrite</PropertyAccessType>
        <IsRequired>false</IsRequired>
        <Value>AdventureWorks_SSAS</Value>
      </row>
      <row>
        <PropertyName>Timeout</PropertyName>
        <PropertyDescription>Timeout</PropertyDescription>
        <PropertyType>int</PropertyType>
        <PropertyAccessType>ReadWrite</PropertyAccessType>
        <IsRequired>false</IsRequired>
      </row>
      <row>
        <PropertyName>Content</PropertyName>
        <PropertyDescription>Content</PropertyDescription>
        <PropertyType>string</PropertyType>
        <PropertyAccessType>Write</PropertyAccessType>
        <IsRequired>false</IsRequired>
        <Value>SchemaData</Value>
      </row>
      <row>
        <PropertyName>Format</PropertyName>
        <PropertyDescription>Format</PropertyDescription>
        <PropertyType>string</PropertyType>
        <PropertyAccessType>Write</PropertyAccessType>
        <IsRequired>false</IsRequired>
        <Value>Native</Value>
      </row>
      <row>
        <PropertyName>AxisFormat</PropertyName>
        <PropertyDescription>AxisFormat</PropertyDescription>
        <PropertyType>string</PropertyType>
        <PropertyAccessType>Write</PropertyAccessType>
        <IsRequired>false</IsRequired>
        <Value>TupleFormat</Value>
      </row>
      <row>
        <PropertyName>BeginRange</PropertyName>
        <PropertyDescription>BeginRange</PropertyDescription>
        <PropertyType>int</PropertyType>
        <PropertyAccessType>Write</PropertyAccessType>
        <IsRequired>false</IsRequired>
        <Value>-1</Value>
      </row>
      <row>
        <PropertyName>EndRange</PropertyName>
        <PropertyDescription>EndRange</PropertyDescription>
        <PropertyType>int</PropertyType>
        <PropertyAccessType>Write</PropertyAccessType>
        <IsRequired>false</IsRequired>

```

```

    <Value>-1</Value>
</row>
<row>
  <PropertyName>ShowHiddenCubes</PropertyName>
  <PropertyDescription>ShowHiddenCubes</PropertyDescription>
  <PropertyType>boolean</PropertyType>
  <PropertyAccessType>ReadWrite</PropertyAccessType>
  <IsRequired>>false</IsRequired>
  <Value>>false</Value>
</row>
<row>
  <PropertyName>MaximumRows</PropertyName>
  <PropertyDescription>MaximumRows</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>Write</PropertyAccessType>
  <IsRequired>>false</IsRequired>
</row>
<row>
  <PropertyName>VisualMode</PropertyName>
  <PropertyDescription>VisualMode</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>Write</PropertyAccessType>
  <IsRequired>>false</IsRequired>
  <Value>0</Value>
</row>
<row>
  <PropertyName>DbpropMsmcCachePolicy</PropertyName>
  <PropertyDescription>DbpropMsmcCachePolicy</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>ReadWrite</PropertyAccessType>
  <IsRequired>>false</IsRequired>
</row>
<row>
  <PropertyName>DbpropMsmcCacheRatio</PropertyName>
  <PropertyDescription>DbpropMsmcCacheRatio</PropertyDescription>
  <PropertyType>double</PropertyType>
  <PropertyAccessType>ReadWrite</PropertyAccessType>
  <IsRequired>>false</IsRequired>
</row>
<row>
  <PropertyName>DbpropMsmcCacheMode</PropertyName>
  <PropertyDescription>DbpropMsmcCacheMode</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>ReadWrite</PropertyAccessType>
  <IsRequired>>false</IsRequired>
</row>
<row>
  <PropertyName>DbpropMsmcFlattened2</PropertyName>
  <PropertyDescription>DbpropMsmcFlattened2</PropertyDescription>
  <PropertyType>boolean</PropertyType>
  <PropertyAccessType>ReadWrite</PropertyAccessType>
  <IsRequired>>false</IsRequired>
  <Value>>false</Value>
</row>
<row>
  <PropertyName>DbpropInitMode</PropertyName>
  <PropertyDescription>DbpropInitMode</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>ReadWrite</PropertyAccessType>

```

```

    <IsRequired>false</IsRequired>
</row>
<row>
  <PropertyName>SspropInitAppName</PropertyName>
  <PropertyDescription>SspropInitAppName</PropertyDescription>
  <PropertyType>string</PropertyType>
  <PropertyAccessType>ReadWrite</PropertyAccessType>
  <IsRequired>false</IsRequired>
</row>
<row>
  <PropertyName>SecuredCellValue</PropertyName>
  <PropertyDescription>SecuredCellValue</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>ReadWrite</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>0</Value>
</row>
<row>
  <PropertyName>NonEmptyThreshold</PropertyName>
  <PropertyDescription>NonEmptyThreshold</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>ReadWrite</PropertyAccessType>
  <IsRequired>false</IsRequired>
</row>
<row>
  <PropertyName>SafetyOptions</PropertyName>
  <PropertyDescription>SafetyOptions</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>ReadWrite</PropertyAccessType>
  <IsRequired>false</IsRequired>
</row>
<row>
  <PropertyName>DbpropMsmCacheRatio2</PropertyName>
  <PropertyDescription>DbpropMsmCacheRatio2</PropertyDescription>
  <PropertyType>double</PropertyType>
  <PropertyAccessType>ReadWrite</PropertyAccessType>
  <IsRequired>false</IsRequired>
</row>
<row>
  <PropertyName>DbpropMsmUseFormulaCache</PropertyName>
  <PropertyDescription>DbpropMsmUseFormulaCache</PropertyDescription>
  <PropertyType>string</PropertyType>
  <PropertyAccessType>ReadWrite</PropertyAccessType>
  <IsRequired>false</IsRequired>
</row>
<row>
  <PropertyName>DbpropMsmDynamicDebugLimit</PropertyName>
  <PropertyDescription>DbpropMsmDynamicDebugLimit</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>ReadWrite</PropertyAccessType>
  <IsRequired>false</IsRequired>
</row>
<row>
  <PropertyName>DbpropMsmDebugMode</PropertyName>
  <PropertyDescription>DbpropMsmDebugMode</PropertyDescription>
  <PropertyType>string</PropertyType>
  <PropertyAccessType>ReadWrite</PropertyAccessType>
  <IsRequired>false</IsRequired>
</row>

```

```

<row>
  <PropertyName>Dialect</PropertyName>
  <PropertyDescription>Dialect</PropertyDescription>
  <PropertyType>string</PropertyType>
  <PropertyAccessType>ReadWrite</PropertyAccessType>
  <IsRequired>false</IsRequired>
</row>
<row>
  <PropertyName>ImpactAnalysis</PropertyName>
  <PropertyDescription>ImpactAnalysis</PropertyDescription>
  <PropertyType>boolean</PropertyType>
  <PropertyAccessType>Write</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>0</Value>
</row>
<row>
  <PropertyName>SQLQueryMode</PropertyName>
  <PropertyDescription>SQLQueryMode</PropertyDescription>
  <PropertyType>string</PropertyType>
  <PropertyAccessType>ReadWrite</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>Calculated</Value>
</row>
<row>
  <PropertyName>ClientProcessID</PropertyName>
  <PropertyDescription>ClientProcessID</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>ReadWrite</PropertyAccessType>
  <IsRequired>false</IsRequired>
</row>
<row>
  <PropertyName>Cube</PropertyName>
  <PropertyDescription>Cube</PropertyDescription>
  <PropertyType>string</PropertyType>
  <PropertyAccessType>Write</PropertyAccessType>
  <IsRequired>false</IsRequired>
</row>
<row>
  <PropertyName>ReturnCellProperties</PropertyName>
  <PropertyDescription>ReturnCellProperties</PropertyDescription>
  <PropertyType>boolean</PropertyType>
  <PropertyAccessType>ReadWrite</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>>false</Value>
</row>
<row>
  <PropertyName>CommitTimeout</PropertyName>
  <PropertyDescription>CommitTimeout</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>Write</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>0</Value>
</row>
<row>
  <PropertyName>ForceCommitTimeout</PropertyName>
  <PropertyDescription>ForceCommitTimeout</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>Write</PropertyAccessType>
  <IsRequired>false</IsRequired>

```



```

    <Value>0</Value>
</row>
<row>
  <PropertyName>ExecutionMode</PropertyName>
  <PropertyDescription>ExecutionMode</PropertyDescription>
  <PropertyType>string</PropertyType>
  <PropertyAccessType>Write</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>Execute</Value>
</row>
<row>
  <PropertyName>RealTimeOlap</PropertyName>
  <PropertyDescription>RealTimeOlap</PropertyDescription>
  <PropertyType>boolean</PropertyType>
  <PropertyAccessType>ReadWrite</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>>false</Value>
</row>
<row>
  <PropertyName>MdxMissingMemberMode</PropertyName>
  <PropertyDescription>MdxMissingMemberMode</PropertyDescription>
  <PropertyType>string</PropertyType>
  <PropertyAccessType>Write</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>Default</Value>
</row>
<row>
  <PropertyName>DisablePrefetchFacts</PropertyName>
  <PropertyDescription>DisablePrefetchFacts</PropertyDescription>
  <PropertyType>boolean</PropertyType>
  <PropertyAccessType>ReadWrite</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>>false</Value>
</row>
<row>
  <PropertyName>UpdateIsolationLevel</PropertyName>
  <PropertyDescription>UpdateIsolationLevel</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>ReadWrite</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>2</Value>
</row>
<row>
  <PropertyName>DataSourceInfo</PropertyName>
  <PropertyDescription>DataSourceInfo</PropertyDescription>
  <PropertyType>string</PropertyType>
  <PropertyAccessType>ReadWrite</PropertyAccessType>
  <IsRequired>true</IsRequired>
</row>
<row>
  <PropertyName>Password</PropertyName>
  <PropertyDescription>Password</PropertyDescription>
  <PropertyType>string</PropertyType>
  <PropertyAccessType>Write</PropertyAccessType>
  <IsRequired>false</IsRequired>
</row>
<row>
  <PropertyName>LocaleIdentifier</PropertyName>
  <PropertyDescription>LocaleIdentifier</PropertyDescription>

```

```

    <PropertyType>int</PropertyType>
    <PropertyAccessType>ReadWrite</PropertyAccessType>
    <IsRequired>false</IsRequired>
    <Value>1033</Value>
</row>
<row>
    <PropertyName>Roles</PropertyName>
    <PropertyDescription>Roles</PropertyDescription>
    <PropertyType>string</PropertyType>
    <PropertyAccessType>ReadWrite</PropertyAccessType>
    <IsRequired>false</IsRequired>
</row>
<row>
    <PropertyName>EffectiveRoles</PropertyName>
    <PropertyDescription>EffectiveRoles</PropertyDescription>
    <PropertyType>string</PropertyType>
    <PropertyAccessType>Write</PropertyAccessType>
    <IsRequired>false</IsRequired>
</row>
<row>
    <PropertyName>EffectiveUserName</PropertyName>
    <PropertyDescription>EffectiveUserName</PropertyDescription>
    <PropertyType>string</PropertyType>
    <PropertyAccessType>Write</PropertyAccessType>
    <IsRequired>false</IsRequired>
</row>
<row>
    <PropertyName>DbpropMsmdMDXCompatibility</PropertyName>
    <PropertyDescription>DbpropMsmdMDXCompatibility</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>ReadWrite</PropertyAccessType>
    <IsRequired>false</IsRequired>
    <Value>0</Value>
</row>
<row>
    <PropertyName>DbpropMsmdSQLCompatibility</PropertyName>
    <PropertyDescription>DbpropMsmdSQLCompatibility</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>ReadWrite</PropertyAccessType>
    <IsRequired>false</IsRequired>
    <Value>0</Value>
</row>
<row>
    <PropertyName>DbpropMsmdMDXUniqueNameStyle</PropertyName>
    <PropertyDescription>DbpropMsmdMDXUniqueNameStyle</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>ReadWrite</PropertyAccessType>
    <IsRequired>false</IsRequired>
    <Value>0</Value>
</row>
<row>
    <PropertyName>DbpropMsmdCompareCaseSensitiveStringFlags</PropertyName>
    <PropertyDescription>DbpropMsmdCompareCaseSensitiveStringFlags</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>ReadWrite</PropertyAccessType>
    <IsRequired>false</IsRequired>
</row>
<row>

```

```

    <PropertyName>DbpropMsmCompareCaseNotSensitiveStringFlags</PropertyName>
  <PropertyDescription>DbpropMsmCompareCaseNotSensitiveStringFlags</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>ReadWrite</PropertyAccessType>
    <IsRequired>>false</IsRequired>
  </row>
  <row>
    <PropertyName>SspropInitWsid</PropertyName>
    <PropertyDescription>SspropInitWsid</PropertyDescription>
    <PropertyType>string</PropertyType>
    <PropertyAccessType>ReadWrite</PropertyAccessType>
    <IsRequired>>false</IsRequired>
  </row>
  <row>
    <PropertyName>SspropInitPacketsize</PropertyName>
    <PropertyDescription>SspropInitPacketsize</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>ReadWrite</PropertyAccessType>
    <IsRequired>>false</IsRequired>
  </row>
  <row>
    <PropertyName>ReadOnlySession</PropertyName>
    <PropertyDescription>ReadOnlySession</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>ReadWrite</PropertyAccessType>
    <IsRequired>>false</IsRequired>
  </row>
  <row>
    <PropertyName>CustomData</PropertyName>
    <PropertyDescription>CustomData</PropertyDescription>
    <PropertyType>string</PropertyType>
    <PropertyAccessType>Write</PropertyAccessType>
    <IsRequired>>false</IsRequired>
    <Value />
  </row>
  <row>
    <PropertyName>DbpropMsmErrorMessageMode</PropertyName>
    <PropertyDescription>DbpropMsmErrorMessageMode</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>Write</PropertyAccessType>
    <IsRequired>>false</IsRequired>
  </row>
  <row>
    <PropertyName>DbpropMsmSubqueries</PropertyName>
    <PropertyDescription>DbpropMsmSubqueries</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>ReadWrite</PropertyAccessType>
    <IsRequired>>false</IsRequired>
    <Value>0</Value>
  </row>
  <row>
    <PropertyName>DbpropMsmAutoExists</PropertyName>
    <PropertyDescription>DbpropMsmAutoExists</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>ReadWrite</PropertyAccessType>
    <IsRequired>>false</IsRequired>
    <Value>0</Value>
  </row>

```

```

<row>
  <PropertyName>UserName</PropertyName>
  <PropertyDescription>UserName</PropertyDescription>
  <PropertyType>string</PropertyType>
  <PropertyAccessType>Read</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>NY-SQL-02\Student</Value>
</row>
<row>
  <PropertyName>StateSupport</PropertyName>
  <PropertyDescription>StateSupport</PropertyDescription>
  <PropertyType>string</PropertyType>
  <PropertyAccessType>Read</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>Sessions</Value>
</row>
<row>
  <PropertyName>MDXSupport</PropertyName>
  <PropertyDescription>MDXSupport</PropertyDescription>
  <PropertyType>string</PropertyType>
  <PropertyAccessType>Read</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>Core</Value>
</row>
<row>
  <PropertyName>ProviderName</PropertyName>
  <PropertyDescription>ProviderName</PropertyDescription>
  <PropertyType>string</PropertyType>
  <PropertyAccessType>Read</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>OLAP Server</Value>
</row>
<row>
  <PropertyName>ProviderVersion</PropertyName>
  <PropertyDescription>ProviderVersion</PropertyDescription>
  <PropertyType>string</PropertyType>
  <PropertyAccessType>Read</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>10.0.1600.22</Value>
</row>
<row>
  <PropertyName>DBMSVersion</PropertyName>
  <PropertyDescription>DBMSVersion</PropertyDescription>
  <PropertyType>string</PropertyType>
  <PropertyAccessType>Read</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>10.0.1600.22</Value>
</row>
<row>
  <PropertyName>ProviderType</PropertyName>
  <PropertyDescription>ProviderType</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>Read</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>6</Value>
</row>
<row>
  <PropertyName>SQLSupport</PropertyName>
  <PropertyDescription>SQLSupport</PropertyDescription>

```

```

    <PropertyType>int</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>false</IsRequired>
    <Value>512</Value>
</row>
<row>
    <PropertyName>TransactionDDL</PropertyName>
    <PropertyDescription>TransactionDDL</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>false</IsRequired>
    <Value>0</Value>
</row>
<row>
    <PropertyName>ServerName</PropertyName>
    <PropertyDescription>ServerName</PropertyDescription>
    <PropertyType>string</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>false</IsRequired>
    <Value>NY-SQL-02</Value>
</row>
<row>
    <PropertyName>CatalogLocation</PropertyName>
    <PropertyDescription>CatalogLocation</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>false</IsRequired>
    <Value>1</Value>
</row>
<row>
    <PropertyName>DbpropCatalogTerm</PropertyName>
    <PropertyDescription>DbpropCatalogTerm</PropertyDescription>
    <PropertyType>string</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>false</IsRequired>
    <Value>Database</Value>
</row>
<row>
    <PropertyName>DbpropCatalogUsage</PropertyName>
    <PropertyDescription>DbpropCatalogUsage</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>false</IsRequired>
    <Value>0</Value>
</row>
<row>
    <PropertyName>DbpropColumnDefinition</PropertyName>
    <PropertyDescription>DbpropColumnDefinition</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>false</IsRequired>
    <Value>0</Value>
</row>
<row>
    <PropertyName>DbpropConcatNullBehavior</PropertyName>
    <PropertyDescription>DbpropConcatNullBehavior</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>false</IsRequired>

```

```

    <Value>1</Value>
</row>
<row>
  <PropertyName>DbpropDataSourceReadOnly</PropertyName>
  <PropertyDescription>DbpropDataSourceReadOnly</PropertyDescription>
  <PropertyType>boolean</PropertyType>
  <PropertyAccessType>Read</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>>false</Value>
</row>
<row>
  <PropertyName>DbpropGroupBy</PropertyName>
  <PropertyDescription>DbpropGroupBy</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>Read</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>2</Value>
</row>
<row>
  <PropertyName>DbpropHeterogeneousTables</PropertyName>
  <PropertyDescription>DbpropHeterogeneousTables</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>Read</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>0</Value>
</row>
<row>
  <PropertyName>DbpropIdentifierCase</PropertyName>
  <PropertyDescription>DbpropIdentifierCase</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>Read</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>8</Value>
</row>
<row>
  <PropertyName>DbpropMaxIndexSize</PropertyName>
  <PropertyDescription>DbpropMaxIndexSize</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>Read</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>0</Value>
</row>
<row>
  <PropertyName>DbpropMaxOpenChapters</PropertyName>
  <PropertyDescription>DbpropMaxOpenChapters</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>Read</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>0</Value>
</row>
<row>
  <PropertyName>DbpropMaxRowSize</PropertyName>
  <PropertyDescription>DbpropMaxRowSize</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>Read</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>0</Value>
</row>
<row>

```

```

    <PropertyName>DbpropMaxRowSizeIncludeBlob</PropertyName>
    <PropertyDescription>DbpropMaxRowSizeIncludeBlob</PropertyDescription>
    <PropertyType>boolean</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>false</IsRequired>
    <Value>>true</Value>
</row>
<row>
    <PropertyName>DbpropMaxTablesInSelect</PropertyName>
    <PropertyDescription>DbpropMaxTablesInSelect</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>false</IsRequired>
    <Value>1</Value>
</row>
<row>
    <PropertyName>DbpropMultiTableUpdate</PropertyName>
    <PropertyDescription>DbpropMultiTableUpdate</PropertyDescription>
    <PropertyType>boolean</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>false</IsRequired>
    <Value>>false</Value>
</row>
<row>
    <PropertyName>DbpropNullCollation</PropertyName>
    <PropertyDescription>DbpropNullCollation</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>false</IsRequired>
    <Value>4</Value>
</row>
<row>
    <PropertyName>DbpropOrderByColumnsInSelect</PropertyName>
    <PropertyDescription>DbpropOrderByColumnsInSelect</PropertyDescription>
    <PropertyType>boolean</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>false</IsRequired>
    <Value>>false</Value>
</row>
<row>
    <PropertyName>DbpropOutputParameterAvailable</PropertyName>
    <PropertyDescription>DbpropOutputParameterAvailable</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>false</IsRequired>
    <Value>1</Value>
</row>
<row>
    <PropertyName>DbpropPersistentIdType</PropertyName>
    <PropertyDescription>DbpropPersistentIdType</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>false</IsRequired>
    <Value>4</Value>
</row>
<row>
    <PropertyName>DbpropPrepareAbortBehavior</PropertyName>
    <PropertyDescription>DbpropPrepareAbortBehavior</PropertyDescription>
    <PropertyType>int</PropertyType>

```

```

    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>false</IsRequired>
    <Value>1</Value>
</row>
<row>
    <PropertyName>DbpropPrepareCommitBehavior</PropertyName>
    <PropertyDescription>DbpropPrepareCommitBehavior</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>false</IsRequired>
    <Value>1</Value>
</row>
<row>
    <PropertyName>DbpropProcedureTerm</PropertyName>
    <PropertyDescription>DbpropProcedureTerm</PropertyDescription>
    <PropertyType>string</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>false</IsRequired>
    <Value>Calculated member</Value>
</row>
<row>
    <PropertyName>DbpropQuotedIdentifierCase</PropertyName>
    <PropertyDescription>DbpropQuotedIdentifierCase</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>false</IsRequired>
    <Value>8</Value>
</row>
<row>
    <PropertyName>DbpropSchemaUsage</PropertyName>
    <PropertyDescription>DbpropSchemaUsage</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>false</IsRequired>
    <Value>0</Value>
</row>
<row>
    <PropertyName>DbpropSqlSupport</PropertyName>
    <PropertyDescription>DbpropSqlSupport</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>false</IsRequired>
    <Value>512</Value>
</row>
<row>
    <PropertyName>DbpropSubqueries</PropertyName>
    <PropertyDescription>DbpropSubqueries</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>false</IsRequired>
    <Value>0</Value>
</row>
<row>
    <PropertyName>DbpropSupportedTxnDdl</PropertyName>
    <PropertyDescription>DbpropSupportedTxnDdl</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>false</IsRequired>
    <Value>0</Value>

```



```

</row>
<row>
  <PropertyName>DbpropSupportedTxnIsoLevels</PropertyName>
  <PropertyDescription>DbpropSupportedTxnIsoLevels</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>Read</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>4096</Value>
</row>
<row>
  <PropertyName>DbpropSupportedTxnIsoRetain</PropertyName>
  <PropertyDescription>DbpropSupportedTxnIsoRetain</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>Read</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>292</Value>
</row>
<row>
  <PropertyName>DbpropTableTerm</PropertyName>
  <PropertyDescription>DbpropTableTerm</PropertyDescription>
  <PropertyType>string</PropertyType>
  <PropertyAccessType>Read</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>Cube</Value>
</row>
<row>
  <PropertyName>MdpropAggregateCellUpdate</PropertyName>
  <PropertyDescription>MdpropAggregateCellUpdate</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>Read</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>4</Value>
</row>
<row>
  <PropertyName>MdpropAxes</PropertyName>
  <PropertyDescription>MdpropAxes</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>Read</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>2147483647</Value>
</row>
<row>
  <PropertyName>MdpropFlatteningSupport</PropertyName>
  <PropertyDescription>MdpropFlatteningSupport</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>Read</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>1</Value>
</row>
<row>
  <PropertyName>MdpropMdxCaseSupport</PropertyName>
  <PropertyDescription>MdpropMdxCaseSupport</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>Read</PropertyAccessType>
  <IsRequired>false</IsRequired>
  <Value>3</Value>
</row>
<row>
  <PropertyName>MdpropMdxDescFlags</PropertyName>

```

```

    <PropertyDescription>MdpropMdxDescFlags</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>>false</IsRequired>
    <Value>7</Value>
</row>
<row>
    <PropertyName>MdpropMdxDrillFunctions</PropertyName>
    <PropertyDescription>MdpropMdxDrillFunctions</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>>false</IsRequired>
    <Value>3</Value>
</row>
<row>
    <PropertyName>MdpropMdxFormulas</PropertyName>
    <PropertyDescription>MdpropMdxFormulas</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>>false</IsRequired>
    <Value>63</Value>
</row>
<row>
    <PropertyName>MdpropMdxJoinCubes</PropertyName>
    <PropertyDescription>MdpropMdxJoinCubes</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>>false</IsRequired>
    <Value>1</Value>
</row>
<row>
    <PropertyName>MdpropMdxMemberFunctions</PropertyName>
    <PropertyDescription>MdpropMdxMemberFunctions</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>>false</IsRequired>
    <Value>15</Value>
</row>
<row>
    <PropertyName>MdpropMdxNonMeasureExpressions</PropertyName>
    <PropertyDescription>MdpropMdxNonMeasureExpressions</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>>false</IsRequired>
    <Value>0</Value>
</row>
<row>
    <PropertyName>MdpropMdxNumericFunctions</PropertyName>
    <PropertyDescription>MdpropMdxNumericFunctions</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>
    <IsRequired>>false</IsRequired>
    <Value>2047</Value>
</row>
<row>
    <PropertyName>MdpropMdxObjQualification</PropertyName>
    <PropertyDescription>MdpropMdxObjQualification</PropertyDescription>
    <PropertyType>int</PropertyType>
    <PropertyAccessType>Read</PropertyAccessType>

```

```

    <IsRequired>>false</IsRequired>
    <Value>496</Value>
</row>
<row>
  <PropertyName>MdpropMdxOuterReference</PropertyName>
  <PropertyDescription>MdpropMdxOuterReference</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>Read</PropertyAccessType>
  <IsRequired>>false</IsRequired>
  <Value>0</Value>
</row>
<row>
  <PropertyName>MdpropMdxQueryByProperty</PropertyName>
  <PropertyDescription>MdpropMdxQueryByProperty</PropertyDescription>
  <PropertyType>boolean</PropertyType>
  <PropertyAccessType>Read</PropertyAccessType>
  <IsRequired>>false</IsRequired>
  <Value>true</Value>
</row>
<row>
  <PropertyName>MdpropMdxRangeRowset</PropertyName>
  <PropertyDescription>MdpropMdxRangeRowset</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>Read</PropertyAccessType>
  <IsRequired>>false</IsRequired>
  <Value>4</Value>
</row>
<row>
  <PropertyName>MdpropMdxSetFunctions</PropertyName>
  <PropertyDescription>MdpropMdxSetFunctions</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>Read</PropertyAccessType>
  <IsRequired>>false</IsRequired>
  <Value>524287</Value>
</row>
<row>
  <PropertyName>MdpropMdxSlicer</PropertyName>
  <PropertyDescription>MdpropMdxSlicer</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>Read</PropertyAccessType>
  <IsRequired>>false</IsRequired>
  <Value>2</Value>
</row>
<row>
  <PropertyName>MdpropMdxStringCompop</PropertyName>
  <PropertyDescription>MdpropMdxStringCompop</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>Read</PropertyAccessType>
  <IsRequired>>false</IsRequired>
  <Value>15</Value>
</row>
<row>
  <PropertyName>MdpropNamedLevels</PropertyName>
  <PropertyDescription>MdpropNamedLevels</PropertyDescription>
  <PropertyType>int</PropertyType>
  <PropertyAccessType>Read</PropertyAccessType>
  <IsRequired>>false</IsRequired>
  <Value>3</Value>
</row>

```

```

    <row>
      <PropertyName>MdpropMdxSubqueries</PropertyName>
      <PropertyDescription>MdpropMdxSubqueries</PropertyDescription>
      <PropertyType>int</PropertyType>
      <PropertyAccessType>Read</PropertyAccessType>
      <IsRequired>>false</IsRequired>
      <Value>15</Value>
    </row>
    <row>
      <PropertyName>MdpropMdxNamedSets</PropertyName>
      <PropertyDescription>MdpropMdxNamedSets</PropertyDescription>
      <PropertyType>int</PropertyType>
      <PropertyAccessType>Read</PropertyAccessType>
      <IsRequired>>false</IsRequired>
      <Value>15</Value>
    </row>
  </root>
</return>
</DiscoverResponse>
</soap:Body>
</soap:Envelope>

```

4.5 Client Obtains a List of Mining Models from the Server

In this example, the client sends a DMSHEMA_MINING_MODELS request.

4.5.1 Client Sends Request

The client sends following request:

```

<Envelope xmlns="http://schemas.xmlsoap.org/soap/envelope/">
  <Header>
    <XA:Session soap:mustUnderstand="1" SessionId="7F865E20-41AE-4156-8B38-B6D90D7134E8"
xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:XA="urn:schemas-microsoft-com:xml-analysis" />
  </Header>
  <Body>
    <Discover xmlns="urn:schemas-microsoft-com:xml-analysis">
      <RequestType>DMSHEMA_MINING_MODELS</RequestType>
      <Restrictions></Restrictions>
      <Properties><PropertyList><Content>Data</Content></PropertyList></Properties>
    </Discover>
  </Body>
</Envelope>

```

4.5.2 Server Response

The server responds with a list of mining models:

```

<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <DiscoverResponse xmlns="urn:schemas-microsoft-com:xml-analysis"
xmlns:ddl2="http://schemas.microsoft.com/analysis/services/2003/engine/2"

```

```

xmlns:ddl2_2="http://schemas.microsoft.com/analysiservices/2003/engine/2/2"
xmlns:ddl100="http://schemas.microsoft.com/analysiservices/2008/engine/100"
xmlns:ddl100_100="http://schemas.microsoft.com/analysiservices/2008/engine/100/100">
  <return>
    <root xmlns="urn:schemas-microsoft-com:xml-analysis:rowset"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xmlns:xsd="http://www.w3.org/2001/XMLSchema">
      <row>
        <MODEL_CATALOG>AdventureWorks_SSAS</MODEL_CATALOG>
        <MODEL_NAME>Dim Product</MODEL_NAME>
        <MODEL_GUID>BC9EA693-C163-4609-89F2-FD38A498B43E</MODEL_GUID>
        <DESCRIPTION />
        <DATE_CREATED>2009-03-08T08:50:23</DATE_CREATED>
        <DATE_MODIFIED>2009-03-10T06:53:43</DATE_MODIFIED>
        <SERVICE_TYPE_ID>1</SERVICE_TYPE_ID>
        <SERVICE_NAME>Microsoft Decision Trees</SERVICE_NAME>
        <PREDICTION_ENTITY>Sales Amount</PREDICTION_ENTITY>
        <IS_POPULATED>true</IS_POPULATED>

        <MINING_PARAMETERS>COMPLEXITY_PENALTY=0.5,MAXIMUM_INPUT_ATTRIBUTES=255,MAXIMUM_OUTPUT_ATTRIBUTES=255,MINIMUM_SUPPORT=10,SCORE_METHOD=4,SPLIT_METHOD=3,FORCE_REGRESSOR=</MINING_PARAMETERS>
        <MINING_STRUCTURE>Dim Product Mining</MINING_STRUCTURE>
        <LAST_PROCESSED>2009-03-08T08:50:33</LAST_PROCESSED>
        <MSOLAP_IS_DRILLTHROUGH_ENABLED>true</MSOLAP_IS_DRILLTHROUGH_ENABLED>
        <FILTER />
        <TRAINING_SET_SIZE>354</TRAINING_SET_SIZE>
      </row>
    </root>
  </return>
</DiscoverResponse>
</soap:Body>
</soap:Envelope>

```

4.6 Client Obtains a List of Traces from the Server

In this example, the client sends a DISCOVER_TRACES request.

4.6.1 Client Sends Request

The client sends the following request:

```

<Envelope xmlns="http://schemas.xmlsoap.org/soap/envelope/">
  <Header>
    <XA:Session soap:mustUnderstand="1" SessionId="65F72973-83ED-4F34-9C55-EA577E7BFBD8"
xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:XA="urn:schemas-microsoft-com:xml-analysis" />
  </Header>
  <Body>
    <Discover xmlns="urn:schemas-microsoft-com:xml-analysis">
      <RequestType>DISCOVER_TRACES</RequestType>
      <Restrictions></Restrictions>
      <Properties>
        <PropertyList>
          <Content>Data</Content>
        </PropertyList>
      </Properties>
    </Discover>
  </Body>
</Envelope>

```

```
</Body>
</Envelope>
```

4.6.2 Server Response

The server responds with a list of traces:

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <DiscoverResponse xmlns="urn:schemas-microsoft-com:xml-analysis"
      xmlns:ddl2="http://schemas.microsoft.com/analysiservices/2003/engine/2"
      xmlns:ddl2_2="http://schemas.microsoft.com/analysiservices/2003/engine/2/2"
      xmlns:ddl100="http://schemas.microsoft.com/analysiservices/2008/engine/100"
      xmlns:ddl100_100="http://schemas.microsoft.com/analysiservices/2008/engine/100/100">
      <return>
        <root xmlns="urn:schemas-microsoft-com:xml-analysis:rowset"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
          xmlns:xsd="http://www.w3.org/2001/XMLSchema">
          <row>
            <TraceID>FlightRecorder</TraceID>
            <TraceName>FlightRecorder</TraceName>
            <LogFileName>\\?\C:\Program Files\Microsoft SQL
Server\MSAS10.MSSQLSERVER\OLAP\Log\FlightRecorderCurrent.tr</LogFileName>
            <LogFileSize>10485760</LogFileSize>
            <LogFileRollover>true</LogFileRollover>
            <AutoRestart>>false</AutoRestart>
            <CreationTime>2009-03-16T02:13:25</CreationTime>
          </row>
        </root>
      </return>
    </DiscoverResponse>
  </soap:Body>
</soap:Envelope>
```

4.7 Client Obtains a List of Connections from the Server

In this example, the client sends a DISCOVER_CONNECTIONS request.

4.7.1 Client Sends Request

The client sends the following request:

```
<Envelope xmlns="http://schemas.xmlsoap.org/soap/envelope/">
  <Header>
    <XA:Session soap:mustUnderstand="1" SessionId="09157399-DA20-4FB7-A316-E7EC153F3BE6"
      xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:XA="urn:schemas-microsoft-
com:xml-analysis" />
  </Header>
  <Body>
    <Discover xmlns="urn:schemas-microsoft-com:xml-analysis">
      <RequestType>DISCOVER_CONNECTIONS</RequestType>
      <Restrictions></Restrictions>
      <Properties>
        <PropertyList>
```

```

        <Content>Data</Content>
    </PropertyList>
</Properties>
</Discover>
</Body>
</Envelope>

```

4.7.2 Server Response

The server responds with a list of connections.

```

<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <DiscoverResponse xmlns="urn:schemas-microsoft-com:xml-analysis"
      xmlns:d1="http://schemas.microsoft.com/analysisisservices/2003/engine/2"
      xmlns:d2="http://schemas.microsoft.com/analysisisservices/2003/engine/2/2"
      xmlns:d100="http://schemas.microsoft.com/analysisisservices/2008/engine/100"
      xmlns:d100_100="http://schemas.microsoft.com/analysisisservices/2008/engine/100/100">
      <return>
        <root xmlns="urn:schemas-microsoft-com:xml-analysis:rowset"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
          xmlns:xsd="http://www.w3.org/2001/XMLSchema">
          <row>
            <CONNECTION_ID>2</CONNECTION_ID>
            <CONNECTION_USER_NAME>NY-SQL-02\Student</CONNECTION_USER_NAME>
            <CONNECTION_HOST_NAME>[::1]:49168</CONNECTION_HOST_NAME>
            <CONNECTION_HOST_APPLICATION>Microsoft SQL Server Management Studio -
Query</CONNECTION_HOST_APPLICATION>
            <CONNECTION_START_TIME>2009-03-16T02:21:46</CONNECTION_START_TIME>
            <CONNECTION_ELAPSED_TIME_MS>6520603</CONNECTION_ELAPSED_TIME_MS>
            <CONNECTION_LAST_COMMAND_START_TIME>2009-03-
16T03:32:30</CONNECTION_LAST_COMMAND_START_TIME>
            <CONNECTION_LAST_COMMAND_END_TIME>2009-03-
16T03:32:30</CONNECTION_LAST_COMMAND_END_TIME>
            <CONNECTION_LAST_COMMAND_ELAPSED_TIME_MS>3</CONNECTION_LAST_COMMAND_ELAPSED_TIME_MS>
            <CONNECTION_IDLE_TIME_MS>2276705</CONNECTION_IDLE_TIME_MS>
            <CONNECTION_BYTES_SENT>11036</CONNECTION_BYTES_SENT>
            <CONNECTION_DATA_BYTES_SENT>22252</CONNECTION_DATA_BYTES_SENT>
            <CONNECTION_BYTES_RECEIVED>12416</CONNECTION_BYTES_RECEIVED>
            <CONNECTION_DATA_BYTES_RECEIVED>12416</CONNECTION_DATA_BYTES_RECEIVED>
          </row>
          <row>
            <CONNECTION_ID>5</CONNECTION_ID>
            <CONNECTION_USER_NAME>NY-SQL-02\Student</CONNECTION_USER_NAME>
            <CONNECTION_HOST_NAME>[::1]:49169</CONNECTION_HOST_NAME>
            <CONNECTION_HOST_APPLICATION>Microsoft SQL Server Management Studio -
Query</CONNECTION_HOST_APPLICATION>
            <CONNECTION_START_TIME>2009-03-16T02:22:02</CONNECTION_START_TIME>
            <CONNECTION_ELAPSED_TIME_MS>6504734</CONNECTION_ELAPSED_TIME_MS>
            <CONNECTION_LAST_COMMAND_START_TIME>2009-03-
16T04:10:26</CONNECTION_LAST_COMMAND_START_TIME>
            <CONNECTION_LAST_COMMAND_END_TIME>2009-03-
16T04:10:26</CONNECTION_LAST_COMMAND_END_TIME>
            <CONNECTION_LAST_COMMAND_ELAPSED_TIME_MS>5</CONNECTION_LAST_COMMAND_ELAPSED_TIME_MS>
            <CONNECTION_IDLE_TIME_MS>764</CONNECTION_IDLE_TIME_MS>
            <CONNECTION_BYTES_SENT>39804</CONNECTION_BYTES_SENT>

```

```

    <CONNECTION_DATA_BYTES_SENT>84863</CONNECTION_DATA_BYTES_SENT>
    <CONNECTION_BYTES_RECEIVED>43388</CONNECTION_BYTES_RECEIVED>
    <CONNECTION_DATA_BYTES_RECEIVED>43388</CONNECTION_DATA_BYTES_RECEIVED>
  </row>
  <row>
    <CONNECTION_ID>6</CONNECTION_ID>
    <CONNECTION_USER_NAME>NY-SQL-02\Student</CONNECTION_USER_NAME>
    <CONNECTION_HOST_NAME>[::1]:49173</CONNECTION_HOST_NAME>
    <CONNECTION_HOST_APPLICATION>Microsoft SQL Server Management Studio -
Query</CONNECTION_HOST_APPLICATION>
    <CONNECTION_START_TIME>2009-03-16T02:22:20</CONNECTION_START_TIME>
    <CONNECTION_ELAPSED_TIME_MS>6486485</CONNECTION_ELAPSED_TIME_MS>
    <CONNECTION_LAST_COMMAND_START_TIME>2009-03-
16T04:09:44</CONNECTION_LAST_COMMAND_START_TIME>
    <CONNECTION_LAST_COMMAND_END_TIME>2009-03-
16T04:09:44</CONNECTION_LAST_COMMAND_END_TIME>

    <CONNECTION_LAST_COMMAND_ELAPSED_TIME_MS>3</CONNECTION_LAST_COMMAND_ELAPSED_TIME_MS>
    <CONNECTION_IDLE_TIME_MS>43001</CONNECTION_IDLE_TIME_MS>
    <CONNECTION_BYTES_SENT>26908</CONNECTION_BYTES_SENT>
    <CONNECTION_DATA_BYTES_SENT>56796</CONNECTION_DATA_BYTES_SENT>
    <CONNECTION_BYTES_RECEIVED>29504</CONNECTION_BYTES_RECEIVED>
    <CONNECTION_DATA_BYTES_RECEIVED>29504</CONNECTION_DATA_BYTES_RECEIVED>
  </row>
  <row>
    <CONNECTION_ID>142</CONNECTION_ID>
    <CONNECTION_USER_NAME>NY-SQL-02\Student</CONNECTION_USER_NAME>
    <CONNECTION_HOST_NAME>[::1]:49319</CONNECTION_HOST_NAME>
    <CONNECTION_HOST_APPLICATION>Microsoft SQL Server Management Studio -
Query</CONNECTION_HOST_APPLICATION>
    <CONNECTION_START_TIME>2009-03-16T04:10:26</CONNECTION_START_TIME>
    <CONNECTION_ELAPSED_TIME_MS>651</CONNECTION_ELAPSED_TIME_MS>
    <CONNECTION_LAST_COMMAND_START_TIME>2009-03-
16T04:10:26</CONNECTION_LAST_COMMAND_START_TIME>
    <CONNECTION_LAST_COMMAND_END_TIME>2009-03-
16T04:10:26</CONNECTION_LAST_COMMAND_END_TIME>

    <CONNECTION_LAST_COMMAND_ELAPSED_TIME_MS>23</CONNECTION_LAST_COMMAND_ELAPSED_TIME_MS>
    <CONNECTION_IDLE_TIME_MS>605</CONNECTION_IDLE_TIME_MS>
    <CONNECTION_BYTES_SENT>6444</CONNECTION_BYTES_SENT>
    <CONNECTION_DATA_BYTES_SENT>28584</CONNECTION_DATA_BYTES_SENT>
    <CONNECTION_BYTES_RECEIVED>2628</CONNECTION_BYTES_RECEIVED>
    <CONNECTION_DATA_BYTES_RECEIVED>2628</CONNECTION_DATA_BYTES_RECEIVED>
  </row>
  <row>
    <CONNECTION_ID>141</CONNECTION_ID>
    <CONNECTION_USER_NAME>NY-SQL-02\Student</CONNECTION_USER_NAME>
    <CONNECTION_HOST_NAME>[::1]:49320</CONNECTION_HOST_NAME>
    <CONNECTION_HOST_APPLICATION>Microsoft SQL Server Management Studio -
Query</CONNECTION_HOST_APPLICATION>
    <CONNECTION_START_TIME>2009-03-16T04:10:26</CONNECTION_START_TIME>
    <CONNECTION_ELAPSED_TIME_MS>573</CONNECTION_ELAPSED_TIME_MS>
    <CONNECTION_LAST_COMMAND_START_TIME>2009-03-
16T04:10:26</CONNECTION_LAST_COMMAND_START_TIME>
    <CONNECTION_LAST_COMMAND_END_TIME>2009-03-
16T04:10:26</CONNECTION_LAST_COMMAND_END_TIME>

    <CONNECTION_LAST_COMMAND_ELAPSED_TIME_MS>562</CONNECTION_LAST_COMMAND_ELAPSED_TIME_MS>
    <CONNECTION_IDLE_TIME_MS>0</CONNECTION_IDLE_TIME_MS>
    <CONNECTION_BYTES_SENT>1980</CONNECTION_BYTES_SENT>

```



```

        <CONNECTION_DATA_BYTES_SENT>7949</CONNECTION_DATA_BYTES_SENT>
        <CONNECTION_BYTES_RECEIVED>1640</CONNECTION_BYTES_RECEIVED>
        <CONNECTION_DATA_BYTES_RECEIVED>1640</CONNECTION_DATA_BYTES_RECEIVED>
    </row>
    <row>
        <CONNECTION_ID>143</CONNECTION_ID>
        <CONNECTION_USER_NAME>NY-SQL-02\Student</CONNECTION_USER_NAME>
        <CONNECTION_HOST_NAME>[:1]:49321</CONNECTION_HOST_NAME>
        <CONNECTION_HOST_APPLICATION />
        <CONNECTION_START_TIME>2009-03-16T04:10:27</CONNECTION_START_TIME>
        <CONNECTION_ELAPSED_TIME_MS>25</CONNECTION_ELAPSED_TIME_MS>
        <CONNECTION_LAST_COMMAND_START_TIME>2009-03-
16T04:10:27</CONNECTION_LAST_COMMAND_START_TIME>
        <CONNECTION_LAST_COMMAND_END_TIME>2009-03-
16T04:10:27</CONNECTION_LAST_COMMAND_END_TIME>

        <CONNECTION_LAST_COMMAND_ELAPSED_TIME_MS>2</CONNECTION_LAST_COMMAND_ELAPSED_TIME_MS>
        <CONNECTION_IDLE_TIME_MS>0</CONNECTION_IDLE_TIME_MS>
        <CONNECTION_BYTES_SENT>780</CONNECTION_BYTES_SENT>
        <CONNECTION_DATA_BYTES_SENT>250</CONNECTION_DATA_BYTES_SENT>
        <CONNECTION_BYTES_RECEIVED>1412</CONNECTION_BYTES_RECEIVED>
        <CONNECTION_DATA_BYTES_RECEIVED>1412</CONNECTION_DATA_BYTES_RECEIVED>
    </row>
</root>
</return>
</DiscoverResponse>
</soap:Body>
</soap:Envelope>

```

4.8 Client Obtains a List of Locks from the Server

In this example, the client sends a DISCOVER_LOCKS request.

4.8.1 Client Sends Request

The client sends the following request:

```

<Envelope xmlns="http://schemas.xmlsoap.org/soap/envelope/">
  <Header>
    <XA:Session soap:mustUnderstand="1" SessionId="34EDB056-482C-48FE-B4A1-720CB76301B5"
xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:XA="urn:schemas-microsoft-
com:xml-analysis" />
  </Header>
  <Body>
    <Discover xmlns="urn:schemas-microsoft-com:xml-analysis">
      <RequestType>DISCOVER_LOCKS</RequestType>
      <Restrictions></Restrictions>
      <Properties><PropertyList><Content>Data</Content></PropertyList></Properties>
    </Discover>
  </Body>
</Envelope>

```

4.8.2 Server Response

The server responds with a list of locks:

```

<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <DiscoverResponse xmlns="urn:schemas-microsoft-com:xml-analysis"
      xmlns:ddl2="http://schemas.microsoft.com/analysisisservices/2003/engine/2"
      xmlns:ddl2_2="http://schemas.microsoft.com/analysisisservices/2003/engine/2/2"
      xmlns:ddl100="http://schemas.microsoft.com/analysisisservices/2008/engine/100"
      xmlns:ddl100_100="http://schemas.microsoft.com/analysisisservices/2008/engine/100/100">
      <return>
        <root xmlns="urn:schemas-microsoft-com:xml-analysis:rowset"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
          xmlns:xsd="http://www.w3.org/2001/XMLSchema">
          <row>
            <SPID>1082</SPID>
            <LOCK_ID>BF4953EF-C616-4400-93CC-E025C774651B</LOCK_ID>
            <LOCK_TRANSACTION_ID>D140962E-4660-4C98-BB6D-9F32E1F32A64</LOCK_TRANSACTION_ID>
            <LOCK_OBJECT_ID>
              <Object>
                <DatabaseID>Adventure_SSAS</DatabaseID>
                <CubeID>Dim Product Mining ~MC</CubeID>
              </Object>
            </LOCK_OBJECT_ID>
            <LOCK_STATUS>1</LOCK_STATUS>
            <LOCK_TYPE>4</LOCK_TYPE>
            <LOCK_CREATION_TIME>2009-04-13T17:39:47</LOCK_CREATION_TIME>
            <LOCK_GRANT_TIME>2009-04-13T17:39:47</LOCK_GRANT_TIME>
          </row>
          <row>
            <SPID>1082</SPID>
            <LOCK_ID>0277E1A7-0685-4741-996E-A7AEE9ECF868</LOCK_ID>
            <LOCK_TRANSACTION_ID>D140962E-4660-4C98-BB6D-9F32E1F32A64</LOCK_TRANSACTION_ID>
            <LOCK_OBJECT_ID>
              <Object>
                <DatabaseID>Adventure_SSAS</DatabaseID>
                <DimensionID>Dim Product</DimensionID>
              </Object>
            </LOCK_OBJECT_ID>
            <LOCK_STATUS>1</LOCK_STATUS>
            <LOCK_TYPE>4</LOCK_TYPE>
            <LOCK_CREATION_TIME>2009-04-13T17:39:47</LOCK_CREATION_TIME>
            <LOCK_GRANT_TIME>2009-04-13T17:39:47</LOCK_GRANT_TIME>
          </row>
          <row>
            <SPID>1082</SPID>
            <LOCK_ID>0B6E6372-6274-4F9F-9FD1-D8BB73AFE074</LOCK_ID>
            <LOCK_TRANSACTION_ID>D140962E-4660-4C98-BB6D-9F32E1F32A64</LOCK_TRANSACTION_ID>
            <LOCK_OBJECT_ID>
              <Object>
                <DatabaseID>Adventure_SSAS</DatabaseID>
                <DimensionID>Dim Sales Territory</DimensionID>
              </Object>
            </LOCK_OBJECT_ID>
            <LOCK_STATUS>1</LOCK_STATUS>
            <LOCK_TYPE>4</LOCK_TYPE>
            <LOCK_CREATION_TIME>2009-04-13T17:39:47</LOCK_CREATION_TIME>
            <LOCK_GRANT_TIME>2009-04-13T17:39:47</LOCK_GRANT_TIME>
          </row>
          <row>
            <SPID>1082</SPID>

```

```

<LOCK_ID>EDC8CFCA-3EEA-4977-9D0E-95F1BFE8465E</LOCK_ID>
<LOCK_TRANSACTION_ID>D140962E-4660-4C98-BB6D-9F32E1F32A64</LOCK_TRANSACTION_ID>
<LOCK_OBJECT_ID>
  <Object>
    <DatabaseID>Adventure_SSAS</DatabaseID>
    <CubeID>Dim Product Mining ~MC</CubeID>
    <MeasureGroupID>~CaseDetail ~MG</MeasureGroupID>
    <PartitionID>~CaseDetail ~MG</PartitionID>
  </Object>
</LOCK_OBJECT_ID>
<LOCK_STATUS>1</LOCK_STATUS>
<LOCK_TYPE>4</LOCK_TYPE>
<LOCK_CREATION_TIME>2009-04-13T17:39:47</LOCK_CREATION_TIME>
<LOCK_GRANT_TIME>2009-04-13T17:39:47</LOCK_GRANT_TIME>
</row>
<row>
  <SPID>1082</SPID>
  <LOCK_ID>B852030E-51BE-4DC5-AC0E-A73188AE50F3</LOCK_ID>
  <LOCK_TRANSACTION_ID>D140962E-4660-4C98-BB6D-9F32E1F32A64</LOCK_TRANSACTION_ID>
  <LOCK_OBJECT_ID>
    <Object>
      <DatabaseID>Adventure_SSAS</DatabaseID>
      <DataSourceID>dsAdventureWorksDW2008</DataSourceID>
    </Object>
  </LOCK_OBJECT_ID>
  <LOCK_STATUS>1</LOCK_STATUS>
  <LOCK_TYPE>2</LOCK_TYPE>
  <LOCK_CREATION_TIME>2009-04-13T17:39:47</LOCK_CREATION_TIME>
  <LOCK_GRANT_TIME>2009-04-13T17:39:47</LOCK_GRANT_TIME>
</row>
<row>
  <SPID>1082</SPID>
  <LOCK_ID>B0402B00-17B2-4D0B-940D-C56B247ED3CF</LOCK_ID>
  <LOCK_TRANSACTION_ID>D140962E-4660-4C98-BB6D-9F32E1F32A64</LOCK_TRANSACTION_ID>
  <LOCK_OBJECT_ID>
    <Object>
      <DatabaseID>Adventure_SSAS</DatabaseID>
      <DimensionID>Dim Customer</DimensionID>
    </Object>
  </LOCK_OBJECT_ID>
  <LOCK_STATUS>1</LOCK_STATUS>
  <LOCK_TYPE>4</LOCK_TYPE>
  <LOCK_CREATION_TIME>2009-04-13T17:39:47</LOCK_CREATION_TIME>
  <LOCK_GRANT_TIME>2009-04-13T17:39:47</LOCK_GRANT_TIME>
</row>
<row>
  <SPID>1082</SPID>
  <LOCK_ID>B0BA172A-83F2-408F-BC41-A5A476869E85</LOCK_ID>
  <LOCK_TRANSACTION_ID>D140962E-4660-4C98-BB6D-9F32E1F32A64</LOCK_TRANSACTION_ID>
  <LOCK_OBJECT_ID>
    <Object>
      <DatabaseID>Adventure_SSAS</DatabaseID>
      <CubeID>AdventureWorksDW2008Cube</CubeID>
      <MeasureGroupID>Fact Internet Sales</MeasureGroupID>
      <PartitionID>Fact Internet Sales</PartitionID>
    </Object>
  </LOCK_OBJECT_ID>
  <LOCK_STATUS>1</LOCK_STATUS>
  <LOCK_TYPE>4</LOCK_TYPE>

```

```

    <LOCK_CREATION_TIME>2009-04-13T17:39:47</LOCK_CREATION_TIME>
    <LOCK_GRANT_TIME>2009-04-13T17:39:47</LOCK_GRANT_TIME>
</row>
<row>
  <SPID>1082</SPID>
  <LOCK_ID>AD3FA52F-8AD3-401E-AE5C-B69AC764C5BD</LOCK_ID>
  <LOCK_TRANSACTION_ID>D140962E-4660-4C98-BB6D-9F32E1F32A64</LOCK_TRANSACTION_ID>
  <LOCK_OBJECT_ID>
    <Object>
      <DatabaseID>Adventure_SSAS</DatabaseID>
    </Object>
  </LOCK_OBJECT_ID>
  <LOCK_STATUS>1</LOCK_STATUS>
  <LOCK_TYPE>4</LOCK_TYPE>
  <LOCK_CREATION_TIME>2009-04-13T17:39:47</LOCK_CREATION_TIME>
  <LOCK_GRANT_TIME>2009-04-13T17:39:47</LOCK_GRANT_TIME>
</row>
<row>
  <SPID>1082</SPID>
  <LOCK_ID>F5479F08-CE88-4FD9-B2AF-6D466939DAAA</LOCK_ID>
  <LOCK_TRANSACTION_ID>D140962E-4660-4C98-BB6D-9F32E1F32A64</LOCK_TRANSACTION_ID>
  <LOCK_OBJECT_ID>
    <Object>
      <DatabaseID>Adventure_SSAS</DatabaseID>
      <CubeID>Dim Product Mining ~MC</CubeID>
      <MeasureGroupID>~CaseDetail ~MG</MeasureGroupID>
    </Object>
  </LOCK_OBJECT_ID>
  <LOCK_STATUS>1</LOCK_STATUS>
  <LOCK_TYPE>4</LOCK_TYPE>
  <LOCK_CREATION_TIME>2009-04-13T17:39:47</LOCK_CREATION_TIME>
  <LOCK_GRANT_TIME>2009-04-13T17:39:47</LOCK_GRANT_TIME>
</row>
<row>
  <SPID>1082</SPID>
  <LOCK_ID>A8E932B1-ED39-41FF-8020-9AFF95768129</LOCK_ID>
  <LOCK_TRANSACTION_ID>D140962E-4660-4C98-BB6D-9F32E1F32A64</LOCK_TRANSACTION_ID>
  <LOCK_OBJECT_ID>
    <Object>
      <DatabaseID>Adventure_SSAS</DatabaseID>
      <CubeID>AdventureWorksDW2008Cube</CubeID>
    </Object>
  </LOCK_OBJECT_ID>
  <LOCK_STATUS>1</LOCK_STATUS>
  <LOCK_TYPE>4</LOCK_TYPE>
  <LOCK_CREATION_TIME>2009-04-13T17:39:47</LOCK_CREATION_TIME>
  <LOCK_GRANT_TIME>2009-04-13T17:39:47</LOCK_GRANT_TIME>
</row>
<row>
  <SPID>1082</SPID>
  <LOCK_ID>21FE086C-52E8-4090-A310-8943C3B1A554</LOCK_ID>
  <LOCK_TRANSACTION_ID>D140962E-4660-4C98-BB6D-9F32E1F32A64</LOCK_TRANSACTION_ID>
  <LOCK_OBJECT_ID>
    <Object>
      <DatabaseID>Adventure_SSAS</DatabaseID>
      <CubeID>AdventureWorksDW2008Cube</CubeID>
      <MeasureGroupID>Fact Internet Sales</MeasureGroupID>
      <AggregationDesignID>AggregationDesign</AggregationDesignID>
    </Object>

```

```

</LOCK_OBJECT_ID>
<LOCK_STATUS>1</LOCK_STATUS>
<LOCK_TYPE>2</LOCK_TYPE>
<LOCK_CREATION_TIME>2009-04-13T17:39:47</LOCK_CREATION_TIME>
<LOCK_GRANT_TIME>2009-04-13T17:39:47</LOCK_GRANT_TIME>
</row>
<row>
<SPID>1082</SPID>
<LOCK_ID>FDA4A3D2-93EE-4794-8408-15DFA4616EAD</LOCK_ID>
<LOCK_TRANSACTION_ID>D140962E-4660-4C98-BB6D-9F32E1F32A64</LOCK_TRANSACTION_ID>
<LOCK_OBJECT_ID>
  <Object>
    <DatabaseID>Adventure_SSAS</DatabaseID>
    <MiningStructureID>Dim Product Mining</MiningStructureID>
  </Object>
</LOCK_OBJECT_ID>
<LOCK_STATUS>1</LOCK_STATUS>
<LOCK_TYPE>4</LOCK_TYPE>
<LOCK_CREATION_TIME>2009-04-13T17:39:47</LOCK_CREATION_TIME>
<LOCK_GRANT_TIME>2009-04-13T17:39:47</LOCK_GRANT_TIME>
</row>
<row>
<SPID>1082</SPID>
<LOCK_ID>85B5F285-1DE1-4278-B5BD-F648624D414F</LOCK_ID>
<LOCK_TRANSACTION_ID>D140962E-4660-4C98-BB6D-9F32E1F32A64</LOCK_TRANSACTION_ID>
<LOCK_OBJECT_ID>
  <Object>
    <DatabaseID>Adventure_SSAS</DatabaseID>
    <CubeID>AdventureWorksDW2008Cube</CubeID>
    <MeasureGroupID>Fact Internet Sales</MeasureGroupID>
  </Object>
</LOCK_OBJECT_ID>
<LOCK_STATUS>1</LOCK_STATUS>
<LOCK_TYPE>4</LOCK_TYPE>
<LOCK_CREATION_TIME>2009-04-13T17:39:47</LOCK_CREATION_TIME>
<LOCK_GRANT_TIME>2009-04-13T17:39:47</LOCK_GRANT_TIME>
</row>
<row>
<SPID>1082</SPID>
<LOCK_ID>216C80EC-0DA2-4A97-8664-5B618052D3C5</LOCK_ID>
<LOCK_TRANSACTION_ID>D140962E-4660-4C98-BB6D-9F32E1F32A64</LOCK_TRANSACTION_ID>
<LOCK_OBJECT_ID>
  <Object>
    <DatabaseID>Adventure_SSAS</DatabaseID>
    <MiningModelID>Dim Product</MiningModelID>
    <MiningStructureID>Dim Product Mining</MiningStructureID>
  </Object>
</LOCK_OBJECT_ID>
<LOCK_STATUS>1</LOCK_STATUS>
<LOCK_TYPE>4</LOCK_TYPE>
<LOCK_CREATION_TIME>2009-04-13T17:39:47</LOCK_CREATION_TIME>
<LOCK_GRANT_TIME>2009-04-13T17:39:47</LOCK_GRANT_TIME>
</row>
<row>
<SPID>1082</SPID>
<LOCK_ID>2F87CDAE-51F3-4628-B30E-0E8107FAFF69</LOCK_ID>
<LOCK_TRANSACTION_ID>D140962E-4660-4C98-BB6D-9F32E1F32A64</LOCK_TRANSACTION_ID>
<LOCK_OBJECT_ID>
  <Object>

```

```

        <DatabaseID>Adventure_SSAS</DatabaseID>
        <DataSourceViewID>dsvAdventureWorksDW2008</DataSourceViewID>
    </Object>
</LOCK_OBJECT_ID>
<LOCK_STATUS>1</LOCK_STATUS>
<LOCK_TYPE>2</LOCK_TYPE>
<LOCK_CREATION_TIME>2009-04-13T17:39:47</LOCK_CREATION_TIME>
<LOCK_GRANT_TIME>2009-04-13T17:39:47</LOCK_GRANT_TIME>
</row>
<row>
    <SPID>1082</SPID>
    <LOCK_ID>32D7E6AC-4DD1-4A53-B60A-7C9C6D54AA41</LOCK_ID>
    <LOCK_TRANSACTION_ID>D140962E-4660-4C98-BB6D-9F32E1F32A64</LOCK_TRANSACTION_ID>
    <LOCK_OBJECT_ID>
        <Object>
            <DatabaseID>Adventure_SSAS</DatabaseID>
            <DimensionID>Dim Date</DimensionID>
        </Object>
    </LOCK_OBJECT_ID>
    <LOCK_STATUS>1</LOCK_STATUS>
    <LOCK_TYPE>4</LOCK_TYPE>
    <LOCK_CREATION_TIME>2009-04-13T17:39:47</LOCK_CREATION_TIME>
    <LOCK_GRANT_TIME>2009-04-13T17:39:47</LOCK_GRANT_TIME>
</row>
</root>
</return>
</DiscoverResponse>
</soap:Body>
</soap:Envelope>

```

4.9 Client Obtains a List of Commands from the Server

In this example, the client sends a DISCOVER_COMMANDS request.

4.9.1 Client Sends Request

The client sends the following request:

```

<Envelope xmlns="http://schemas.xmlsoap.org/soap/envelope/">
  <Header>
    <XA:Session soap:mustUnderstand="1" SessionId="93B50BA3-307A-40D4-8E2D-E3184EFD19A1"
    xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:XA="urn:schemas-microsoft-com:xml-analysis" />
  </Header>
  <Body>
    <Discover xmlns="urn:schemas-microsoft-com:xml-analysis">
      <RequestType>DISCOVER_COMMANDS</RequestType>
      <Restrictions></Restrictions>
      <Properties>
        <PropertyList>
          <Content>Data</Content>
        </PropertyList>
      </Properties>
    </Discover>
  </Body>

```

</Envelope>

4.9.2 Server Response

The server responds with a list of commands:

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <DiscoverResponse xmlns="urn:schemas-microsoft-com:xml-analysis"
      xmlns:ddl2="http://schemas.microsoft.com/analysiservices/2003/engine/2"
      xmlns:ddl2_2="http://schemas.microsoft.com/analysiservices/2003/engine/2/2"
      xmlns:ddl100="http://schemas.microsoft.com/analysiservices/2008/engine/100"
      xmlns:ddl100_100="http://schemas.microsoft.com/analysiservices/2008/engine/100/100">
      <return>
        <root xmlns="urn:schemas-microsoft-com:xml-analysis:rowset"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
          xmlns:xsd="http://www.w3.org/2001/XMLSchema">
          <row>
            <SESSION_SPID>143</SESSION_SPID>
            <SESSION_COMMAND_COUNT>32</SESSION_COMMAND_COUNT>
            <COMMAND_START_TIME>2009-03-16T04:21:05</COMMAND_START_TIME>
            <COMMAND_ELAPSED_TIME_MS>0</COMMAND_ELAPSED_TIME_MS>
            <COMMAND_CPU_TIME_MS>10</COMMAND_CPU_TIME_MS>
            <COMMAND_READS>0</COMMAND_READS>
            <COMMAND_READ_KB>0</COMMAND_READ_KB>
            <COMMAND_WRITES>0</COMMAND_WRITES>
            <COMMAND_WRITE_KB>0</COMMAND_WRITE_KB>
            <COMMAND_TEXT>DISCOVER_PROPERTIES</COMMAND_TEXT>
            <COMMAND_END_TIME>2009-03-16T04:21:05</COMMAND_END_TIME>
          </row>
          <row>
            <SESSION_SPID>148</SESSION_SPID>
            <SESSION_COMMAND_COUNT>86</SESSION_COMMAND_COUNT>
            <COMMAND_START_TIME>2009-03-16T04:31:02</COMMAND_START_TIME>
            <COMMAND_ELAPSED_TIME_MS>0</COMMAND_ELAPSED_TIME_MS>
            <COMMAND_CPU_TIME_MS>0</COMMAND_CPU_TIME_MS>
            <COMMAND_READS>0</COMMAND_READS>
            <COMMAND_READ_KB>0</COMMAND_READ_KB>
            <COMMAND_WRITES>0</COMMAND_WRITES>
            <COMMAND_WRITE_KB>0</COMMAND_WRITE_KB>
            <COMMAND_TEXT>DISCOVER_PROPERTIES</COMMAND_TEXT>
            <COMMAND_END_TIME>2009-03-16T04:31:02</COMMAND_END_TIME>
          </row>
          <row>
            <SESSION_SPID>153</SESSION_SPID>
            <SESSION_COMMAND_COUNT>64</SESSION_COMMAND_COUNT>
            <COMMAND_START_TIME>2009-03-16T04:30:21</COMMAND_START_TIME>
            <COMMAND_ELAPSED_TIME_MS>0</COMMAND_ELAPSED_TIME_MS>
            <COMMAND_CPU_TIME_MS>10</COMMAND_CPU_TIME_MS>
            <COMMAND_READS>0</COMMAND_READS>
            <COMMAND_READ_KB>0</COMMAND_READ_KB>
            <COMMAND_WRITES>0</COMMAND_WRITES>
            <COMMAND_WRITE_KB>0</COMMAND_WRITE_KB>
            <COMMAND_TEXT>DISCOVER_PROPERTIES</COMMAND_TEXT>
            <COMMAND_END_TIME>2009-03-16T04:30:21</COMMAND_END_TIME>
          </row>
          <row>

```

```

        <SESSION_SPID>2089</SESSION_SPID>
        <SESSION_COMMAND_COUNT>2</SESSION_COMMAND_COUNT>
        <COMMAND_START_TIME>2009-03-16T04:31:02</COMMAND_START_TIME>
        <COMMAND_ELAPSED_TIME_MS>33</COMMAND_ELAPSED_TIME_MS>
        <COMMAND_CPU_TIME_MS>0</COMMAND_CPU_TIME_MS>
        <COMMAND_READS>0</COMMAND_READS>
        <COMMAND_READ_KB>0</COMMAND_READ_KB>
        <COMMAND_WRITES>0</COMMAND_WRITES>
        <COMMAND_WRITE_KB>0</COMMAND_WRITE_KB>
        <COMMAND_TEXT>DISCOVER_COMMANDS</COMMAND_TEXT>
    </row>
    <row>
        <SESSION_SPID>2099</SESSION_SPID>
        <SESSION_COMMAND_COUNT>3</SESSION_COMMAND_COUNT>
        <COMMAND_START_TIME>2009-03-16T04:31:02</COMMAND_START_TIME>
        <COMMAND_ELAPSED_TIME_MS>0</COMMAND_ELAPSED_TIME_MS>
        <COMMAND_CPU_TIME_MS>10</COMMAND_CPU_TIME_MS>
        <COMMAND_READS>0</COMMAND_READS>
        <COMMAND_READ_KB>0</COMMAND_READ_KB>
        <COMMAND_WRITES>0</COMMAND_WRITES>
        <COMMAND_WRITE_KB>0</COMMAND_WRITE_KB>
        <COMMAND_TEXT>&lt;Subscribe
xmlns="http://schemas.microsoft.com/analysiservices/2003/engine"/&gt;</COMMAND_TEXT>
        <COMMAND_END_TIME>2009-03-16T04:31:02</COMMAND_END_TIME>
    </row>
</root>
</return>
</DiscoverResponse>
</soap:Body>
</soap:Envelope>

```

4.10 Client Obtains Trace Provider Information

In this example, the client sends a DISCOVER_TRACE_DEFINITION_PROVIDERINFO request. The results of this request represent the actual Trace Provider Information sent from Microsoft Microsoft® SQL Server® 2008 Analysis Services.

4.10.1 Client Sends Request

The client sends the following request:

```

<Envelope xmlns="http://schemas.xmlsoap.org/soap/envelope/">
  <Body>
    <Discover xmlns="urn:schemas-microsoft-com:xml-analysis">
      <RequestType>DISCOVER_TRACE_DEFINITION_PROVIDERINFO</RequestType>
      <Restrictions>
        <RestrictionList></RestrictionList>
      </Restrictions>
      <Properties>
        <PropertyList>
          <Catalog>Adventure Works DW 2008</Catalog>
        </PropertyList>
      </Properties>
    </Discover>
  </Body>

```



```
</Envelope>
```

4.10.2 Server Response

The server responds with a list of trace providers:

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <DiscoverResponse xmlns="urn:schemas-microsoft-com:xml-analysis"
      xmlns:ddl2="http://schemas.microsoft.com/analysisisservices/2003/engine/2"
      xmlns:ddl2_2="http://schemas.microsoft.com/analysisisservices/2003/engine/2/2"
      xmlns:ddl100="http://schemas.microsoft.com/analysisisservices/2008/engine/100"
      xmlns:ddl100_100="http://schemas.microsoft.com/analysisisservices/2008/engine/100/100">
      <return>
        <root xmlns="urn:schemas-microsoft-com:xml-analysis:rowset"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
          xmlns:xsd="http://www.w3.org/2001/XMLSchema">
          <xsd:schema targetNamespace="urn:schemas-microsoft-com:xml-analysis:rowset"
            xmlns:sql="urn:schemas-microsoft-com:xml-sql"
            elementFormDefault="qualified">
            <xsd:element name="root">
              <xsd:complexType>
                <xsd:sequence minOccurs="0" maxOccurs="unbounded">
                  <xsd:element name="row" type="row" />
                </xsd:sequence>
              </xsd:complexType>
            </xsd:element>
            <xsd:simpleType name="uuid">
              <xsd:restriction base="xsd:string">
                <xsd:pattern value="[0-9a-zA-Z]{8}-[0-9a-zA-Z]{4}-
                  [0-9a-zA-Z]{4}-[0-9a-zA-Z]{4}-[0-9a-zA-Z]{12}" />
              </xsd:restriction>
            </xsd:simpleType>
            <xsd:complexType name="xmlDocument">
              <xsd:sequence>
                <xsd:any />
              </xsd:sequence>
            </xsd:complexType>
            <xsd:complexType name="row">
              <xsd:sequence>
                <xsd:element sql:field="Data" name="Data"
                  type="xsd:string" minOccurs="0" />
              </xsd:sequence>
            </xsd:complexType>
          </xsd:schema>
          <row>
            <Data>
              &lt;TRACE PROVIDER&gt;
              &lt;NAME&gt;Microsoft Analysis Services&lt;/NAME&gt;
              &lt;VERSION&gt;
              &lt;MAJOR&gt;10&lt;/MAJOR&gt;
              &lt;MINOR&gt;0&lt;/MINOR&gt;
              &lt;BUILDNUMBER&gt;1600&lt;/BUILDNUMBER&gt;
```

```

        &lt;/VERSION&gt;
        &lt;TYPE&gt;RTM&lt;/TYPE&gt;
        &lt;DESCRIPTION&gt;Normal trace definition&lt;/DESCRIPTION&gt;
        &lt;/TRACEPROVIDER&gt;
    </Data>
</row>
</root>
</return>
</DiscoverResponse>
</soap:Body>
</soap:Envelope>

```

4.11 Client Obtains List of Trace Column Definitions

In this example, the client sends a DISCOVER_TRACE_COLUMNS request. The results of this request represent the actual Trace Columns supported by Microsoft® SQL Server® 2008 Analysis Services.

4.11.1 Client Sends Request

The client sends the following request:

```

<Envelope xmlns="http://schemas.xmlsoap.org/soap/envelope/">
  <Body>
    <Discover xmlns="urn:schemas-microsoft-com:xml-analysis">
      <RequestType>DISCOVER_TRACE_COLUMNS</RequestType>
      <Restrictions>
        <RestrictionList></RestrictionList>
      </Restrictions>
      <Properties>
        <PropertyList>
          <Catalog>Adventure Works DW 2008</Catalog>
        </PropertyList>
      </Properties>
    </Discover>
  </Body>
</Envelope>

```

4.11.2 Server Response

The server responds with a list of trace column definitions:

```

<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <DiscoverResponse xmlns="urn:schemas-microsoft-com:xml-analysis"
      xmlns:ddl2="http://schemas.microsoft.com/analysisisservices/2003/engine/2"
      xmlns:ddl2_2="http://schemas.microsoft.com/analysisisservices/2003/engine/2/2"
      xmlns:ddl100="http://schemas.microsoft.com/analysisisservices/2008/engine/100"
      xmlns:ddl100_100="http://schemas.microsoft.com/analysisisservices/2008/engine/100/100">

```

```

<return>
<root xmlns="urn:schemas-microsoft-com:xml-analysis:rowset"
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
      xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <xsd:schema targetNamespace="urn:schemas-microsoft-com:xml-analysis:rowset"
            xmlns:sql="urn:schemas-microsoft-com:xml-sql"
            elementFormDefault="qualified">
    <xsd:element name="root">
      <xsd:complexType>
        <xsd:sequence minOccurs="0" maxOccurs="unbounded">
          <xsd:element name="row" type="row" />
        </xsd:sequence>
      </xsd:complexType>
    </xsd:element>
    <xsd:simpleType name="uuid">
      <xsd:restriction base="xsd:string">
        <xsd:pattern value="[0-9a-zA-Z]{8}-[0-9a-zA-Z]{4}-
          [0-9a-zA-Z]{4}-[0-9a-zA-Z]{4}-[0-9a-zA-Z]{12}" />
      </xsd:restriction>
    </xsd:simpleType>
    <xsd:complexType name="xmlDocument">
      <xsd:sequence>
        <xsd:any />
      </xsd:sequence>
    </xsd:complexType>
    <xsd:complexType name="row">
      <xsd:sequence>
        <xsd:element sql:field="Data" name="Data"
          type="xsd:string" minOccurs="0" />
      </xsd:sequence>
    </xsd:complexType>
  </xsd:schema>
  <row>
    <Data>
      &lt; COLUMN&gt;
      &lt; ID&gt;0&lt;/ ID&gt;
      &lt; TYPE&gt;1&lt;/ TYPE&gt;
      &lt; NAME&gt;EventClass&lt;/ NAME&gt;
      &lt; DESCRIPTION&gt;Event Class is used to categorize events.
      &lt;/ DESCRIPTION&gt;
      &lt; FILTERABLE&gt>false&lt;/ FILTERABLE&gt;
      &lt; REPEATABLE&gt>false&lt;/ REPEATABLE&gt;
      &lt; REPEATEDBASE&gt>false&lt;/ REPEATEDBASE&gt;
      &lt;/ COLUMN&gt;
    </Data>
  </row>
  <row>
    <Data>
      &lt; COLUMN&gt;
      &lt; ID&gt;1&lt;/ ID&gt;
      &lt; TYPE&gt;1&lt;/ TYPE&gt;
      &lt; NAME&gt;EventSubclass&lt;/ NAME&gt;
      &lt; DESCRIPTION&gt;Event Subclass provides additional
      information about each event class.&lt;/ DESCRIPTION&gt;
      &lt; FILTERABLE&gt>true&lt;/ FILTERABLE&gt;
      &lt; REPEATABLE&gt>false&lt;/ REPEATABLE&gt;
      &lt; REPEATEDBASE&gt>false&lt;/ REPEATEDBASE&gt;
      &lt;/ COLUMN&gt;
    </Data>
  </row>

```

```

</row>
<row>
  <Data>
    &lt;COLUMN&gt;
      &lt;ID&gt;2&lt;/ID&gt;
      &lt;TYPE&gt;5&lt;/TYPE&gt;
      &lt;NAME&gt;CurrentTime&lt;/NAME&gt;
      &lt;DESCRIPTION&gt;Time at which the event started, when available.
      For filtering, expected formats are 'YYYY-MM-DD' and 'YYYY-MM-DD HH:MM:SS'.
      &lt;/DESCRIPTION&gt;
      &lt;FILTERABLE&gt;true&lt;/FILTERABLE&gt;
      &lt;REPEATABLE&gt;false&lt;/REPEATABLE&gt;
      &lt;REPEATEDBASE&gt;false&lt;/REPEATEDBASE&gt;
    &lt;/COLUMN&gt;
  </Data>
</row>
<row>
  <Data>
    &lt;COLUMN&gt;
      &lt;ID&gt;3&lt;/ID&gt;
      &lt;TYPE&gt;5&lt;/TYPE&gt;
      &lt;NAME&gt;StartTime&lt;/NAME&gt;
      &lt;DESCRIPTION&gt;Time at which the event started, when available.
      For filtering, expected formats are 'YYYY-MM-DD' and 'YYYY-MM-DD HH:MM:SS'.
      &lt;/DESCRIPTION&gt;
      &lt;FILTERABLE&gt;true&lt;/FILTERABLE&gt;
      &lt;REPEATABLE&gt;false&lt;/REPEATABLE&gt;
      &lt;REPEATEDBASE&gt;false&lt;/REPEATEDBASE&gt;
    &lt;/COLUMN&gt;
  </Data>
</row>
<row>
  <Data>
    &lt;COLUMN&gt;
      &lt;ID&gt;4&lt;/ID&gt;
      &lt;TYPE&gt;5&lt;/TYPE&gt;
      &lt;NAME&gt;EndTime&lt;/NAME&gt;
      &lt;DESCRIPTION&gt;Time at which the event ended.
      This column is not populated for starting event classes, such as
      SQL:BatchStarting or SP:Starting. For filtering, expected formats are
      'YYYY-MM-DD' and 'YYYY-MM-DD HH:MM:SS'.&lt;/DESCRIPTION&gt;
      &lt;FILTERABLE&gt;true&lt;/FILTERABLE&gt;
      &lt;REPEATABLE&gt;false&lt;/REPEATABLE&gt;
      &lt;REPEATEDBASE&gt;false&lt;/REPEATEDBASE&gt;
    &lt;/COLUMN&gt;
  </Data>
</row>
<row>
  <Data>
    &lt;COLUMN&gt;
      &lt;ID&gt;5&lt;/ID&gt;
      &lt;TYPE&gt;2&lt;/TYPE&gt;
      &lt;NAME&gt;Duration&lt;/NAME&gt;
      &lt;DESCRIPTION&gt;Amount of time (in milliseconds) taken by the event.
      &lt;/DESCRIPTION&gt;
      &lt;FILTERABLE&gt;true&lt;/FILTERABLE&gt;
      &lt;REPEATABLE&gt;false&lt;/REPEATABLE&gt;
      &lt;REPEATEDBASE&gt;false&lt;/REPEATEDBASE&gt;
    &lt;/COLUMN&gt;
  </Data>
</row>

```

```

    </Data>
</row>
<row>
  <Data>
    &lt; COLUMN&gt;
    &lt; ID&gt;6&lt;/ ID&gt;
    &lt; TYPE&gt;2&lt;/ TYPE&gt;
    &lt; NAME&gt;CPUtime&lt;/ NAME&gt;
    &lt; DESCRIPTION&gt;Amount of CPU time (in milliseconds) used by the event.
    &lt;/ DESCRIPTION&gt;
    &lt; FILTERABLE&gt;true&lt;/ FILTERABLE&gt;
    &lt; REPEATABLE&gt;false&lt;/ REPEATABLE&gt;
    &lt; REPEATEDBASE&gt;false&lt;/ REPEATEDBASE&gt;
    &lt;/ COLUMN&gt;
  </Data>
</row>
<row>
  <Data>
    &lt; COLUMN&gt;
    &lt; ID&gt;7&lt;/ ID&gt;
    &lt; TYPE&gt;1&lt;/ TYPE&gt;
    &lt; NAME&gt;JobID&lt;/ NAME&gt;
    &lt; DESCRIPTION&gt;Job ID for progress.&lt;/ DESCRIPTION&gt;
    &lt; FILTERABLE&gt;true&lt;/ FILTERABLE&gt;
    &lt; REPEATABLE&gt;false&lt;/ REPEATABLE&gt;
    &lt; REPEATEDBASE&gt;false&lt;/ REPEATEDBASE&gt;
    &lt;/ COLUMN&gt;
  </Data>
</row>
<row>
  <Data>
    &lt; COLUMN&gt;
    &lt; ID&gt;8&lt;/ ID&gt;
    &lt; TYPE&gt;8&lt;/ TYPE&gt;
    &lt; NAME&gt;SessionType&lt;/ NAME&gt;
    &lt; DESCRIPTION&gt;Session type (what entity caused the operation).
    &lt;/ DESCRIPTION&gt;
    &lt; FILTERABLE&gt;true&lt;/ FILTERABLE&gt;
    &lt; REPEATABLE&gt;false&lt;/ REPEATABLE&gt;
    &lt; REPEATEDBASE&gt;false&lt;/ REPEATEDBASE&gt;
    &lt;/ COLUMN&gt;
  </Data>
</row>
<row>
  <Data>
    &lt; COLUMN&gt;
    &lt; ID&gt;9&lt;/ ID&gt;
    &lt; TYPE&gt;1&lt;/ TYPE&gt;
    &lt; NAME&gt;ProgressTotal&lt;/ NAME&gt;
    &lt; DESCRIPTION&gt;Progress total.&lt;/ DESCRIPTION&gt;
    &lt; FILTERABLE&gt;true&lt;/ FILTERABLE&gt;
    &lt; REPEATABLE&gt;false&lt;/ REPEATABLE&gt;
    &lt; REPEATEDBASE&gt;false&lt;/ REPEATEDBASE&gt;
    &lt;/ COLUMN&gt;
  </Data>
</row>
<row>
  <Data>
    &lt; COLUMN&gt;

```

```

        <ID>10</ID>;
        <TYPE>1</TYPE>;
        <NAME>IntegerData</NAME>;
        <DESCRIPTION>Integer data.</DESCRIPTION>;
        <FILTERABLE>true</FILTERABLE>;
        <REPEATABLE>false</REPEATABLE>;
        <REPEATEDBASE>false</REPEATEDBASE>;
        </COLUMN>;
    </Data>
</row>
<row>
    <Data>
        <COLUMN>;
        <ID>11</ID>;
        <TYPE>8</TYPE>;
        <NAME>ObjectID</NAME>;
        <DESCRIPTION>Object ID (note this is a string).</DESCRIPTION>;
        <FILTERABLE>true</FILTERABLE>;
        <REPEATABLE>false</REPEATABLE>;
        <REPEATEDBASE>false</REPEATEDBASE>;
        </COLUMN>;
    </Data>
</row>
<row>
    <Data>
        <COLUMN>;
        <ID>12</ID>;
        <TYPE>1</TYPE>;
        <NAME>ObjectType</NAME>;
        <DESCRIPTION>Object type.</DESCRIPTION>;
        <FILTERABLE>true</FILTERABLE>;
        <REPEATABLE>false</REPEATABLE>;
        <REPEATEDBASE>false</REPEATEDBASE>;
        </COLUMN>;
    </Data>
</row>
<row>
    <Data>
        <COLUMN>;
        <ID>13</ID>;
        <TYPE>8</TYPE>;
        <NAME>ObjectName</NAME>;
        <DESCRIPTION>Object name.</DESCRIPTION>;
        <FILTERABLE>true</FILTERABLE>;
        <REPEATABLE>false</REPEATABLE>;
        <REPEATEDBASE>false</REPEATEDBASE>;
        </COLUMN>;
    </Data>
</row>
<row>
    <Data>
        <COLUMN>;
        <ID>14</ID>;
        <TYPE>8</TYPE>;
        <NAME>ObjectPath</NAME>;
        <DESCRIPTION>Object path. A comma-separated list of parents,
starting with the object's parent.</DESCRIPTION>;
        <FILTERABLE>true</FILTERABLE>;
        <REPEATABLE>false</REPEATABLE>;
    </Data>

```

```

        <lt; REPEATEDBASE>>false</REPEATEDBASE>>
        <lt; COLUMN>>
    </Data>
</row>
<row>
    <Data>
        <lt; COLUMN>>
        <lt; ID>>15</ID>>
        <lt; TYPE>>8</TYPE>>
        <lt; NAME>>ObjectReference</NAME>>
        <lt; DESCRIPTION>>Object reference. Encoded as XML for all parents,
        using tags to describe the object.</DESCRIPTION>>
        <lt; FILTERABLE>>true</FILTERABLE>>
        <lt; REPEATABLE>>false</REPEATABLE>>
        <lt; REPEATEDBASE>>false</REPEATEDBASE>>
        <lt; COLUMN>>
    </Data>
</row>
<row>
    <Data>
        <lt; COLUMN>>
        <lt; ID>>22</ID>>
        <lt; TYPE>>1</TYPE>>
        <lt; NAME>>Severity</NAME>>
        <lt; DESCRIPTION>>Severity level of an exception.</DESCRIPTION>>
        <lt; FILTERABLE>>true</FILTERABLE>>
        <lt; REPEATABLE>>false</REPEATABLE>>
        <lt; REPEATEDBASE>>false</REPEATEDBASE>>
        <lt; COLUMN>>
    </Data>
</row>
<row>
    <Data>
        <lt; COLUMN>>
        <lt; ID>>23</ID>>
        <lt; TYPE>>1</TYPE>>
        <lt; NAME>>Success</NAME>>
        <lt; DESCRIPTION>>1 = success. 0 = failure (for example,
        a 1 means success of a permissions check and a 0 means a failure of that
check) .
        <lt; DESCRIPTION>>
        <lt; FILTERABLE>>true</FILTERABLE>>
        <lt; REPEATABLE>>false</REPEATABLE>>
        <lt; REPEATEDBASE>>false</REPEATEDBASE>>
        <lt; COLUMN>>
    </Data>
</row>
<row>
    <Data>
        <lt; COLUMN>>
        <lt; ID>>24</ID>>
        <lt; TYPE>>1</TYPE>>
        <lt; NAME>>Error</NAME>>
        <lt; DESCRIPTION>>Error number of a given event.</DESCRIPTION>>
        <lt; FILTERABLE>>true</FILTERABLE>>
        <lt; REPEATABLE>>false</REPEATABLE>>
        <lt; REPEATEDBASE>>false</REPEATEDBASE>>
        <lt; COLUMN>>
    </Data>

```

```

</row>
<row>
  <Data>
    &lt; COLUMN&gt;
    &lt; ID&gt;25&lt; /ID&gt;
    &lt; TYPE&gt;1&lt; /TYPE&gt;
    &lt; NAME&gt;ConnectionID&lt; /NAME&gt;
    &lt; DESCRIPTION&gt;Unique connection ID.&lt; /DESCRIPTION&gt;
    &lt; FILTERABLE&gt;true&lt; /FILTERABLE&gt;
    &lt; REPEATABLE&gt;false&lt; /REPEATABLE&gt;
    &lt; REPEATEDBASE&gt;false&lt; /REPEATEDBASE&gt;
    &lt; /COLUMN&gt;
  </Data>
</row>
<row>
  <Data>
    &lt; COLUMN&gt;
    &lt; ID&gt;28&lt; /ID&gt;
    &lt; TYPE&gt;8&lt; /TYPE&gt;
    &lt; NAME&gt;DatabaseName&lt; /NAME&gt;
    &lt; DESCRIPTION&gt;Name of the database in which the
statement of the user is running.&lt; /DESCRIPTION&gt;
    &lt; FILTERABLE&gt;true&lt; /FILTERABLE&gt;
    &lt; REPEATABLE&gt;false&lt; /REPEATABLE&gt;
    &lt; REPEATEDBASE&gt;false&lt; /REPEATEDBASE&gt;
    &lt; /COLUMN&gt;
  </Data>
</row>
<row>
  <Data>
    &lt; COLUMN&gt;
    &lt; ID&gt;32&lt; /ID&gt;
    &lt; TYPE&gt;8&lt; /TYPE&gt;
    &lt; NAME&gt;NTUserName&lt; /NAME&gt;
    &lt; DESCRIPTION&gt;Windows user name.&lt; /DESCRIPTION&gt;
    &lt; FILTERABLE&gt;true&lt; /FILTERABLE&gt;
    &lt; REPEATABLE&gt;true&lt; /REPEATABLE&gt;
    &lt; REPEATEDBASE&gt;false&lt; /REPEATEDBASE&gt;
    &lt; /COLUMN&gt;
  </Data>
</row>
<row>
  <Data>
    &lt; COLUMN&gt;
    &lt; ID&gt;33&lt; /ID&gt;
    &lt; TYPE&gt;8&lt; /TYPE&gt;
    &lt; NAME&gt;NTDomainName&lt; /NAME&gt;
    &lt; DESCRIPTION&gt;Windows domain to which the user belongs.
    &lt; /DESCRIPTION&gt;
    &lt; FILTERABLE&gt;true&lt; /FILTERABLE&gt;
    &lt; REPEATABLE&gt;true&lt; /REPEATABLE&gt;
    &lt; REPEATEDBASE&gt;false&lt; /REPEATEDBASE&gt;
    &lt; /COLUMN&gt;
  </Data>
</row>
<row>
  <Data>
    &lt; COLUMN&gt;
    &lt; ID&gt;35&lt; /ID&gt;

```



```

        <lt;TYPE>>8</TYPE>>
        <lt;NAME>>ClientHostName</NAME>>
        <lt;DESCRIPTION>>Name of the computer on which the client is running.
        This data column is populated if the host name is provided by the client.
        </DESCRIPTION>>
        <lt;FILTERABLE>>true</FILTERABLE>>
        <lt;REPEATABLE>>true</REPEATABLE>>
        <lt;REPEATEDBASE>>false</REPEATEDBASE>>
        <lt;/COLUMN>>
    </Data>
</row>
<row>
    <Data>
        <lt;COLUMN>>
        <lt;ID>>36</ID>>
        <lt;TYPE>>1</TYPE>>
        <lt;NAME>>ClientProcessID</NAME>>
        <lt;DESCRIPTION>>The process ID of the client application.
        </DESCRIPTION>>
        <lt;FILTERABLE>>true</FILTERABLE>>
        <lt;REPEATABLE>>true</REPEATABLE>>
        <lt;REPEATEDBASE>>false</REPEATEDBASE>>
        <lt;/COLUMN>>
    </Data>
</row>
<row>
    <Data>
        <lt;COLUMN>>
        <lt;ID>>37</ID>>
        <lt;TYPE>>8</TYPE>>
        <lt;NAME>>ApplicationName</NAME>>
        <lt;DESCRIPTION>>Name of the client application that created the
        connection to the server. This column is populated with the values
        passed by the application rather than the displayed name of the program.
        </DESCRIPTION>>
        <lt;FILTERABLE>>true</FILTERABLE>>
        <lt;REPEATABLE>>true</REPEATABLE>>
        <lt;REPEATEDBASE>>false</REPEATEDBASE>>
        <lt;/COLUMN>>
    </Data>
</row>
<row>
    <Data>
        <lt;COLUMN>>
        <lt;ID>>39</ID>>
        <lt;TYPE>>8</TYPE>>
        <lt;NAME>>SessionID</NAME>>
        <lt;DESCRIPTION>>Session GUID.</DESCRIPTION>>
        <lt;FILTERABLE>>false</FILTERABLE>>
        <lt;REPEATABLE>>true</REPEATABLE>>
        <lt;REPEATEDBASE>>false</REPEATEDBASE>>
        <lt;/COLUMN>>
    </Data>
</row>
<row>
    <Data>
        <lt;COLUMN>>
        <lt;ID>>40</ID>>
        <lt;TYPE>>8</TYPE>>

```

```

    <NAME>NTCanonicalUserName</NAME>;
    <DESCRIPTION>User name in canonical form. For example,
    engineering.microsoft.com/software/someone.</DESCRIPTION>;
    <FILTERABLE>true</FILTERABLE>;
    <REPEATABLE>true</REPEATABLE>;
    <REPEATEDBASE>false</REPEATEDBASE>;
    </COLUMN>;
  </Data>
</row>
<row>
  <Data>
    <COLUMN>;
    <ID>41</ID>;
    <TYPE>1</TYPE>;
    <NAME>SPID</NAME>;
    <DESCRIPTION>Server process ID. This uniquely identifies a
    user session. This directly corresponds to the session GUID used by XML/A.
    </DESCRIPTION>;
    <FILTERABLE>true</FILTERABLE>;
    <REPEATABLE>true</REPEATABLE>;
    <REPEATEDBASE>false</REPEATEDBASE>;
    </COLUMN>;
  </Data>
</row>
<row>
  <Data>
    <COLUMN>;
    <ID>42</ID>;
    <TYPE>9</TYPE>;
    <NAME>TextData</NAME>;
    <DESCRIPTION>Text data associated with the event.
    </DESCRIPTION>;
    <FILTERABLE>true</FILTERABLE>;
    <REPEATABLE>true</REPEATABLE>;
    <REPEATEDBASE>false</REPEATEDBASE>;
    </COLUMN>;
  </Data>
</row>
<row>
  <Data>
    <COLUMN>;
    <ID>43</ID>;
    <TYPE>8</TYPE>;
    <NAME>ServerName</NAME>;
    <DESCRIPTION>Name of the server producing the event.
    </DESCRIPTION>;
    <FILTERABLE>true</FILTERABLE>;
    <REPEATABLE>true</REPEATABLE>;
    <REPEATEDBASE>false</REPEATEDBASE>;
    </COLUMN>;
  </Data>
</row>
<row>
  <Data>
    <COLUMN>;
    <ID>44</ID>;
    <TYPE>9</TYPE>;
    <NAME>RequestParameters</NAME>;
    <DESCRIPTION>Parameters for parameterized queries and commands.

```

```

        &lt;/DESCRIPTION&gt;
        &lt;FILTERABLE&gt;true&lt;/FILTERABLE&gt;
        &lt;REPEATABLE&gt;true&lt;/REPEATABLE&gt;
        &lt;REPEATEDBASE&gt>false&lt;/REPEATEDBASE&gt;
        &lt;/COLUMN&gt;
    </Data>
</row>
<row>
    <Data>
        &lt;COLUMN&gt;
            &lt;ID&gt;45&lt;/ID&gt;
            &lt;TYPE&gt;9&lt;/TYPE&gt;
            &lt;NAME&gt;RequestProperties&lt;/NAME&gt;
            &lt;DESCRIPTION&gt;XMLA request properties.&lt;/DESCRIPTION&gt;
            &lt;FILTERABLE&gt;true&lt;/FILTERABLE&gt;
            &lt;REPEATABLE&gt;true&lt;/REPEATABLE&gt;
            &lt;REPEATEDBASE&gt>false&lt;/REPEATEDBASE&gt;
            &lt;/COLUMN&gt;
        </Data>
    </row>
</root>
</return>
</DiscoverResponse>
</soap:Body>
</soap:Envelope>

```

4.12 Client Obtains List of Trace Event Categories

In this example, the client sends a DISCOVER_TRACE_EVENT_CATEGORIES request. The results of this request represent the actual Trace Event Categories supported by Microsoft Microsoft® SQL Server® 2008 Analysis Services.

4.12.1 Client Sends Request

The client sends the following request:

```

<Envelope xmlns="http://schemas.xmlsoap.org/soap/envelope/">
  <Body>
    <Discover xmlns="urn:schemas-microsoft-com:xml-analysis">
      <RequestType>DISCOVER_TRACE_EVENT_CATEGORIES</RequestType>
      <Restrictions>
        <RestrictionList></RestrictionList>
      </Restrictions>
      <Properties>
        <PropertyList>
          <Catalog>Adventure Works DW 2008</Catalog>
        </PropertyList>
      </Properties>
    </Discover>
  </Body>
</Envelope>

```

4.12.2 Server Response

The server responds with a list of trace event categories:

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <DiscoverResponse xmlns="urn:schemas-microsoft-com:xml-analysis"

xmlns:ddl2="http://schemas.microsoft.com/analysisisservices/2003/engine/2"

xmlns:ddl2_2="http://schemas.microsoft.com/analysisisservices/2003/engine/2/2"

xmlns:ddl100="http://schemas.microsoft.com/analysisisservices/2008/engine/100"

xmlns:ddl100_100="http://schemas.microsoft.com/analysisisservices/2008/engine/100/100">
      <return>
        <root xmlns="urn:schemas-microsoft-com:xml-analysis:rowset"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
          xmlns:xsd="http://www.w3.org/2001/XMLSchema">
          <xsd:schema targetNamespace="urn:schemas-microsoft-com:xml-analysis:rowset"
            xmlns:sql="urn:schemas-microsoft-com:xml-sql"
            elementFormDefault="qualified">
            <xsd:element name="root">
              <xsd:complexType>
                <xsd:sequence minOccurs="0" maxOccurs="unbounded">
                  <xsd:element name="row" type="row" />
                </xsd:sequence>
              </xsd:complexType>
            </xsd:element>
            <xsd:simpleType name="uuid">
              <xsd:restriction base="xsd:string">
                <xsd:pattern value="[0-9a-zA-Z]{8}-[0-9a-zA-Z]{4}-
                  [0-9a-zA-Z]{4}-[0-9a-zA-Z]{4}-[0-9a-zA-Z]{12}" />
              </xsd:restriction>
            </xsd:simpleType>
            <xsd:complexType name="xmlDocument">
              <xsd:sequence>
                <xsd:any />
              </xsd:sequence>
            </xsd:complexType>
            <xsd:complexType name="row">
              <xsd:sequence>
                <xsd:element sql:field="Data" name="Data" type="xsd:string"
                  minOccurs="0" />
              </xsd:sequence>
            </xsd:complexType>
          </xsd:schema>
          <row>
            <Data>
              &lt;EVENTCATEGORY&gt;
              &lt;NAME&gt;Security Audit&lt;/NAME&gt;
              &lt;TYPE&gt;0&lt;/TYPE&gt;
              &lt;DESCRIPTION&gt;Collection of database audit event classes.
              &lt;/DESCRIPTION&gt;
              &lt;EVENTLIST&gt;
              &lt;EVENT&gt;
              &lt;ID&gt;1&lt;/ID&gt;
              &lt;NAME&gt;Audit Login&lt;/NAME&gt;
```

```

<DESCRIPTION>Collects all new connection events since
the trace was started, such as when a client requests a connection
to a server running an instance of SQL Server.</DESCRIPTION>
<EVENTCOLUMNLIST>
<EVENTCOLUMN>
<ID>0</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>2</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>3</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>22</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>23</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>24</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>25</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>32</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>33</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>35</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>36</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>37</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>40</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>43</ID>
</EVENTCOLUMN>
</EVENTCOLUMNLIST>
</EVENT>
<EVENT>
<ID>2</ID>
<NAME>Audit Logout</NAME>
<DESCRIPTION>Collects all new disconnect events
since the trace was started, such as when a client issues a
disconnect command.</DESCRIPTION>
<EVENTCOLUMNLIST>
<EVENTCOLUMN>
<ID>0</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>

```

```

<ID>2</ID>;
</EVENTCOLUMN>;
<EVENTCOLUMN>;
<ID>4</ID>;
</EVENTCOLUMN>;
<EVENTCOLUMN>;
<ID>5</ID>;
</EVENTCOLUMN>;
<EVENTCOLUMN>;
<ID>6</ID>;
</EVENTCOLUMN>;
<EVENTCOLUMN>;
<ID>23</ID>;
</EVENTCOLUMN>;
<EVENTCOLUMN>;
<ID>25</ID>;
</EVENTCOLUMN>;
<EVENTCOLUMN>;
<ID>32</ID>;
</EVENTCOLUMN>;
<EVENTCOLUMN>;
<ID>33</ID>;
</EVENTCOLUMN>;
<EVENTCOLUMN>;
<ID>35</ID>;
</EVENTCOLUMN>;
<EVENTCOLUMN>;
<ID>36</ID>;
</EVENTCOLUMN>;
<EVENTCOLUMN>;
<ID>37</ID>;
</EVENTCOLUMN>;
<EVENTCOLUMN>;
<ID>40</ID>;
</EVENTCOLUMN>;
<EVENTCOLUMN>;
<ID>43</ID>;
</EVENTCOLUMN>;
</EVENTCOLUMNLIST>;
</EVENT>;
<EVENT>;
<ID>4</ID>;
<NAME>Audit Server Starts And Stops</NAME>;
<DESCRIPTION>Records service shut down, start, and
pause activities.</DESCRIPTION>;
</EVENTCOLUMNLIST>;
<EVENTCOLUMN>;
<ID>0</ID>;
</EVENTCOLUMN>;
<EVENTCOLUMN>;
<ID>1</ID>;
<EVENTCOLUMNSUBCLASSLIST>;
<EVENTCOLUMNSUBCLASS>;
<ID>1</ID>;
<NAME>Instance Shutdown</NAME>;
</EVENTCOLUMNSUBCLASS>;
<EVENTCOLUMNSUBCLASS>;
<ID>2</ID>;
<NAME>Instance Started</NAME>;

```

```

&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;3&lt;/ID&gt;
&lt;NAME&gt;Instance Paused&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;4&lt;/ID&gt;
&lt;NAME&gt;Instance Continued&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;/EVENTCOLUMNSUBCLASSLIST&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;2&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;22&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;23&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;24&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;42&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;43&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/EVENTCOLUMNLIST&gt;
&lt;/EVENT&gt;
&lt;EVENT&gt;
&lt;ID&gt;18&lt;/ID&gt;
&lt;NAME&gt;Audit Object Permission Event&lt;/NAME&gt;
&lt;DESCRIPTION&gt;Records object permission changes.
&lt;/DESCRIPTION&gt;
&lt;/EVENTCOLUMNLIST&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;11&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;12&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;13&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;14&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;15&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;22&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;23&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;

```

```

<ID>24</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>25</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>28</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>32</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>33</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>35</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>36</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>37</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>39</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>40</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>41</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>42</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>43</ID>
</EVENTCOLUMN>
</EVENTCOLUMNLIST>
</EVENT>
<EVENT>
<ID>19</ID>
<NAME>Audit Backup/Restore Event</NAME>
<DESCRIPTION>Records server backup/restore.</DESCRIPTION>
</EVENTCOLUMNLIST>
<EVENTCOLUMN>
<ID>1</ID>
<EVENTCOLUMNSUBCLASSLIST>
<EVENTCOLUMNSUBCLASS>
<ID>1</ID>
<NAME>Backup</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>2</ID>
<NAME>Restore</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>3</ID>
<NAME>Synchronize</NAME>

```



```
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;4&lt;/ID&gt;
&lt;NAME&gt;Detach&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;5&lt;/ID&gt;
&lt;NAME&gt;Attach&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;/EVENTCOLUMNSUBCLASSLIST&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;22&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;23&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;24&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;25&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;28&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;32&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;33&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;35&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;36&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;37&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;39&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;40&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;41&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;42&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;43&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/EVENTCOLUMNLIST&gt;
&lt;/EVENT&gt;
&lt;/EVENTLIST&gt;
```

```

        &lt;/EVENTCATEGORY&gt;
    </Data>
</row>
<row>
    <Data>
        &lt;EVENTCATEGORY&gt;
        &lt;NAME&gt;Progress Reports&lt;/NAME&gt;
        &lt;TYPE&gt;0&lt;/TYPE&gt;
        &lt;DESCRIPTION&gt;Collection of events for progress reporting.
        &lt;/DESCRIPTION&gt;
        &lt;EVENTLIST&gt;
        &lt;EVENT&gt;
        &lt;ID&gt;5&lt;/ID&gt;
        &lt;NAME&gt;Progress Report Begin&lt;/NAME&gt;
        &lt;DESCRIPTION&gt;Progress report begin.&lt;/DESCRIPTION&gt;
        &lt;EVENTCOLUMNLIST&gt;
        &lt;EVENTCOLUMN&gt;
        &lt;ID&gt;0&lt;/ID&gt;
        &lt;/EVENTCOLUMN&gt;
        &lt;EVENTCOLUMN&gt;
        &lt;ID&gt;1&lt;/ID&gt;
        &lt;EVENTCOLUMNSUBCLASSLIST&gt;
        &lt;EVENTCOLUMNSUBCLASS&gt;
        &lt;ID&gt;1&lt;/ID&gt;
        &lt;NAME&gt;Process&lt;/NAME&gt;
        &lt;/EVENTCOLUMNSUBCLASS&gt;
        &lt;EVENTCOLUMNSUBCLASS&gt;
        &lt;ID&gt;2&lt;/ID&gt;
        &lt;NAME&gt;Merge&lt;/NAME&gt;
        &lt;/EVENTCOLUMNSUBCLASS&gt;
        &lt;EVENTCOLUMNSUBCLASS&gt;
        &lt;ID&gt;3&lt;/ID&gt;
        &lt;NAME&gt;Delete&lt;/NAME&gt;
        &lt;/EVENTCOLUMNSUBCLASS&gt;
        &lt;EVENTCOLUMNSUBCLASS&gt;
        &lt;ID&gt;4&lt;/ID&gt;
        &lt;NAME&gt;DeleteOldAggregations&lt;/NAME&gt;
        &lt;/EVENTCOLUMNSUBCLASS&gt;
        &lt;EVENTCOLUMNSUBCLASS&gt;
        &lt;ID&gt;5&lt;/ID&gt;
        &lt;NAME&gt;Rebuild&lt;/NAME&gt;
        &lt;/EVENTCOLUMNSUBCLASS&gt;
        &lt;EVENTCOLUMNSUBCLASS&gt;
        &lt;ID&gt;6&lt;/ID&gt;
        &lt;NAME&gt;Commit&lt;/NAME&gt;
        &lt;/EVENTCOLUMNSUBCLASS&gt;
        &lt;EVENTCOLUMNSUBCLASS&gt;
        &lt;ID&gt;7&lt;/ID&gt;
        &lt;NAME&gt;Rollback&lt;/NAME&gt;
        &lt;/EVENTCOLUMNSUBCLASS&gt;
        &lt;EVENTCOLUMNSUBCLASS&gt;
        &lt;ID&gt;8&lt;/ID&gt;
        &lt;NAME&gt;CreateIndexes&lt;/NAME&gt;
        &lt;/EVENTCOLUMNSUBCLASS&gt;
        &lt;EVENTCOLUMNSUBCLASS&gt;
        &lt;ID&gt;9&lt;/ID&gt;
        &lt;NAME&gt;CreateTable&lt;/NAME&gt;
        &lt;/EVENTCOLUMNSUBCLASS&gt;
        &lt;EVENTCOLUMNSUBCLASS&gt;

```

```

<ID>10</ID>
<NAME>InsertInto</NAME>
<EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>11</ID>
<NAME>Transaction</NAME>
<EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>12</ID>
<NAME>Initialize</NAME>
<EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>13</ID>
<NAME>Discretize</NAME>
<EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>14</ID>
<NAME>Query</NAME>
<EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>15</ID>
<NAME>CreateView</NAME>
<EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>16</ID>
<NAME>WriteData</NAME>
<EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>17</ID>
<NAME>ReadData</NAME>
<EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>18</ID>
<NAME>GroupData</NAME>
<EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>19</ID>
<NAME>GroupDataRecord</NAME>
<EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>20</ID>
<NAME>BuildIndex</NAME>
<EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>21</ID>
<NAME>Aggregate</NAME>
<EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>22</ID>
<NAME>BuildDecode</NAME>
<EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>23</ID>
<NAME>WriteDecode</NAME>
<EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>24</ID>
<NAME>BuildDMDecode</NAME>
<EVENTCOLUMNSSUBCLASS>

```

```
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;25&lt;/ID&gt;
&lt;NAME&gt;ExecuteSQL&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;26&lt;/ID&gt;
&lt;NAME&gt;ExecuteModifiedSQL&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;27&lt;/ID&gt;
&lt;NAME&gt;Connecting&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;28&lt;/ID&gt;
&lt;NAME&gt;BuildAggsAndIndexes&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;29&lt;/ID&gt;
&lt;NAME&gt;MergeAggsOnDisk&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;30&lt;/ID&gt;
&lt;NAME&gt;BuildIndexForRigidAggs&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;31&lt;/ID&gt;
&lt;NAME&gt;BuildIndexForFlexibleAggs&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;32&lt;/ID&gt;
&lt;NAME&gt;WriteAggsAndIndexes&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;33&lt;/ID&gt;
&lt;NAME&gt;WriteSegment&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;34&lt;/ID&gt;
&lt;NAME&gt;DataMiningProgress&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;35&lt;/ID&gt;
&lt;NAME&gt;ReadBufferFullReport&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;36&lt;/ID&gt;
&lt;NAME&gt;ProactiveCacheConversion&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;37&lt;/ID&gt;
&lt;NAME&gt;Backup&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;38&lt;/ID&gt;
&lt;NAME&gt;Restore&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;39&lt;/ID&gt;
&lt;NAME&gt;Synchronize&lt;/NAME&gt;
```

</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>40</ID>
<NAME>Build Processing Schedule</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>41</ID>
<NAME>Detach</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>42</ID>
<NAME>Attach</NAME>
</EVENTCOLUMNSUBCLASS>
</EVENTCOLUMNSUBCLASSLIST>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>2</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>3</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>7</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>8</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>11</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>12</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>13</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>14</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>15</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>25</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>28</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>32</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>33</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>39</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>40</ID>

```

&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;41&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;42&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;43&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/EVENTCOLUMNLIST&gt;
&lt;/EVENT&gt;
&lt;EVENT&gt;
&lt;ID&gt;6&lt;/ID&gt;
&lt;NAME&gt;Progress Report End&lt;/NAME&gt;
&lt;DESCRIPTION&gt;Progress report end.&lt;/DESCRIPTION&gt;
&lt;EVENTCOLUMNLIST&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;0&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;1&lt;/ID&gt;
&lt;EVENTCOLUMNSUBCLASSLIST&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;1&lt;/ID&gt;
&lt;NAME&gt;Process&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;2&lt;/ID&gt;
&lt;NAME&gt;Merge&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;3&lt;/ID&gt;
&lt;NAME&gt;Delete&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;4&lt;/ID&gt;
&lt;NAME&gt;DeleteOldAggregations&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;5&lt;/ID&gt;
&lt;NAME&gt;Rebuild&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;6&lt;/ID&gt;
&lt;NAME&gt;Commit&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;7&lt;/ID&gt;
&lt;NAME&gt;Rollback&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;8&lt;/ID&gt;
&lt;NAME&gt;CreateIndexes&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;9&lt;/ID&gt;
&lt;NAME&gt;CreateTable&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;

```

```

<EVENTCOLUMNSSUBCLASS>
<ID>10</ID>
<NAME>InsertInto</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>11</ID>
<NAME>Transaction</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>12</ID>
<NAME>Initialize</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>13</ID>
<NAME>Discretize</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>14</ID>
<NAME>Query</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>15</ID>
<NAME>CreateView</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>16</ID>
<NAME>WriteData</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>17</ID>
<NAME>ReadData</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>18</ID>
<NAME>GroupData</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>19</ID>
<NAME>GroupDataRecord</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>20</ID>
<NAME>BuildIndex</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>21</ID>
<NAME>Aggregate</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>22</ID>
<NAME>BuildDecode</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>23</ID>
<NAME>WriteDecode</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>24</ID>
<NAME>BuildDMDecode</NAME>

```

```
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;25&lt;/ID&gt;
&lt;NAME&gt;ExecuteSQL&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;26&lt;/ID&gt;
&lt;NAME&gt;ExecuteModifiedSQL&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;27&lt;/ID&gt;
&lt;NAME&gt;Connecting&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;28&lt;/ID&gt;
&lt;NAME&gt;BuildAggsAndIndexes&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;29&lt;/ID&gt;
&lt;NAME&gt;MergeAggsOnDisk&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;30&lt;/ID&gt;
&lt;NAME&gt;BuildIndexForRigidAggs&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;31&lt;/ID&gt;
&lt;NAME&gt;BuildIndexForFlexibleAggs&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;32&lt;/ID&gt;
&lt;NAME&gt;WriteAggsAndIndexes&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;33&lt;/ID&gt;
&lt;NAME&gt;WriteSegment&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;34&lt;/ID&gt;
&lt;NAME&gt;DataMiningProgress&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;35&lt;/ID&gt;
&lt;NAME&gt;ReadBufferFullReport&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;36&lt;/ID&gt;
&lt;NAME&gt;ProactiveCacheConversion&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;37&lt;/ID&gt;
&lt;NAME&gt;Backup&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;38&lt;/ID&gt;
&lt;NAME&gt;Restore&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;39&lt;/ID&gt;
```



```
&lt;NAME&gt;Synchronize&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;40&lt;/ID&gt;
&lt;NAME&gt;Build Processing Schedule&lt;/NAME &gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;41&lt;/ID&gt;
&lt;NAME&gt;Detach&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;42&lt;/ID&gt;
&lt;NAME&gt;Attach&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;/EVENTCOLUMNSSUBCLASSLIST&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;2&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;3&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;4&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;5&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;6&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;7&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;8&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;9&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;10&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;11&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;12&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;13&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;14&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;15&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
```

```

<ID>22</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>23</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>24</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>25</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>28</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>32</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>33</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>39</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>40</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>41</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>42</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>43</ID>
</EVENTCOLUMN>
</EVENTCOLUMNLIST>
</EVENT>
<EVENT>
<ID>7</ID>
<NAME>Progress Report Current</NAME>
<DESCRIPTION>Progress report current.</DESCRIPTION>
</EVENTCOLUMNLIST>
<EVENTCOLUMN>
<ID>0</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>1</ID>
</EVENTCOLUMNSUBCLASSLIST>
<EVENTCOLUMNSUBCLASS>
<ID>1</ID>
<NAME>Process</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>2</ID>
<NAME>Merge</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>3</ID>
<NAME>Delete</NAME>

```

</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>4</ID>
<NAME>DeleteOldAggregations</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>5</ID>
<NAME>Rebuild</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>6</ID>
<NAME>Commit</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>7</ID>
<NAME>Rollback</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>8</ID>
<NAME>CreateIndexes</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>9</ID>
<NAME>CreateTable</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>10</ID>
<NAME>InsertInto</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>11</ID>
<NAME>Transaction</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>12</ID>
<NAME>Initialize</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>13</ID>
<NAME>Discretize</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>14</ID>
<NAME>Query</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>15</ID>
<NAME>CreateView</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>16</ID>
<NAME>WriteData</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>17</ID>
<NAME>ReadData</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>18</ID>

```
&lt;NAME&gt;GroupData&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;19&lt;/ID&gt;
&lt;NAME&gt;GroupDataRecord&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;20&lt;/ID&gt;
&lt;NAME&gt;BuildIndex&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;21&lt;/ID&gt;
&lt;NAME&gt;Aggregate&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;22&lt;/ID&gt;
&lt;NAME&gt;BuildDecode&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;23&lt;/ID&gt;
&lt;NAME&gt;WriteDecode&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;24&lt;/ID&gt;
&lt;NAME&gt;BuildDMDecode&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;25&lt;/ID&gt;
&lt;NAME&gt;ExecuteSQL&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;26&lt;/ID&gt;
&lt;NAME&gt;ExecuteModifiedSQL&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;27&lt;/ID&gt;
&lt;NAME&gt;Connecting&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;28&lt;/ID&gt;
&lt;NAME&gt;BuildAggsAndIndexes&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;29&lt;/ID&gt;
&lt;NAME&gt;MergeAggsOnDisk&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;30&lt;/ID&gt;
&lt;NAME&gt;BuildIndexForRigidAggs&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;31&lt;/ID&gt;
&lt;NAME&gt;BuildIndexForFlexibleAggs&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;32&lt;/ID&gt;
&lt;NAME&gt;WriteAggsAndIndexes&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
```

```
&lt; ID&gt;33&lt; /ID&gt;
&lt; NAME&gt;WriteSegment&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;34&lt; /ID&gt;
&lt; NAME&gt;DataMiningProgress&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;35&lt; /ID&gt;
&lt; NAME&gt;ReadBufferFullReport&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;36&lt; /ID&gt;
&lt; NAME&gt;ProactiveCacheConversion&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;37&lt; /ID&gt;
&lt; NAME&gt;Backup&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;38&lt; /ID&gt;
&lt; NAME&gt;Restore&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;39&lt; /ID&gt;
&lt; NAME&gt;Synchronize&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;40&lt; /ID&gt;
&lt; NAME&gt;Build Processing Schedule&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;41&lt; /ID&gt;
&lt; NAME&gt;Detach&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;42&lt; /ID&gt;
&lt; NAME&gt;Attach&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; /EVENTCOLUMNSSUBCLASSLIST&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;2&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;3&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;7&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;8&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;9&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;10&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
```

```

<EVENTCOLUMN>
<ID>11</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>12</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>13</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>14</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>15</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>25</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>28</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>39</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>41</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>42</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>43</ID>
</EVENTCOLUMN>
</EVENTCOLUMNLIST>
</EVENT>
<EVENT>
<ID>8</ID>
<NAME>Progress Report Error</NAME>
<DESCRIPTION>Progress report error.</DESCRIPTION>
</EVENTCOLUMNLIST>
<EVENTCOLUMN>
<ID>0</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>1</ID>
</EVENTCOLUMNSUBCLASSLIST>
<EVENTCOLUMNSUBCLASS>
<ID>1</ID>
<NAME>Process</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>2</ID>
<NAME>Merge</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>3</ID>
<NAME>Delete</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>

```

```
&lt; ID&gt;4&lt; /ID&gt;
&lt; NAME&gt;DeleteOldAggregations&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;5&lt; /ID&gt;
&lt; NAME&gt;Rebuild&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;6&lt; /ID&gt;
&lt; NAME&gt;Commit&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;7&lt; /ID&gt;
&lt; NAME&gt;Rollback&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;8&lt; /ID&gt;
&lt; NAME&gt;CreateIndexes&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;9&lt; /ID&gt;
&lt; NAME&gt;CreateTable&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;10&lt; /ID&gt;
&lt; NAME&gt;InsertInto&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;11&lt; /ID&gt;
&lt; NAME&gt;Transaction&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;12&lt; /ID&gt;
&lt; NAME&gt;Initialize&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;13&lt; /ID&gt;
&lt; NAME&gt;Discretize&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;14&lt; /ID&gt;
&lt; NAME&gt;Query&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;15&lt; /ID&gt;
&lt; NAME&gt;CreateView&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;16&lt; /ID&gt;
&lt; NAME&gt;WriteData&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;17&lt; /ID&gt;
&lt; NAME&gt;ReadData&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;18&lt; /ID&gt;
&lt; NAME&gt;GroupData&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
```

```

&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;19&lt;/ID&gt;
&lt;NAME&gt;GroupDataRecord&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;20&lt;/ID&gt;
&lt;NAME&gt;BuildIndex&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;21&lt;/ID&gt;
&lt;NAME&gt;Aggregate&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;22&lt;/ID&gt;
&lt;NAME&gt;BuildDecode&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;23&lt;/ID&gt;
&lt;NAME&gt;WriteDecode&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;24&lt;/ID&gt;
&lt;NAME&gt;BuildDMDecode&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;25&lt;/ID&gt;
&lt;NAME&gt;ExecuteSQL&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;26&lt;/ID&gt;
&lt;NAME&gt;ExecuteModifiedSQL&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;27&lt;/ID&gt;
&lt;NAME&gt;Connecting&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;28&lt;/ID&gt;
&lt;NAME&gt;BuildAggsAndIndexes&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;29&lt;/ID&gt;
&lt;NAME&gt;MergeAggsOnDisk&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;30&lt;/ID&gt;
&lt;NAME&gt;BuildIndexForRigidAggs&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;31&lt;/ID&gt;
&lt;NAME&gt;BuildIndexForFlexibleAggs&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;32&lt;/ID&gt;
&lt;NAME&gt;WriteAggsAndIndexes&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;33&lt;/ID&gt;
&lt;NAME&gt;WriteSegment&lt;/NAME&gt;

```


</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>34</ID>
<NAME>DataMiningProgress</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>35</ID>
<NAME>ReadBufferFullReport</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>36</ID>
<NAME>ProactiveCacheConversion</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>37</ID>
<NAME>Backup</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>38</ID>
<NAME>Restore</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>39</ID>
<NAME>Synchronize</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>40</ID>
<NAME>Build Processing Schedule</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>41</ID>
<NAME>Detach</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>42</ID>
<NAME>Attach</NAME>
</EVENTCOLUMNSSUBCLASS>
</EVENTCOLUMNSSUBCLASSLIST>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>2</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>3</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>4</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>5</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>7</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>8</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>9</ID>

```

<lt;/EVENTCOLUMN>>
<lt;EVENTCOLUMN>>
<lt;ID>10</ID>
<lt;/EVENTCOLUMN>>
<lt;EVENTCOLUMN>>
<lt;ID>11</ID>
<lt;/EVENTCOLUMN>>
<lt;EVENTCOLUMN>>
<lt;ID>12</ID>
<lt;/EVENTCOLUMN>>
<lt;EVENTCOLUMN>>
<lt;ID>13</ID>
<lt;/EVENTCOLUMN>>
<lt;EVENTCOLUMN>>
<lt;ID>14</ID>
<lt;/EVENTCOLUMN>>
<lt;EVENTCOLUMN>>
<lt;ID>15</ID>
<lt;/EVENTCOLUMN>>
<lt;EVENTCOLUMN>>
<lt;ID>22</ID>
<lt;/EVENTCOLUMN>>
<lt;EVENTCOLUMN>>
<lt;ID>24</ID>
<lt;/EVENTCOLUMN>>
<lt;EVENTCOLUMN>>
<lt;ID>25</ID>
<lt;/EVENTCOLUMN>>
<lt;EVENTCOLUMN>>
<lt;ID>28</ID>
<lt;/EVENTCOLUMN>>
<lt;EVENTCOLUMN>>
<lt;ID>39</ID>
<lt;/EVENTCOLUMN>>
<lt;EVENTCOLUMN>>
<lt;ID>41</ID>
<lt;/EVENTCOLUMN>>
<lt;EVENTCOLUMN>>
<lt;ID>42</ID>
<lt;/EVENTCOLUMN>>
<lt;EVENTCOLUMN>>
<lt;ID>43</ID>
<lt;/EVENTCOLUMN>>
<lt;/EVENTCOLUMNLIST>>
<lt;/EVENT>>
<lt;/EVENTLIST>>
<lt;/EVENTCATEGORY>>
</Data>
</row>
<row>
<Data>
<lt;EVENTCATEGORY>>
<lt;NAME>Queries Events</NAME>
<lt;TYPE>0</TYPE>
<lt;DESCRIPTION>Collection of events for queries.
</DESCRIPTION>
<lt;EVENTLIST>>
<lt;EVENT>>
<lt;ID>9</ID>

```

```
<NAME>Query Begin</NAME>
<DESCRIPTION>Query begin.</DESCRIPTION>
<EVENTCOLUMNLIST>
<EVENTCOLUMN>
<ID>0</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>1</ID>
<EVENTCOLUMNSUBCLASSLIST>
<EVENTCOLUMNSUBCLASS>
<ID>0</ID>
<NAME>MDXQuery</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>1</ID>
<NAME>DMXQuery</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>2</ID>
<NAME>SQLQuery</NAME>
</EVENTCOLUMNSUBCLASS>
</EVENTCOLUMNSUBCLASSLIST>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>2</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>3</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>25</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>28</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>32</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>33</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>36</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>37</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>39</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>40</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>41</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>42</ID>
</EVENTCOLUMN>
```

```

<EVENTCOLUMN>
<ID>43</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>44</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>45</ID>
</EVENTCOLUMN>
</EVENTCOLUMNLIST>
</EVENT>
<EVENT>
<ID>10</ID>
<NAME>Query End</NAME>
<DESCRIPTION>Query end.</DESCRIPTION>
</EVENTCOLUMNLIST>
<EVENTCOLUMN>
<ID>0</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>1</ID>
<EVENTCOLUMNSUBCLASSLIST>
<EVENTCOLUMNSUBCLASS>
<ID>0</ID>
<NAME>MDXQuery</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>1</ID>
<NAME>DMXQuery</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>2</ID>
<NAME>SQLQuery</NAME>
</EVENTCOLUMNSUBCLASS>
</EVENTCOLUMNSUBCLASSLIST>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>2</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>3</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>4</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>5</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>6</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>22</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>23</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>24</ID>

```

```

&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;25&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;28&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;32&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;33&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;36&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;37&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;39&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;40&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;41&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;42&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;43&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/EVENTCOLUMNLIST&gt;
&lt;/EVENT&gt;
&lt;/EVENTLIST&gt;
&lt;/EVENTCATEGORY&gt;
</Data>
</row>
<row>
<Data>
&lt;EVENTCATEGORY&gt;
&lt;NAME&gt;Command Events&lt;/NAME&gt;
&lt;TYPE&gt;0&lt;/TYPE&gt;
&lt;DESCRIPTION&gt;Collection of events for commands.
&lt;/DESCRIPTION&gt;
&lt;EVENTLIST&gt;
&lt;EVENT&gt;
&lt;ID&gt;15&lt;/ID&gt;
&lt;NAME&gt;Command Begin&lt;/NAME&gt;
&lt;DESCRIPTION&gt;Command begin.&lt;/DESCRIPTION&gt;
&lt;EVENTCOLUMNLIST&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;0&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;1&lt;/ID&gt;
&lt;EVENTCOLUMNSUBCLASSLIST&gt;

```

```
<EVENTCOLUMNSUBCLASS>
<ID>0</ID>
<NAME>Create</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>1</ID>
<NAME>Alter</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>2</ID>
<NAME>Delete</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>3</ID>
<NAME>Process</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>4</ID>
<NAME>DesignAggregations</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>5</ID>
<NAME>WBInsert</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>6</ID>
<NAME>WBUpdate</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>7</ID>
<NAME>WBDelete</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>8</ID>
<NAME>Backup</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>9</ID>
<NAME>Restore</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>10</ID>
<NAME>MergePartitions</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>11</ID>
<NAME>Subscribe</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>12</ID>
<NAME>Batch</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>13</ID>
<NAME>BeginTransaction</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>14</ID>
<NAME>CommitTransaction</NAME>
```

```
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;15&lt;/ID&gt;
&lt;NAME&gt;RollbackTransaction&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;16&lt;/ID&gt;
&lt;NAME&gt;GetTransactionState&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;17&lt;/ID&gt;
&lt;NAME&gt;Cancel&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;18&lt;/ID&gt;
&lt;NAME&gt;Synchronize&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;19&lt;/ID&gt;
&lt;NAME&gt;Import80MiningModels&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;20&lt;/ID&gt;
&lt;NAME&gt;Attach&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;21&lt;/ID&gt;
&lt;NAME&gt;Detach&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;10000&lt;/ID&gt;
&lt;NAME&gt;Other&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;/EVENTCOLUMNSSUBCLASSLIST&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;2&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;3&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;8&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;25&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;28&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;32&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;33&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;36&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
```

```

&lt;EVENTCOLUMN&gt;
&lt;ID&gt;37&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;39&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;40&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;41&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;42&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;43&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;44&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;45&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/EVENTCOLUMNLIST&gt;
&lt;/EVENT&gt;
&lt;EVENT&gt;
&lt;ID&gt;16&lt;/ID&gt;
&lt;NAME&gt;Command End&lt;/NAME&gt;
&lt;DESCRIPTION&gt;Command end.&lt;/DESCRIPTION&gt;
&lt;EVENTCOLUMNLIST&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;0&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;1&lt;/ID&gt;
&lt;EVENTCOLUMNSUBCLASSLIST&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;0&lt;/ID&gt;
&lt;NAME&gt;Create&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;1&lt;/ID&gt;
&lt;NAME&gt;Alter&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;2&lt;/ID&gt;
&lt;NAME&gt;Delete&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;3&lt;/ID&gt;
&lt;NAME&gt;Process&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;4&lt;/ID&gt;
&lt;NAME&gt;DesignAggregations&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;5&lt;/ID&gt;

```


<NAME>WBInsert</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>6</ID>
<NAME>WBUpdate</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>7</ID>
<NAME>WBDelete</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>8</ID>
<NAME>Backup</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>9</ID>
<NAME>Restore</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>10</ID>
<NAME>MergePartitions</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>11</ID>
<NAME>Subscribe</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>12</ID>
<NAME>Batch</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>13</ID>
<NAME>BeginTransaction</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>14</ID>
<NAME>CommitTransaction</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>15</ID>
<NAME>RollbackTransaction</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>16</ID>
<NAME>GetTransactionState</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>17</ID>
<NAME>Cancel</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>18</ID>
<NAME>Synchronize</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>
<ID>19</ID>
<NAME>Import80MiningModels</NAME>
</EVENTCOLUMNSSUBCLASS>
<EVENTCOLUMNSSUBCLASS>

< ID>20< /ID>
< NAME> Attach< /NAME>
< /EVENTCOLUMNSUBCLASS>
< EVENTCOLUMNSUBCLASS>
< ID>21< /ID>
< NAME> Detach< /NAME>
< /EVENTCOLUMNSUBCLASS>
< EVENTCOLUMNSUBCLASS>
< ID>10000< /ID>
< NAME> Other< /NAME>
< /EVENTCOLUMNSUBCLASS>
< /EVENTCOLUMNSUBCLASSLIST>
< /EVENTCOLUMN>
< EVENTCOLUMN>
< ID>2< /ID>
< /EVENTCOLUMN>
< EVENTCOLUMN>
< ID>3< /ID>
< /EVENTCOLUMN>
< EVENTCOLUMN>
< ID>4< /ID>
< /EVENTCOLUMN>
< EVENTCOLUMN>
< ID>5< /ID>
< /EVENTCOLUMN>
< EVENTCOLUMN>
< ID>6< /ID>
< /EVENTCOLUMN>
< EVENTCOLUMN>
< ID>8< /ID>
< /EVENTCOLUMN>
< EVENTCOLUMN>
< ID>22< /ID>
< /EVENTCOLUMN>
< EVENTCOLUMN>
< ID>23< /ID>
< /EVENTCOLUMN>
< EVENTCOLUMN>
< ID>24< /ID>
< /EVENTCOLUMN>
< EVENTCOLUMN>
< ID>25< /ID>
< /EVENTCOLUMN>
< EVENTCOLUMN>
< ID>28< /ID>
< /EVENTCOLUMN>
< EVENTCOLUMN>
< ID>32< /ID>
< /EVENTCOLUMN>
< EVENTCOLUMN>
< ID>33< /ID>
< /EVENTCOLUMN>
< EVENTCOLUMN>
< ID>36< /ID>
< /EVENTCOLUMN>
< EVENTCOLUMN>
< ID>37< /ID>
< /EVENTCOLUMN>
< EVENTCOLUMN>

```

        <ID>39</ID>
        <EVENTCOLUMN>
        <EVENTCOLUMN>
        <ID>40</ID>
        <EVENTCOLUMN>
        <EVENTCOLUMN>
        <ID>41</ID>
        <EVENTCOLUMN>
        <EVENTCOLUMN>
        <ID>42</ID>
        <EVENTCOLUMN>
        <EVENTCOLUMN>
        <ID>43</ID>
        <EVENTCOLUMN>
        <EVENTCOLUMNLIST>
        <EVENT>
        <EVENTLIST>
        <EVENTCATEGORY>
    </Data>
</row>
<row>
    <Data>
        <EVENTCATEGORY>
        <NAME>Errors and Warnings</NAME>
        <TYPE>2</TYPE>
        <DESCRIPTION>Collection of events for server errors.
        </DESCRIPTION>
        <EVENTLIST>
        <EVENT>
        <ID>17</ID>
        <NAME>Error</NAME>
        <DESCRIPTION>Server error.</DESCRIPTION>
        <EVENTCOLUMNLIST>
        <EVENTCOLUMN>
        <ID>0</ID>
        <EVENTCOLUMN>
        <EVENTCOLUMN>
        <ID>3</ID>
        <EVENTCOLUMN>
        <EVENTCOLUMN>
        <ID>8</ID>
        <EVENTCOLUMN>
        <EVENTCOLUMN>
        <ID>22</ID>
        <EVENTCOLUMN>
        <EVENTCOLUMN>
        <ID>23</ID>
        <EVENTCOLUMN>
        <EVENTCOLUMN>
        <ID>24</ID>
        <EVENTCOLUMN>
        <EVENTCOLUMN>
        <ID>25</ID>
        <EVENTCOLUMN>
        <EVENTCOLUMN>
        <ID>28</ID>
        <EVENTCOLUMN>
        <EVENTCOLUMN>
        <ID>32</ID>

```

```

&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;33&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;35&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;36&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;37&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;39&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;41&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;42&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;43&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/EVENTCOLUMNLIST&gt;
&lt;/EVENT&gt;
&lt;/EVENTLIST&gt;
&lt;/EVENTCATEGORY&gt;
</Data>
</row>
<row>
<Data>
&lt;EVENTCATEGORY&gt;
&lt;NAME&gt;Discover Server State Events&lt;/NAME&gt;
&lt;TYPE&gt;0&lt;/TYPE&gt;
&lt;DESCRIPTION&gt;Collection of events for server state discovers.
&lt;/DESCRIPTION&gt;
&lt;EVENTLIST&gt;
&lt;EVENT&gt;
&lt;ID&gt;33&lt;/ID&gt;
&lt;NAME&gt;Server State Discover Begin&lt;/NAME&gt;
&lt;DESCRIPTION&gt;Start of Server State Discover.&lt;/DESCRIPTION&gt;
&lt;EVENTCOLUMNLIST&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;0&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;1&lt;/ID&gt;
&lt;EVENTCOLUMNSUBCLASSLIST&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;1&lt;/ID&gt;
&lt;NAME&gt;DISCOVER_CONNECTIONS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;2&lt;/ID&gt;
&lt;NAME&gt;DISCOVER_SESSIONS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;

```

```

&lt; ID&gt;3&lt; /ID&gt;
&lt; NAME&gt;DISCOVER_TRANSACTIONS&lt; /NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;6&lt; /ID&gt;
&lt; NAME&gt;DISCOVER_DB_CONNECTIONS&lt; /NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;7&lt; /ID&gt;
&lt; NAME&gt;DISCOVER_JOBS&lt; /NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;8&lt; /ID&gt;
&lt; NAME&gt;DISCOVER_LOCKS&lt; /NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;12&lt; /ID&gt;
&lt; NAME&gt;DISCOVER_PERFORMANCE_COUNTERS&lt; /NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;13&lt; /ID&gt;
&lt; NAME&gt;DISCOVER_MEMORYUSAGE&lt; /NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;14&lt; /ID&gt;
&lt; NAME&gt;DISCOVER_JOB_PROGRESS&lt; /NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;15&lt; /ID&gt;
&lt; NAME&gt;DISCOVER_MEMORYGRANT&lt; /NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; /EVENTCOLUMNSUBCLASSLIST&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;2&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;3&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;25&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;32&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;33&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;36&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;37&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;39&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;40&lt; /ID&gt;

```

```

</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>41</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>42</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>43</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>45</ID>
</EVENTCOLUMN>
</EVENTCOLUMNLIST>
</EVENT>
<EVENT>
<ID>34</ID>
<NAME>Server State Discover Data</NAME>
<DESCRIPTION>Contents of the Server State Discover Response.
</DESCRIPTION>
<EVENTCOLUMNLIST>
<EVENTCOLUMN>
<ID>0</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>1</ID>
<EVENTCOLUMNSUBCLASSLIST>
<EVENTCOLUMNSUBCLASS>
<ID>1</ID>
<NAME>DISCOVER_CONNECTIONS</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>2</ID>
<NAME>DISCOVER_SESSIONS</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>3</ID>
<NAME>DISCOVER_TRANSACTIONS</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>6</ID>
<NAME>DISCOVER_DB_CONNECTIONS</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>7</ID>
<NAME>DISCOVER_JOBS</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>8</ID>
<NAME>DISCOVER_LOCKS</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>12</ID>
<NAME>DISCOVER_PERFORMANCE_COUNTERS</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>13</ID>
<NAME>DISCOVER_MEMORYUSAGE</NAME>
</EVENTCOLUMNSUBCLASS>

```

```

&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;14&lt;/ID&gt;
&lt;NAME&gt;DISCOVER_JOB_PROGRESS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;15&lt;/ID&gt;
&lt;NAME&gt;DISCOVER_MEMORYGRANT&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;/EVENTCOLUMNSUBCLASSLIST&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;2&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;3&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;25&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;39&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;41&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;42&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;43&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/EVENTCOLUMNLIST&gt;
&lt;/EVENT&gt;
&lt;EVENT&gt;
&lt;ID&gt;35&lt;/ID&gt;
&lt;NAME&gt;Server State Discover End&lt;/NAME&gt;
&lt;DESCRIPTION&gt;End of Server State Discover.&lt;/DESCRIPTION&gt;
&lt;/EVENTCOLUMNLIST&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;0&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;1&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/EVENTCOLUMNLIST&gt;
&lt;EVENTCOLUMNSUBCLASSLIST&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;1&lt;/ID&gt;
&lt;NAME&gt;DISCOVER_CONNECTIONS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;2&lt;/ID&gt;
&lt;NAME&gt;DISCOVER_SESSIONS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;3&lt;/ID&gt;
&lt;NAME&gt;DISCOVER_TRANSACTION&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;6&lt;/ID&gt;
&lt;NAME&gt;DISCOVER_DB_CONNECTIONS&lt;/NAME&gt;

```

```
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;7&lt;/ID&gt;
&lt;NAME&gt;DISCOVER_JOBS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;8&lt;/ID&gt;
&lt;NAME&gt;DISCOVER_LOCKS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;12&lt;/ID&gt;
&lt;NAME&gt;DISCOVER_PERFORMANCE_COUNTERS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;13&lt;/ID&gt;
&lt;NAME&gt;DISCOVER_MEMORYUSAGE&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;14&lt;/ID&gt;
&lt;NAME&gt;DISCOVER_JOB_PROGRESS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;15&lt;/ID&gt;
&lt;NAME&gt;DISCOVER_MEMORYGRANT&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;/EVENTCOLUMNSUBCLASSLIST&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;2&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;3&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;4&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;5&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;6&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;25&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;32&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;33&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;36&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;37&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;39&lt;/ID&gt;
```



```

&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;40&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;41&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;42&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;43&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/EVENTCOLUMNLIST&gt;
&lt;/EVENT&gt;
&lt;/EVENTLIST&gt;
&lt;/EVENTCATEGORY&gt;
</Data>
</row>
<row>
<Data>
&lt;EVENTCATEGORY&gt;
&lt;NAME&gt;Discover Events&lt;/NAME&gt;
&lt;TYPE&gt;0&lt;/TYPE&gt;
&lt;DESCRIPTION&gt;Collection of events for discover requests.
&lt;/DESCRIPTION&gt;
&lt;EVENTLIST&gt;
&lt;EVENT&gt;
&lt;ID&gt;36&lt;/ID&gt;
&lt;NAME&gt;Discover Begin&lt;/NAME&gt;
&lt;DESCRIPTION&gt;Start of Discover Request.&lt;/DESCRIPTION&gt;
&lt;EVENTCOLUMNLIST&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;0&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;1&lt;/ID&gt;
&lt;EVENTCOLUMNSUBCLASSLIST&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;0&lt;/ID&gt;
&lt;NAME&gt;DBSCHEMA_CATALOGS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;1&lt;/ID&gt;
&lt;NAME&gt;DBSCHEMA_TABLES&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;2&lt;/ID&gt;
&lt;NAME&gt;DBSCHEMA_COLUMNS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;3&lt;/ID&gt;
&lt;NAME&gt;DBSCHEMA_PROVIDER_TYPES&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;4&lt;/ID&gt;
&lt;NAME&gt;MDSHEMA_CUBES&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;

```

```

&lt; ID&gt;5&lt; /ID&gt;
&lt; NAME&gt;MDSHEMA_DIMENSIONS&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;6&lt; /ID&gt;
&lt; NAME&gt;MDSHEMA_HIERARCHIES&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;7&lt; /ID&gt;
&lt; NAME&gt;MDSHEMA_LEVELS&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;8&lt; /ID&gt;
&lt; NAME&gt;MDSHEMA_MEASURES&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;9&lt; /ID&gt;
&lt; NAME&gt;MDSHEMA_PROPERTIES&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;10&lt; /ID&gt;
&lt; NAME&gt;MDSHEMA_MEMBERS&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;11&lt; /ID&gt;
&lt; NAME&gt;MDSHEMA_FUNCTIONS&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;12&lt; /ID&gt;
&lt; NAME&gt;MDSHEMA_ACTIONS&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;13&lt; /ID&gt;
&lt; NAME&gt;MDSHEMA_SETS&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;14&lt; /ID&gt;
&lt; NAME&gt;DISCOVER_INSTANCES&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;15&lt; /ID&gt;
&lt; NAME&gt;MDSHEMA_KPIS&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;16&lt; /ID&gt;
&lt; NAME&gt;MDSHEMA_MEASUREGROUPS&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;17&lt; /ID&gt;
&lt; NAME&gt;MDSHEMA_COMMANDS&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;18&lt; /ID&gt;
&lt; NAME&gt;MDSHEMA_MINING_SERVICES&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;
&lt; EVENTCOLUMNSSUBCLASS&gt;
&lt; ID&gt;19&lt; /ID&gt;
&lt; NAME&gt;MDSHEMA_MINING_SERVICE_PARAMETERS&lt; /NAME&gt;
&lt; /EVENTCOLUMNSSUBCLASS&gt;

```

```

&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;20&lt;/ID&gt;
&lt;NAME&gt;DMSHEMA_MINING_FUNCTIONS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;21&lt;/ID&gt;
&lt;NAME&gt;DMSHEMA_MINING_MODEL_CONTENT&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;22&lt;/ID&gt;
&lt;NAME&gt;DMSHEMA_MINING_MODEL_XML&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;23&lt;/ID&gt;
&lt;NAME&gt;DMSHEMA_MINING_MODELS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;24&lt;/ID&gt;
&lt;NAME&gt;DMSHEMA_MINING_COLUMNS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;25&lt;/ID&gt;
&lt;NAME&gt;DISCOVER_DATASOURCES&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;26&lt;/ID&gt;
&lt;NAME&gt;DISCOVER_PROPERTIES&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;27&lt;/ID&gt;
&lt;NAME&gt;DISCOVER_SCHEMA_ROWSETS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;28&lt;/ID&gt;
&lt;NAME&gt;DISCOVER_ENUMERATORS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;29&lt;/ID&gt;
&lt;NAME&gt;DISCOVER_KEYWORDS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;30&lt;/ID&gt;
&lt;NAME&gt;DISCOVER_LITERALS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;31&lt;/ID&gt;
&lt;NAME&gt;DISCOVER_XML_METADATA&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;32&lt;/ID&gt;
&lt;NAME&gt;DISCOVER_TRACES&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;33&lt;/ID&gt;
&lt;NAME&gt;DISCOVER_TRACE_DEFINITION_PROVIDERINFO&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;34&lt;/ID&gt;
&lt;NAME&gt;DISCOVER_TRACE_COLUMNS&lt;/NAME&gt;

```

```

&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;/ID&gt;35&lt;/ID&gt;
&lt;/NAME&gt;DISCOVER_TRACE_EVENT_CATEGORIES&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;/ID&gt;36&lt;/ID&gt;
&lt;/NAME&gt;DMSHEMA_MINING_STRUCTURES&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;/ID&gt;37&lt;/ID&gt;
&lt;/NAME&gt;DMSHEMA_MINING_STRUCTURE_COLUMNS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;/ID&gt;38&lt;/ID&gt;
&lt;/NAME&gt;DISCOVER_MASTER_KEY&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;/ID&gt;39&lt;/ID&gt;
&lt;/NAME&gt;MDSHEMA_INPUT_DATASOURCES&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;/ID&gt;40&lt;/ID&gt;
&lt;/NAME&gt;DISCOVER_LOCATIONS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;/ID&gt;41&lt;/ID&gt;
&lt;/NAME&gt;DISCOVER_PARTITION_DIMENSION_STAT&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;/ID&gt;42&lt;/ID&gt;
&lt;/NAME&gt;DISCOVER_PARTITION_STAT&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;/ID&gt;43&lt;/ID&gt;
&lt;/NAME&gt;DISCOVER_DIMENSION_STAT&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;/ID&gt;44&lt;/ID&gt;
&lt;/NAME&gt;MDSHEMA_MEASUREGROUP_DIMENSIONS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;/EVENTCOLUMNSSUBCLASSLIST&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/ID&gt;2&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/ID&gt;3&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/ID&gt;25&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/ID&gt;28&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/ID&gt;32&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/EVENTCOLUMN&gt;

```

```

&lt; ID&gt;33&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;36&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;37&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;39&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;40&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;41&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;42&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;43&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;45&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; /EVENTCOLUMNLIST&gt;
&lt; /EVENT&gt;
&lt; EVENT&gt;
&lt; ID&gt;38&lt;/ID&gt;
&lt; NAME&gt;Discover End&lt;/NAME&gt;
&lt; DESCRIPTION&gt;End of Discover Request.&lt;/DESCRIPTION&gt;
&lt; /EVENTCOLUMNLIST&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;0&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;1&lt;/ID&gt;
&lt; EVENTCOLUMNSUBCLASSLIST&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;0&lt;/ID&gt;
&lt; NAME&gt;DBSCHEMA_CATALOGS&lt;/NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;1&lt;/ID&gt;
&lt; NAME&gt;DBSCHEMA_TABLES&lt;/NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;2&lt;/ID&gt;
&lt; NAME&gt;DBSCHEMA_COLUMNS&lt;/NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;3&lt;/ID&gt;
&lt; NAME&gt;DBSCHEMA_PROVIDER_TYPES&lt;/NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;4&lt;/ID&gt;
&lt; NAME&gt;MDSHEMA_CUBES&lt;/NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;

```

```

&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;5&lt;/ID&gt;
&lt;NAME&gt;MDSHEMA_DIMENSIONS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;6&lt;/ID&gt;
&lt;NAME&gt;MDSHEMA_HIERARCHIES&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;7&lt;/ID&gt;
&lt;NAME&gt;MDSHEMA_LEVELS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;8&lt;/ID&gt;
&lt;NAME&gt;MDSHEMA_MEASURES&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;9&lt;/ID&gt;
&lt;NAME&gt;MDSHEMA_PROPERTIES&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;10&lt;/ID&gt;
&lt;NAME&gt;MDSHEMA_MEMBERS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;11&lt;/ID&gt;
&lt;NAME&gt;MDSHEMA_FUNCTIONS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;12&lt;/ID&gt;
&lt;NAME&gt;MDSHEMA_ACTIONS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;13&lt;/ID&gt;
&lt;NAME&gt;MDSHEMA_SETS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;14&lt;/ID&gt;
&lt;NAME&gt;DISCOVER_INSTANCES&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;15&lt;/ID&gt;
&lt;NAME&gt;MDSHEMA_KPIS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;16&lt;/ID&gt;
&lt;NAME&gt;MDSHEMA_MEASUREGROUPS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;17&lt;/ID&gt;
&lt;NAME&gt;MDSHEMA_COMMANDS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;18&lt;/ID&gt;
&lt;NAME&gt;MDSHEMA_MINING_SERVICES&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;19&lt;/ID&gt;
&lt;NAME&gt;MDSHEMA_MINING_SERVICE_PARAMETERS&lt;/NAME&gt;

```

```
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>20</ID>
<NAME>DMSHEMA_MINING_FUNCTIONS</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>21</ID>
<NAME>DMSHEMA_MINING_MODEL_CONTENT</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>22</ID>
<NAME>DMSHEMA_MINING_MODEL_XML</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>23</ID>
<NAME>DMSHEMA_MINING_MODELS</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>24</ID>
<NAME>DMSHEMA_MINING_COLUMNS</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>25</ID>
<NAME>DISCOVER_DATASOURCES</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>26</ID>
<NAME>DISCOVER_PROPERTIES</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>27</ID>
<NAME>DISCOVER_SCHEMA_ROWSETS</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>28</ID>
<NAME>DISCOVER_ENUMERATORS</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>29</ID>
<NAME>DISCOVER_KEYWORDS</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>30</ID>
<NAME>DISCOVER_LITERALS</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>31</ID>
<NAME>DISCOVER_XML_METADATA</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>32</ID>
<NAME>DISCOVER_TRACES</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>33</ID>
<NAME>DISCOVER_TRACE_DEFINITION_PROVIDERINFO</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>34</ID>
```

```

&lt;NAME&gt;DISCOVER_TRACE_COLUMNS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;35&lt;/ID&gt;
&lt;NAME&gt;DISCOVER_TRACE_EVENT_CATEGORIES&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;36&lt;/ID&gt;
&lt;NAME&gt;DMSHEMA_MINING_STRUCTURES&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;37&lt;/ID&gt;
&lt;NAME&gt;DMSHEMA_MINING_STRUCTURE_COLUMNS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;38&lt;/ID&gt;
&lt;NAME&gt;DISCOVER_MASTER_KEY&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;39&lt;/ID&gt;
&lt;NAME&gt;MDSHEMA_INPUT_DATASOURCES&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;40&lt;/ID&gt;
&lt;NAME&gt;DISCOVER_LOCATIONS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;44&lt;/ID&gt;
&lt;NAME&gt;MDSHEMA_MEASUREGROUP_DIMENSIONS&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;/EVENTCOLUMNSUBCLASSLIST&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;2&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;3&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;4&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;5&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;6&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;22&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;23&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;24&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;25&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;

```



```

    <EVENTCOLUMN>
    <ID>28</ID>
    </EVENTCOLUMN>
    <EVENTCOLUMN>
    <ID>32</ID>
    </EVENTCOLUMN>
    <EVENTCOLUMN>
    <ID>33</ID>
    </EVENTCOLUMN>
    <EVENTCOLUMN>
    <ID>36</ID>
    </EVENTCOLUMN>
    <EVENTCOLUMN>
    <ID>37</ID>
    </EVENTCOLUMN>
    <EVENTCOLUMN>
    <ID>39</ID>
    </EVENTCOLUMN>
    <EVENTCOLUMN>
    <ID>40</ID>
    </EVENTCOLUMN>
    <EVENTCOLUMN>
    <ID>41</ID>
    </EVENTCOLUMN>
    <EVENTCOLUMN>
    <ID>42</ID>
    </EVENTCOLUMN>
    <EVENTCOLUMN>
    <ID>43</ID>
    </EVENTCOLUMN>
    <EVENTCOLUMN>
    <ID>45</ID>
    </EVENTCOLUMN>
    </EVENTCOLUMNLIST>
    </EVENT>
    </EVENTLIST>
    </EVENTCATEGORY>
</Data>
</row>
<row>
<Data>
    <EVENTCATEGORY>
    <NAME>Notification Events</NAME>
    <TYPE>0</TYPE>
    <DESCRIPTION>Collection of notification events.
    </DESCRIPTION>
    <EVENTLIST>
    <EVENT>
    <ID>39</ID>
    <NAME>Notification</NAME>
    <DESCRIPTION>Notification event.</DESCRIPTION>
    <EVENTCOLUMNLIST>
    <EVENTCOLUMN>
    <ID>0</ID>
    </EVENTCOLUMN>
    <EVENTCOLUMN>
    <ID>1</ID>
    <EVENTCOLUMNSUBCLASSLIST>
    <EVENTCOLUMNSUBCLASS>

```

```

&lt; ID&gt;0&lt; /ID&gt;
&lt; NAME&gt;Proactive Caching Begin&lt; /NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;1&lt; /ID&gt;
&lt; NAME&gt;Proactive Caching End&lt; /NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;2&lt; /ID&gt;
&lt; NAME&gt;Flight Recorder Started&lt; /NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;3&lt; /ID&gt;
&lt; NAME&gt;Flight Recorder Stopped&lt; /NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;4&lt; /ID&gt;
&lt; NAME&gt;Configuration Properties Updated&lt; /NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;5&lt; /ID&gt;
&lt; NAME&gt;SQL Trace&lt; /NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;6&lt; /ID&gt;
&lt; NAME&gt;Object Created&lt; /NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;7&lt; /ID&gt;
&lt; NAME&gt;Object Deleted&lt; /NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;8&lt; /ID&gt;
&lt; NAME&gt;Object Altered&lt; /NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;9&lt; /ID&gt;
&lt; NAME&gt;Proactive Caching Polling Begin&lt; /NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;10&lt; /ID&gt;
&lt; NAME&gt;Proactive Caching Polling End&lt; /NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;11&lt; /ID&gt;
&lt; NAME&gt;Flight Recorder Snapshot Begin&lt; /NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;12&lt; /ID&gt;
&lt; NAME&gt;Flight Recorder Snapshot End&lt; /NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;13&lt; /ID&gt;
&lt; NAME&gt;Proactive Caching: notifiable object updated
&lt; /NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;14&lt; /ID&gt;
&lt; NAME&gt;Lazy Processing: start processing&lt; /NAME&gt;

```

```
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;15&lt;/ID&gt;
&lt;NAME&gt;Lazy Processing: processing complete&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;/EVENTCOLUMNSUBCLASSLIST&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;2&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;3&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;4&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;5&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;10&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;11&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;12&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;13&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;14&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;15&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;25&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;28&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;32&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;33&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;39&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;40&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;41&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
```

```
&lt; ID&gt;42&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;43&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;45&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; /EVENTCOLUMNLIST&gt;
&lt; /EVENT&gt;
&lt; EVENT&gt;
&lt; ID&gt;40&lt;/ID&gt;
&lt; NAME&gt;User Defined&lt;/NAME&gt;
&lt; DESCRIPTION&gt;User defined Event.&lt;/DESCRIPTION&gt;
&lt; EVENTCOLUMNLIST&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;0&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;1&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;2&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;10&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;25&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;28&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;32&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;33&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;39&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;40&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;41&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;42&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;43&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; /EVENTCOLUMNLIST&gt;
&lt; /EVENT&gt;
&lt; /EVENTLIST&gt;
&lt; /EVENTCATEGORY&gt;
</Data>
```

```

</row>
<row>
  <Data>
    &lt;EVENTCATEGORY&gt;
      &lt;NAME&gt;Session Events&lt;/NAME&gt;
      &lt;TYPE&gt;1&lt;/TYPE&gt;
      &lt;DESCRIPTION&gt;Collection of session events.&lt;/DESCRIPTION&gt;
      &lt;EVENTLIST&gt;
        &lt;EVENT&gt;
          &lt;ID&gt;41&lt;/ID&gt;
          &lt;NAME&gt;Existing Connection&lt;/NAME&gt;
          &lt;DESCRIPTION&gt;Existing user connection.&lt;/DESCRIPTION&gt;
          &lt;EVENTCOLUMNLIST&gt;
            &lt;EVENTCOLUMN&gt;
              &lt;ID&gt;2&lt;/ID&gt;
              &lt;/EVENTCOLUMN&gt;
            &lt;EVENTCOLUMN&gt;
              &lt;ID&gt;3&lt;/ID&gt;
              &lt;/EVENTCOLUMN&gt;
            &lt;EVENTCOLUMN&gt;
              &lt;ID&gt;25&lt;/ID&gt;
              &lt;/EVENTCOLUMN&gt;
            &lt;EVENTCOLUMN&gt;
              &lt;ID&gt;32&lt;/ID&gt;
              &lt;/EVENTCOLUMN&gt;
            &lt;EVENTCOLUMN&gt;
              &lt;ID&gt;33&lt;/ID&gt;
              &lt;/EVENTCOLUMN&gt;
            &lt;EVENTCOLUMN&gt;
              &lt;ID&gt;35&lt;/ID&gt;
              &lt;/EVENTCOLUMN&gt;
            &lt;EVENTCOLUMN&gt;
              &lt;ID&gt;36&lt;/ID&gt;
              &lt;/EVENTCOLUMN&gt;
            &lt;EVENTCOLUMN&gt;
              &lt;ID&gt;37&lt;/ID&gt;
              &lt;/EVENTCOLUMN&gt;
            &lt;EVENTCOLUMN&gt;
              &lt;ID&gt;41&lt;/ID&gt;
              &lt;/EVENTCOLUMN&gt;
            &lt;EVENTCOLUMN&gt;
              &lt;ID&gt;43&lt;/ID&gt;
              &lt;/EVENTCOLUMN&gt;
          &lt;/EVENTCOLUMNLIST&gt;
        &lt;/EVENT&gt;
        &lt;EVENT&gt;
          &lt;ID&gt;42&lt;/ID&gt;
          &lt;NAME&gt;Existing Session&lt;/NAME&gt;
          &lt;DESCRIPTION&gt;Existing session.&lt;/DESCRIPTION&gt;
          &lt;EVENTCOLUMNLIST&gt;
            &lt;EVENTCOLUMN&gt;
              &lt;ID&gt;2&lt;/ID&gt;
              &lt;/EVENTCOLUMN&gt;
            &lt;EVENTCOLUMN&gt;
              &lt;ID&gt;3&lt;/ID&gt;
              &lt;/EVENTCOLUMN&gt;
            &lt;EVENTCOLUMN&gt;
              &lt;ID&gt;5&lt;/ID&gt;
              &lt;/EVENTCOLUMN&gt;
          &lt;/EVENTCOLUMNLIST&gt;
        &lt;/EVENT&gt;
      &lt;/EVENTLIST&gt;
    &lt;/DATA&gt;
  &lt;/ROW&gt;
</ROWS&gt;

```

```

&lt;EVENTCOLUMN&gt;
&lt;ID&gt;6&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;25&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;28&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;32&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;33&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;35&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;36&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;37&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;40&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;41&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;42&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;43&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;45&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/EVENTCOLUMNLIST&gt;
&lt;/EVENT&gt;
&lt;EVENT&gt;
&lt;ID&gt;43&lt;/ID&gt;
&lt;NAME&gt;Session Initialize&lt;/NAME&gt;
&lt;DESCRIPTION&gt;Session Initialize.&lt;/DESCRIPTION&gt;
&lt;/EVENTCOLUMNLIST&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;2&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;3&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;25&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;28&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;

```

```

&lt; ID&gt;32&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt; ID&gt;33&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt; ID&gt;35&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt; ID&gt;36&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt; ID&gt;37&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt; ID&gt;40&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt; ID&gt;41&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt; ID&gt;42&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt; ID&gt;43&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt; ID&gt;45&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/EVENTCOLUMNLIST&gt;
&lt;/EVENT&gt;
&lt;/EVENTLIST&gt;
&lt;/EVENTCATEGORY&gt;
</Data>
</row>
<row>
<Data>
&lt;EVENTCATEGORY&gt;
&lt;NAME&gt;Locks&lt;/NAME&gt;
&lt;TYPE&gt;0&lt;/TYPE&gt;
&lt;DESCRIPTION&gt;Collection of lock related events.
&lt;/DESCRIPTION&gt;
&lt;EVENTLIST&gt;
&lt;EVENT&gt;
&lt; ID&gt;50&lt;/ID&gt;
&lt;NAME&gt;Deadlock&lt;/NAME&gt;
&lt;DESCRIPTION&gt;Metadata locks deadlock.&lt;/DESCRIPTION&gt;
&lt;EVENTCOLUMNLIST&gt;
&lt;EVENTCOLUMN&gt;
&lt; ID&gt;0&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt; ID&gt;2&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt; ID&gt;28&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt; ID&gt;42&lt;/ID&gt;

```

</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>43</ID>
</EVENTCOLUMN>
</EVENTCOLUMNLIST>
</EVENT>
<EVENT>
<ID>51</ID>
<NAME>Lock timeout</NAME>
<DESCRIPTION>Metadata lock timeout.</DESCRIPTION>
<EVENTCOLUMNLIST>
<EVENTCOLUMN>
<ID>0</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>2</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>3</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>4</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>5</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>10</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>12</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>14</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>25</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>28</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>32</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>33</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>39</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>40</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>41</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>43</ID>
</EVENTCOLUMN>


```

        &lt;/EVENTCOLUMNLIST&gt;
        &lt;/EVENT&gt;
        &lt;/EVENTLIST&gt;
        &lt;/EVENTCATEGORY&gt;
    </Data>
</row>
<row>
    <Data>
        &lt;EVENTCATEGORY&gt;
        &lt;NAME&gt;Query Processing&lt;/NAME&gt;
        &lt;TYPE&gt;0&lt;/TYPE&gt;
        &lt;DESCRIPTION&gt;Collection of key events during the
        process of a query execution.&lt;/DESCRIPTION&gt;
        &lt;EVENTLIST&gt;
        &lt;EVENT&gt;
            &lt;ID&gt;70&lt;/ID&gt;
            &lt;NAME&gt;Query Cube Begin&lt;/NAME&gt;
            &lt;DESCRIPTION&gt;Query cube begin.&lt;/DESCRIPTION&gt;
            &lt;EVENTCOLUMNLIST&gt;
            &lt;EVENTCOLUMN&gt;
                &lt;ID&gt;0&lt;/ID&gt;
                &lt;/EVENTCOLUMN&gt;
            &lt;EVENTCOLUMN&gt;
                &lt;ID&gt;2&lt;/ID&gt;
                &lt;/EVENTCOLUMN&gt;
            &lt;EVENTCOLUMN&gt;
                &lt;ID&gt;3&lt;/ID&gt;
                &lt;/EVENTCOLUMN&gt;
            &lt;EVENTCOLUMN&gt;
                &lt;ID&gt;4&lt;/ID&gt;
                &lt;/EVENTCOLUMN&gt;
            &lt;EVENTCOLUMN&gt;
                &lt;ID&gt;5&lt;/ID&gt;
                &lt;/EVENTCOLUMN&gt;
            &lt;EVENTCOLUMN&gt;
                &lt;ID&gt;6&lt;/ID&gt;
                &lt;/EVENTCOLUMN&gt;
            &lt;EVENTCOLUMN&gt;
                &lt;ID&gt;9&lt;/ID&gt;
                &lt;/EVENTCOLUMN&gt;
            &lt;EVENTCOLUMN&gt;
                &lt;ID&gt;10&lt;/ID&gt;
                &lt;/EVENTCOLUMN&gt;
            &lt;EVENTCOLUMN&gt;
                &lt;ID&gt;12&lt;/ID&gt;
                &lt;/EVENTCOLUMN&gt;
            &lt;EVENTCOLUMN&gt;
                &lt;ID&gt;14&lt;/ID&gt;
                &lt;/EVENTCOLUMN&gt;
            &lt;EVENTCOLUMN&gt;
                &lt;ID&gt;25&lt;/ID&gt;
                &lt;/EVENTCOLUMN&gt;
            &lt;EVENTCOLUMN&gt;
                &lt;ID&gt;28&lt;/ID&gt;
                &lt;/EVENTCOLUMN&gt;
            &lt;EVENTCOLUMN&gt;
                &lt;ID&gt;40&lt;/ID&gt;
                &lt;/EVENTCOLUMN&gt;
            &lt;EVENTCOLUMN&gt;
        
```

```
&lt; ID&gt;41&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;42&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;43&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; /EVENTCOLUMNLIST&gt;
&lt; /EVENT&gt;
&lt; EVENT&gt;
&lt; ID&gt;71&lt;/ID&gt;
&lt; NAME&gt;Query Cube End&lt;/NAME&gt;
&lt; DESCRIPTION&gt;Query cube end.&lt;/DESCRIPTION&gt;
&lt; EVENTCOLUMNLIST&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;0&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;2&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;3&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;4&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;5&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;6&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;9&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;10&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;12&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;14&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;25&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;28&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;40&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;41&lt;/ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;42&lt;/ID&gt;
```

```
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;43&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/EVENTCOLUMNLIST&gt;
&lt;/EVENT&gt;
&lt;EVENT&gt;
&lt;ID&gt;72&lt;/ID&gt;
&lt;NAME&gt;Calculate Non Empty Begin&lt;/NAME&gt;
&lt;DESCRIPTION&gt;Calculate non empty begin.&lt;/DESCRIPTION&gt;
&lt;/EVENTCOLUMNLIST&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;0&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;2&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;3&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;4&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;5&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;6&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;9&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;10&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;12&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;14&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;25&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;28&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;40&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;41&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;42&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;43&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
```

```

&lt;/EVENTCOLUMNLIST&gt;
&lt;/EVENT&gt;
&lt;EVENT&gt;
&lt;ID&gt;73&lt;/ID&gt;
&lt;NAME&gt;Calculate Non Empty Current&lt;/NAME&gt;
&lt;DESCRIPTION&gt;Calculate non empty current.&lt;/DESCRIPTION&gt;
&lt;EVENTCOLUMNLIST&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;0&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;1&lt;/ID&gt;
&lt;EVENTCOLUMNSUBCLASSLIST&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;1&lt;/ID&gt;
&lt;NAME&gt;Get Data&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;2&lt;/ID&gt;
&lt;NAME&gt;Process Calculated Members&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;3&lt;/ID&gt;
&lt;NAME&gt;Post Order&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;/EVENTCOLUMNSUBCLASSLIST&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;2&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;3&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;4&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;5&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;6&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;9&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;10&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;12&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;14&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;25&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;28&lt;/ID&gt;

```

```

&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;40&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;41&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;42&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;43&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/EVENTCOLUMNLIST&gt;
&lt;/EVENT&gt;
&lt;EVENT&gt;
&lt;ID&gt;74&lt;/ID&gt;
&lt;NAME&gt;Calculate Non Empty End&lt;/NAME&gt;
&lt;DESCRIPTION&gt;Calculate non empty end.&lt;/DESCRIPTION&gt;
&lt;EVENTCOLUMNLIST&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;0&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;2&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;3&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;4&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;5&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;6&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;9&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;10&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;12&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;14&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;25&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;28&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;40&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;

```

```
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;41&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;42&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;43&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/EVENTCOLUMNLIST&gt;
&lt;/EVENT&gt;
&lt;EVENT&gt;
&lt;ID&gt;75&lt;/ID&gt;
&lt;NAME&gt;Serialize Results Begin&lt;/NAME&gt;
&lt;DESCRIPTION&gt;Serialize results begin.&lt;/DESCRIPTION&gt;
&lt;EVENTCOLUMNLIST&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;0&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;2&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;3&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;4&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;5&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;6&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;9&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;10&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;12&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;14&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;25&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;28&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;40&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;41&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
```

```

&lt; ID&gt;42&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;43&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; /EVENTCOLUMNLIST&gt;
&lt; /EVENT&gt;
&lt; EVENT&gt;
&lt; ID&gt;76&lt; /ID&gt;
&lt; NAME&gt;Serialize Results Current&lt; /NAME&gt;
&lt; DESCRIPTION&gt;Serialize results current.&lt; /DESCRIPTION&gt;
&lt; EVENTCOLUMNLIST&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;0&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;1&lt; /ID&gt;
&lt; EVENTCOLUMNSUBCLASSLIST&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;1&lt; /ID&gt;
&lt; NAME&gt;Serialize Axes&lt; /NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;2&lt; /ID&gt;
&lt; NAME&gt;Serialize Cells&lt; /NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;3&lt; /ID&gt;
&lt; NAME&gt;Serialize SQL Rowset&lt; /NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; EVENTCOLUMNSUBCLASS&gt;
&lt; ID&gt;4&lt; /ID&gt;
&lt; NAME&gt;Serialize Flattened Rowset&lt; /NAME&gt;
&lt; /EVENTCOLUMNSUBCLASS&gt;
&lt; /EVENTCOLUMNSUBCLASSLIST&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;2&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;3&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;4&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;5&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;6&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;9&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;10&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;12&lt; /ID&gt;

```

```
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;14&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;25&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;28&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;40&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;41&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;42&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;43&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/EVENTCOLUMNLIST&gt;
&lt;/EVENT&gt;
&lt;EVENT&gt;
&lt;ID&gt;77&lt;/ID&gt;
&lt;NAME&gt;Serialize Results End&lt;/NAME&gt;
&lt;DESCRIPTION&gt;Serialize results end.&lt;/DESCRIPTION&gt;
&lt;EVENTCOLUMNLIST&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;0&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;2&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;3&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;4&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;5&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;6&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;9&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;10&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;12&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;14&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
```



```

&lt;EVENTCOLUMN&gt;
&lt;ID&gt;25&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;28&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;40&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;41&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;42&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;43&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/EVENTCOLUMNLIST&gt;
&lt;/EVENT&gt;
&lt;EVENT&gt;
&lt;ID&gt;78&lt;/ID&gt;
&lt;NAME&gt;Execute MDX Script Begin&lt;/NAME&gt;
&lt;DESCRIPTION&gt;Execute MDX script begin.&lt;/DESCRIPTION&gt;
&lt;EVENTCOLUMNLIST&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;0&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;2&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;3&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;4&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;5&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;6&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;9&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;10&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;12&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;14&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;25&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;

```

```
&lt; ID&gt;28&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;40&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;41&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;42&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;43&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; /EVENTCOLUMNLIST&gt;
&lt; /EVENT&gt;
&lt; EVENT&gt;
&lt; ID&gt;79&lt; /ID&gt;
&lt; NAME&gt;Execute MDX Script Current&lt; /NAME&gt;
&lt; DESCRIPTION&gt;Execute MDX script current.&lt; /DESCRIPTION&gt;
&lt; EVENTCOLUMNLIST&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;0&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;2&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;3&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;4&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;5&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;6&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;9&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;10&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;12&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;14&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;25&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;28&lt; /ID&gt;
&lt; /EVENTCOLUMN&gt;
&lt; EVENTCOLUMN&gt;
&lt; ID&gt;40&lt; /ID&gt;
```

```

&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;41&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;42&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;43&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/EVENTCOLUMNLIST&gt;
&lt;/EVENT&gt;
&lt;EVENT&gt;
&lt;ID&gt;80&lt;/ID&gt;
&lt;NAME&gt;Execute MDX Script End&lt;/NAME&gt;
&lt;DESCRIPTION&gt;Execute MDX script end.&lt;/DESCRIPTION&gt;
&lt;EVENTCOLUMNLIST&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;0&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;2&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;3&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;4&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;5&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;6&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;9&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;10&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;12&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;14&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;25&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;28&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;40&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;41&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;

```

```

&lt;EVENTCOLUMN&gt;
&lt;ID&gt;42&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;43&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/EVENTCOLUMNLIST&gt;
&lt;/EVENT&gt;
&lt;EVENT&gt;
&lt;ID&gt;81&lt;/ID&gt;
&lt;NAME&gt;Query Dimension&lt;/NAME&gt;
&lt;DESCRIPTION&gt;Query dimension.&lt;/DESCRIPTION&gt;
&lt;EVENTCOLUMNLIST&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;0&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;1&lt;/ID&gt;
&lt;EVENTCOLUMNSUBCLASSLIST&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;1&lt;/ID&gt;
&lt;NAME&gt;Cache data&lt;/NAME&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;2&lt;/ID&gt;
&lt;NAME&gt;Non-cache data&lt;/NAME&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASSLIST&gt;
&lt;EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;2&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;3&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;4&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;5&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;6&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;9&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;10&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;12&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;14&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;25&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;

```

```

&lt;EVENTCOLUMN&gt;
&lt;ID&gt;28&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;40&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;41&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;42&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;43&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/EVENTCOLUMNLIST&gt;
&lt;/EVENT&gt;
&lt;EVENT&gt;
&lt;ID&gt;11&lt;/ID&gt;
&lt;NAME&gt;Query Subcube&lt;/NAME&gt;
&lt;DESCRIPTION&gt;Query subcube, for Usage Based Optimization.
&lt;/DESCRIPTION&gt;
&lt;EVENTCOLUMNLIST&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;0&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;1&lt;/ID&gt;
&lt;EVENTCOLUMNSUBCLASSLIST&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;1&lt;/ID&gt;
&lt;NAME&gt;Cache data&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;2&lt;/ID&gt;
&lt;NAME&gt;Non-cache data&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;3&lt;/ID&gt;
&lt;NAME&gt;Internal data&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;4&lt;/ID&gt;
&lt;NAME&gt;SQL data&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;11&lt;/ID&gt;
&lt;NAME&gt;Measure Group Structural Change&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;EVENTCOLUMNSUBCLASS&gt;
&lt;ID&gt;12&lt;/ID&gt;
&lt;NAME&gt;Measure Group Deletion&lt;/NAME&gt;
&lt;/EVENTCOLUMNSUBCLASS&gt;
&lt;/EVENTCOLUMNSUBCLASSLIST&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;2&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;

```

```

<ID>3</ID>;
</EVENTCOLUMN>;
<EVENTCOLUMN>;
<ID>4</ID>;
</EVENTCOLUMN>;
<EVENTCOLUMN>;
<ID>5</ID>;
</EVENTCOLUMN>;
<EVENTCOLUMN>;
<ID>6</ID>;
</EVENTCOLUMN>;
<EVENTCOLUMN>;
<ID>14</ID>;
</EVENTCOLUMN>;
<EVENTCOLUMN>;
<ID>25</ID>;
</EVENTCOLUMN>;
<EVENTCOLUMN>;
<ID>28</ID>;
</EVENTCOLUMN>;
<EVENTCOLUMN>;
<ID>39</ID>;
</EVENTCOLUMN>;
<EVENTCOLUMN>;
<ID>40</ID>;
</EVENTCOLUMN>;
<EVENTCOLUMN>;
<ID>41</ID>;
</EVENTCOLUMN>;
<EVENTCOLUMN>;
<ID>42</ID>;
</EVENTCOLUMN>;
<EVENTCOLUMN>;
<ID>43</ID>;
</EVENTCOLUMN>;
</EVENTCOLUMNLIST>;
</EVENT>;
<EVENT>;
<ID>12</ID>;
<NAME>Query Subcube Verbose</NAME>;
<DESCRIPTION>Query subcube with detailed information.
This event may have a negative impact on performance when turned on.
</DESCRIPTION>;
</EVENTCOLUMNLIST>;
<EVENTCOLUMN>;
<ID>0</ID>;
</EVENTCOLUMN>;
<EVENTCOLUMN>;
<ID>1</ID>;
</EVENTCOLUMNSUBCLASSLIST>;
<EVENTCOLUMNSUBCLASS>;
<ID>21</ID>;
<NAME>Cache data</NAME>;
</EVENTCOLUMNSUBCLASS>;
<EVENTCOLUMNSUBCLASS>;
<ID>22</ID>;
<NAME>Non-cache data</NAME>;
</EVENTCOLUMNSUBCLASS>;
<EVENTCOLUMNSUBCLASS>;

```

```

<ID>23</ID>
<NAME>Internal data</NAME>
</EVENTCOLUMNSUBCLASS>
<EVENTCOLUMNSUBCLASS>
<ID>24</ID>
<NAME>SQL data</NAME>
</EVENTCOLUMNSUBCLASS>
</EVENTCOLUMNSUBCLASSLIST>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>2</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>3</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>4</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>5</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>6</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>14</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>25</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>28</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>39</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>40</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>41</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>42</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>43</ID>
</EVENTCOLUMN>
</EVENTCOLUMNLIST>
</EVENT>
<EVENT>
<ID>60</ID>
<NAME>Get Data From Aggregation</NAME>
<DESCRIPTION>Answer query by getting data from aggregation.
This event may have a negative impact on performance when turned on.
</DESCRIPTION>
</EVENTCOLUMNLIST>
<EVENTCOLUMN>
<ID>0</ID>

```

```

</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>2</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>3</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>4</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>5</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>6</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>14</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>25</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>28</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>39</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>40</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>41</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>42</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>43</ID>
</EVENTCOLUMN>
</EVENTCOLUMNLIST>
</EVENT>
<EVENT>
<ID>61</ID>
<NAME>Get Data From Cache</NAME>
<DESCRIPTION>Answer query by getting data from one
of the caches. This event may have a negative impact on performance
when turned on.</DESCRIPTION>
</EVENTCOLUMNLIST>
<EVENTCOLUMN>
<ID>0</ID>
</EVENTCOLUMN>
<EVENTCOLUMN>
<ID>1</ID>
</EVENTCOLUMN>
<EVENTCOLUMNSUBCLASSLIST>
<EVENTCOLUMNSUBCLASS>
<ID>1</ID>
<NAME>Get data from measure group cache</NAME>
</EVENTCOLUMNSUBCLASS>

```



```

&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;2&lt;/ID&gt;
&lt;NAME&gt;Get data from flat cache&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;3&lt;/ID&gt;
&lt;NAME&gt;Get data from calculation cache&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;EVENTCOLUMNSSUBCLASS&gt;
&lt;ID&gt;4&lt;/ID&gt;
&lt;NAME&gt;Get data from persisted cache&lt;/NAME&gt;
&lt;/EVENTCOLUMNSSUBCLASS&gt;
&lt;/EVENTCOLUMNSSUBCLASSLIST&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;2&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;3&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;4&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;5&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;6&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;14&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;25&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;28&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;39&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;40&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;41&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;42&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;EVENTCOLUMN&gt;
&lt;ID&gt;43&lt;/ID&gt;
&lt;/EVENTCOLUMN&gt;
&lt;/EVENTCOLUMNLIST&gt;
&lt;/EVENT&gt;
&lt;/EVENTLIST&gt;
&lt;/EVENTCATEGORY&gt;
</Data>
</row>

```

```

    </root>
  </return>
</DiscoverResponse>
</soap:Body>
</soap:Envelope>

```

4.13 Client Sends MDX Query and Receives Back mddataset Result

In this example, the client sends an Execute command, with an MDX query in the Statement element.

4.13.1 Client Sends Request

The client sends the following request:

```

<Envelope xmlns="http://schemas.xmlsoap.org/soap/envelope/">
  <Body>
    <Execute xmlns="urn:schemas-microsoft-com:xml-analysis">
      <Command>
        <Statement>select Measures.members on 0 from [Adventure Works]
        </Statement>
      </Command>
      <Properties>
        <PropertyList>
          <Catalog>Adventure Works DW 2008</Catalog>
        </PropertyList>
      </Properties>
    </Execute>
  </Body>
</Envelope>

```

4.13.2 Server Response

The server responds with an mddataset result.

```

<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <ExecuteResponse xmlns="urn:schemas-microsoft-com:xml-analysis">
      <return>
        <root xmlns="urn:schemas-microsoft-com:xml-analysis:mddataset"
          xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
          xmlns:xsd="http://www.w3.org/2001/XMLSchema">
          <xs:schema targetNamespace=
            "urn:schemas-microsoft-com:xml-analysis:mddataset"
            elementFormDefault="qualified"
            xmlns="urn:schemas-microsoft-com:xml-analysis:mddataset"
            xmlns:xs="http://www.w3.org/2001/XMLSchema">
            <xs:complexType name="MemberType">
              <xs:sequence>
                <xs:any namespace="##targetNamespace" minOccurs="0"
                  maxOccurs="unbounded" processContents="skip" />
              </xs:sequence>
              <xs:attribute name="Hierarchy" type="xs:string" />
            </xs:complexType>
          </xs:schema>
        </root>
      </return>
    </ExecuteResponse>
  </soap:Body>
</soap:Envelope>

```

```

</xs:complexType>
<xs:complexType name="PropType">
  <xs:sequence>
    <xs:element name="Default" minOccurs="0" />
  </xs:sequence>
  <xs:attribute name="name" type="xs:string" use="required" />
  <xs:attribute name="type" type="xs:QName" />
</xs:complexType>
<xs:complexType name="TupleType">
  <xs:sequence>
    <xs:element name="Member" type="MemberType"
      minOccurs="0" maxOccurs="unbounded" />
  </xs:sequence>
</xs:complexType>
<xs:complexType name="MembersType">
  <xs:sequence>
    <xs:element name="Member" type="MemberType" minOccurs="0"
      maxOccurs="unbounded" />
  </xs:sequence>
  <xs:attribute name="Hierarchy" type="xs:string" use="required" />
</xs:complexType>
<xs:complexType name="TuplesType">
  <xs:sequence>
    <xs:element name="Tuple" type="TupleType" minOccurs="0"
      maxOccurs="unbounded" />
  </xs:sequence>
</xs:complexType>
<xs:group name="SetType">
  <xs:choice>
    <xs:element name="Members" type="MembersType" />
    <xs:element name="Tuples" type="TuplesType" />
    <xs:element name="CrossProduct" type="SetListType" />
    <xs:element name="Union">
      <xs:complexType>
        <xs:group ref="SetType" minOccurs="0" maxOccurs="unbounded" />
      </xs:complexType>
    </xs:element>
  </xs:choice>
</xs:group>
<xs:complexType name="SetListType">
  <xs:group ref="SetType" minOccurs="0" maxOccurs="unbounded" />
  <xs:attribute name="Size" type="xs:unsignedInt" />
</xs:complexType>
<xs:complexType name="OlapInfo">
  <xs:sequence>
    <xs:element name="CubeInfo">
      <xs:complexType>
        <xs:sequence>
          <xs:element name="Cube" maxOccurs="unbounded">
            <xs:complexType>
              <xs:sequence>
                <xs:element name="CubeName" type="xs:string" />
                <xs:element name="LastDataUpdate" minOccurs="0"
                  type="xs:dateTime" />
                <xs:element name="LastSchemaUpdate" minOccurs="0"
                  type="xs:dateTime" />
              </xs:sequence>
            </xs:complexType>
          </xs:element>
        </xs:sequence>
      </xs:complexType>
    </xs:element>
  </xs:sequence>
</xs:complexType>

```

```

        </xs:sequence>
    </xs:complexType>
</xs:element>
<xs:element name="AxesInfo">
    <xs:complexType>
        <xs:sequence>
            <xs:element name="AxisInfo" maxOccurs="unbounded">
                <xs:complexType>
                    <xs:sequence>
                        <xs:element name="HierarchyInfo" minOccurs="0"
                            maxOccurs="unbounded">
                            <xs:complexType>
                                <xs:sequence>
                                    <xs:any namespace="##targetNamespace"
                                        minOccurs="0" maxOccurs="unbounded"
                                        processContents="skip" />
                                </xs:sequence>
                                <xs:attribute name="name" type="xs:string"
                                    use="required" />
                            </xs:complexType>
                        </xs:element>
                    </xs:sequence>
                    <xs:attribute name="name" type="xs:string" />
                </xs:complexType>
            </xs:element>
        </xs:sequence>
    </xs:complexType>
</xs:element>
<xs:element name="CellInfo">
    <xs:complexType>
        <xs:choice minOccurs="0" maxOccurs="unbounded">
            <xs:any namespace="##targetNamespace" minOccurs="0"
                maxOccurs="unbounded" processContents="skip" />
        </xs:choice>
    </xs:complexType>
</xs:element>
</xs:sequence>
</xs:complexType>
<xs:complexType name="Axes">
    <xs:sequence>
        <xs:element name="Axis" maxOccurs="unbounded">
            <xs:complexType>
                <xs:group ref="SetType" minOccurs="0" maxOccurs="unbounded" />
                <xs:attribute name="name" type="xs:string" />
            </xs:complexType>
        </xs:element>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="CellData">
    <xs:sequence>
        <xs:element name="Cell" minOccurs="0" maxOccurs="unbounded">
            <xs:complexType>
                <xs:sequence>
                    <xs:any namespace="##targetNamespace" minOccurs="0"
                        maxOccurs="unbounded" processContents="skip" />
                </xs:sequence>
                <xs:attribute name="CellOrdinal" type="xs:unsignedInt"
                    use="required" />
            </xs:complexType>
        </xs:element>
    </xs:sequence>
</xs:complexType>

```

```

        </xs:element>
    </xs:sequence>
</xs:complexType>
<xs:element name="root">
    <xs:complexType>
        <xs:sequence>
            <xs:any namespace="http://www.w3.org/2001/XMLSchema"
                processContents="strict" minOccurs="0" />
            <xs:element name="OlapInfo" type="OlapInfo" minOccurs="0" />
            <xs:element name="Axes" type="Axes" minOccurs="0" />
            <xs:element name="CellData" type="CellData" minOccurs="0" />
        </xs:sequence>
    </xs:complexType>
</xs:element>
</xs:schema>
<OlapInfo>
    <CubeInfo>
        <Cube>
            <CubeName>Adventure Works</CubeName>
            <LastDataUpdate xmlns=
                "http://schemas.microsoft.com/analysiservices/2003/engine">
                2009-05-30T19:26:25
            </LastDataUpdate>
            <LastSchemaUpdate xmlns=
                "http://schemas.microsoft.com/analysiservices/2003/engine">
                2009-04-07T19:40:30
            </LastSchemaUpdate>
        </Cube>
    </CubeInfo>
    <AxesInfo>
        <AxisInfo name="Axis0">
            <HierarchyInfo name="[Measures]">
                <UName name="[Measures].[MEMBER_UNIQUE_NAME]"
                    type="xsd:string" />
                <Caption name="[Measures].[MEMBER_CAPTION]"
                    type="xsd:string" />
                <LName name="[Measures].[LEVEL_UNIQUE_NAME]"
                    type="xsd:string" />
                <LNum name="[Measures].[LEVEL_NUMBER]"
                    type="xsd:int" />
                <DisplayInfo name="[Measures].[DISPLAY_INFO]"
                    type="xsd:unsignedInt" />
            </HierarchyInfo>
        </AxisInfo>
        <AxisInfo name="SlicerAxis">
            <HierarchyInfo name="[Date].[Fiscal]">
                <UName name="[Date].[Fiscal].[MEMBER_UNIQUE_NAME]"
                    type="xsd:string" />
                <Caption name="[Date].[Fiscal].[MEMBER_CAPTION]"
                    type="xsd:string" />
                <LName name="[Date].[Fiscal].[LEVEL_UNIQUE_NAME]"
                    type="xsd:string" />
                <LNum name="[Date].[Fiscal].[LEVEL_NUMBER]"
                    type="xsd:int" />
                <DisplayInfo name="[Date].[Fiscal].[DISPLAY_INFO]"
                    type="xsd:unsignedInt" />
            </HierarchyInfo>
            <HierarchyInfo name="[Date].[Calendar]">
                <UName name="[Date].[Calendar].[MEMBER_UNIQUE_NAME]"

```

```

        type="xsd:string" />
    <Caption name="[Date].[Calendar].[MEMBER_CAPTION]"
        type="xsd:string" />
    <LName name="[Date].[Calendar].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
    <LNum name="[Date].[Calendar].[LEVEL_NUMBER]"
        type="xsd:int" />
    <DisplayInfo name="[Date].[Calendar].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Date].[Calendar Weeks]">
    <UName name="[Date].[Calendar Weeks].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
    <Caption name="[Date].[Calendar Weeks].[MEMBER_CAPTION]"
        type="xsd:string" />
    <LName name="[Date].[Calendar Weeks].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
    <LNum name="[Date].[Calendar Weeks].[LEVEL_NUMBER]"
        type="xsd:int" />
    <DisplayInfo name="[Date].[Calendar Weeks].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Date].[Fiscal Weeks]">
    <UName name="[Date].[Fiscal Weeks].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
    <Caption name="[Date].[Fiscal Weeks].[MEMBER_CAPTION]"
        type="xsd:string" />
    <LName name="[Date].[Fiscal Weeks].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
    <LNum name="[Date].[Fiscal Weeks].[LEVEL_NUMBER]"
        type="xsd:int" />
    <DisplayInfo name="[Date].[Fiscal Weeks].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Date].[Fiscal Year]">
    <UName name="[Date].[Fiscal Year].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
    <Caption name="[Date].[Fiscal Year].[MEMBER_CAPTION]"
        type="xsd:string" />
    <LName name="[Date].[Fiscal Year].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
    <LNum name="[Date].[Fiscal Year].[LEVEL_NUMBER]"
        type="xsd:int" />
    <DisplayInfo name="[Date].[Fiscal Year].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Date].[Date]">
    <UName name="[Date].[Date].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
    <Caption name="[Date].[Date].[MEMBER_CAPTION]"
        type="xsd:string" />
    <LName name="[Date].[Date].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
    <LNum name="[Date].[Date].[LEVEL_NUMBER]"
        type="xsd:int" />
    <DisplayInfo name="[Date].[Date].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Date].[Day of Week]">

```

```

<UName name="[Date].[Day of Week].[MEMBER_UNIQUE_NAME]"
  type="xsd:string" />
<Caption name="[Date].[Day of Week].[MEMBER_CAPTION]"
  type="xsd:string" />
<LName name="[Date].[Day of Week].[LEVEL_UNIQUE_NAME]"
  type="xsd:string" />
<LNum name="[Date].[Day of Week].[LEVEL_NUMBER]"
  type="xsd:int" />
<DisplayInfo name="[Date].[Day of Week].[DISPLAY_INFO]"
  type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Date].[Day Name]">
  <UName name="[Date].[Day Name].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Date].[Day Name].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Date].[Day Name].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Date].[Day Name].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Date].[Day Name].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Date].[Day of Month]">
  <UName name="[Date].[Day of Month].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Date].[Day of Month].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Date].[Day of Month].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Date].[Day of Month].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Date].[Day of Month].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Date].[Day of Year]">
  <UName name="[Date].[Day of Year].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Date].[Day of Year].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Date].[Day of Year].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Date].[Day of Year].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Date].[Day of Year].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Date].[Calendar Year]">
  <UName name="[Date].[Calendar Year].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Date].[Calendar Year].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Date].[Calendar Year].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Date].[Calendar Year].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Date].[Calendar Year].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>

```

```

<HierarchyInfo name="[Date].[Fiscal Semester of Year]">
  <UName name="[Date].[Fiscal Semester of Year].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Date].[Fiscal Semester of Year].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Date].[Fiscal Semester of Year].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Date].[Fiscal Semester of Year].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Date].[Fiscal Semester of Year].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Date].[Calendar Semester of Year]">
  <UName name="[Date].[Calendar Semester of Year].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Date].[Calendar Semester of Year].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Date].[Calendar Semester of Year].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Date].[Calendar Semester of Year].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Date].[Calendar Semester of Year].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Date].[Fiscal Quarter of Year]">
  <UName name="[Date].[Fiscal Quarter of Year].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Date].[Fiscal Quarter of Year].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Date].[Fiscal Quarter of Year].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Date].[Fiscal Quarter of Year].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Date].[Fiscal Quarter of Year].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Date].[Calendar Quarter of Year]">
  <UName name="[Date].[Calendar Quarter of Year].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Date].[Calendar Quarter of Year].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Date].[Calendar Quarter of Year].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Date].[Calendar Quarter of Year].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Date].[Calendar Quarter of Year].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Date].[Month of Year]">
  <UName name="[Date].[Month of Year].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Date].[Month of Year].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Date].[Month of Year].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Date].[Month of Year].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Date].[Month of Year].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />

```



```

</HierarchyInfo>
<HierarchyInfo name="[Date].[Calendar Week of Year]">
  <UName name="[Date].[Calendar Week of Year].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Date].[Calendar Week of Year].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Date].[Calendar Week of Year].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Date].[Calendar Week of Year].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Date].[Calendar Week of Year].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Date].[Fiscal Week of Year]">
  <UName name="[Date].[Fiscal Week of Year].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Date].[Fiscal Week of Year].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Date].[Fiscal Week of Year].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Date].[Fiscal Week of Year].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Date].[Fiscal Week of Year].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Ship Date].[Fiscal]">
  <UName name="[Ship Date].[Fiscal].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Ship Date].[Fiscal].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Ship Date].[Fiscal].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Ship Date].[Fiscal].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Ship Date].[Fiscal].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Ship Date].[Calendar]">
  <UName name="[Ship Date].[Calendar].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Ship Date].[Calendar].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Ship Date].[Calendar].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Ship Date].[Calendar].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Ship Date].[Calendar].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Ship Date].[Calendar Weeks]">
  <UName name="[Ship Date].[Calendar Weeks].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Ship Date].[Calendar Weeks].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Ship Date].[Calendar Weeks].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Ship Date].[Calendar Weeks].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Ship Date].[Calendar Weeks].[DISPLAY_INFO]"

```

```

        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Ship Date].[Fiscal Weeks]">
  <UName name="[Ship Date].[Fiscal Weeks].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Ship Date].[Fiscal Weeks].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Ship Date].[Fiscal Weeks].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Ship Date].[Fiscal Weeks].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Ship Date].[Fiscal Weeks].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Ship Date].[Fiscal Year]">
  <UName name="[Ship Date].[Fiscal Year].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Ship Date].[Fiscal Year].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Ship Date].[Fiscal Year].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Ship Date].[Fiscal Year].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Ship Date].[Fiscal Year].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Ship Date].[Date]">
  <UName name="[Ship Date].[Date].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Ship Date].[Date].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Ship Date].[Date].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Ship Date].[Date].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Ship Date].[Date].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Ship Date].[Day of Week]">
  <UName name="[Ship Date].[Day of Week].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Ship Date].[Day of Week].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Ship Date].[Day of Week].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Ship Date].[Day of Week].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Ship Date].[Day of Week].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Ship Date].[Day Name]">
  <UName name="[Ship Date].[Day Name].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Ship Date].[Day Name].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Ship Date].[Day Name].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Ship Date].[Day Name].[LEVEL_NUMBER]"
    type="xsd:int" />

```

```

        <DisplayInfo name="[Ship Date].[Day Name].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Ship Date].[Day of Month]">
        <UName name="[Ship Date].[Day of Month].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Ship Date].[Day of Month].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Ship Date].[Day of Month].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Ship Date].[Day of Month].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Ship Date].[Day of Month].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Ship Date].[Day of Year]">
        <UName name="[Ship Date].[Day of Year].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Ship Date].[Day of Year].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Ship Date].[Day of Year].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Ship Date].[Day of Year].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Ship Date].[Day of Year].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Ship Date].[Calendar Year]">
        <UName name="[Ship Date].[Calendar Year].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Ship Date].[Calendar Year].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Ship Date].[Calendar Year].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Ship Date].[Calendar Year].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Ship Date].[Calendar Year].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Ship Date].[Fiscal Semester of Year]">
        <UName name="[Ship Date].[Fiscal Semester of Year].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Ship Date].[Fiscal Semester of Year].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Ship Date].[Fiscal Semester of Year].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Ship Date].[Fiscal Semester of Year].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Ship Date].[Fiscal Semester of Year].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Ship Date].[Calendar Semester of Year]">
        <UName name="[Ship Date].[Calendar Semester of Year].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Ship Date].[Calendar Semester of Year].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Ship Date].[Calendar Semester of Year].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Ship Date].[Calendar Semester of Year].[LEVEL_NUMBER]"

```

```

        type="xsd:int" />
        <DisplayInfo name="[Ship Date].[Calendar Semester of Year].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Ship Date].[Fiscal Quarter of Year]">
        <UName name="[Ship Date].[Fiscal Quarter of Year].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Ship Date].[Fiscal Quarter of Year].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Ship Date].[Fiscal Quarter of Year].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Ship Date].[Fiscal Quarter of Year].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Ship Date].[Fiscal Quarter of Year].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Ship Date].[Calendar Quarter of Year]">
        <UName name="[Ship Date].[Calendar Quarter of Year].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Ship Date].[Calendar Quarter of Year].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Ship Date].[Calendar Quarter of Year].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Ship Date].[Calendar Quarter of Year].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Ship Date].[Calendar Quarter of Year].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Ship Date].[Month of Year]">
        <UName name="[Ship Date].[Month of Year].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Ship Date].[Month of Year].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Ship Date].[Month of Year].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Ship Date].[Month of Year].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Ship Date].[Month of Year].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Ship Date].[Calendar Week of Year]">
        <UName name="[Ship Date].[Calendar Week of Year].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Ship Date].[Calendar Week of Year].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Ship Date].[Calendar Week of Year].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Ship Date].[Calendar Week of Year].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Ship Date].[Calendar Week of Year].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Ship Date].[Fiscal Week of Year]">
        <UName name="[Ship Date].[Fiscal Week of Year].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Ship Date].[Fiscal Week of Year].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Ship Date].[Fiscal Week of Year].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />

```

```

<LNum name="[Ship Date].[Fiscal Week of Year].[LEVEL_NUMBER]"
  type="xsd:int" />
<DisplayInfo name="[Ship Date].[Fiscal Week of Year].[DISPLAY_INFO]"
  type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Delivery Date].[Fiscal]">
  <UName name="[Delivery Date].[Fiscal].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Delivery Date].[Fiscal].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Delivery Date].[Fiscal].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Delivery Date].[Fiscal].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Delivery Date].[Fiscal].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Delivery Date].[Calendar]">
  <UName name="[Delivery Date].[Calendar].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Delivery Date].[Calendar].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Delivery Date].[Calendar].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Delivery Date].[Calendar].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Delivery Date].[Calendar].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Delivery Date].[Calendar Weeks]">
  <UName name="[Delivery Date].[Calendar Weeks].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Delivery Date].[Calendar Weeks].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Delivery Date].[Calendar Weeks].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Delivery Date].[Calendar Weeks].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Delivery Date].[Calendar Weeks].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Delivery Date].[Fiscal Weeks]">
  <UName name="[Delivery Date].[Fiscal Weeks].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Delivery Date].[Fiscal Weeks].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Delivery Date].[Fiscal Weeks].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Delivery Date].[Fiscal Weeks].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Delivery Date].[Fiscal Weeks].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Delivery Date].[Fiscal Year]">
  <UName name="[Delivery Date].[Fiscal Year].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Delivery Date].[Fiscal Year].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Delivery Date].[Fiscal Year].[LEVEL_UNIQUE_NAME]"

```

```

        type="xsd:string" />
        <LNum name="[Delivery Date].[Fiscal Year].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Delivery Date].[Fiscal Year].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Delivery Date].[Date]">
        <UName name="[Delivery Date].[Date].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Delivery Date].[Date].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Delivery Date].[Date].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Delivery Date].[Date].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Delivery Date].[Date].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Delivery Date].[Day of Week]">
        <UName name="[Delivery Date].[Day of Week].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Delivery Date].[Day of Week].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Delivery Date].[Day of Week].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Delivery Date].[Day of Week].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Delivery Date].[Day of Week].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Delivery Date].[Day Name]">
        <UName name="[Delivery Date].[Day Name].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Delivery Date].[Day Name].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Delivery Date].[Day Name].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Delivery Date].[Day Name].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Delivery Date].[Day Name].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Delivery Date].[Day of Month]">
        <UName name="[Delivery Date].[Day of Month].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Delivery Date].[Day of Month].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Delivery Date].[Day of Month].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Delivery Date].[Day of Month].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Delivery Date].[Day of Month].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Delivery Date].[Day of Year]">
        <UName name="[Delivery Date].[Day of Year].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Delivery Date].[Day of Year].[MEMBER_CAPTION]"
            type="xsd:string" />

```

```

<LName name="[Delivery Date].[Day of Year].[LEVEL_UNIQUE_NAME]"
  type="xsd:string" />
<LNum name="[Delivery Date].[Day of Year].[LEVEL_NUMBER]"
  type="xsd:int" />
<DisplayInfo name="[Delivery Date].[Day of Year].[DISPLAY_INFO]"
  type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Delivery Date].[Calendar Year]">
  <UName name="[Delivery Date].[Calendar Year].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Delivery Date].[Calendar Year].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Delivery Date].[Calendar Year].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Delivery Date].[Calendar Year].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Delivery Date].[Calendar Year].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Delivery Date].[Fiscal Semester of Year]">
  <UName name="[Delivery Date].[Fiscal Semester of
Year].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Delivery Date].[Fiscal Semester of Year].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Delivery Date].[Fiscal Semester of Year].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Delivery Date].[Fiscal Semester of Year].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Delivery Date].[Fiscal Semester of
Year].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Delivery Date].[Calendar Semester of Year]">
  <UName name="[Delivery Date].[Calendar Semester of
Year].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Delivery Date].[Calendar Semester of
Year].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Delivery Date].[Calendar Semester of
Year].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Delivery Date].[Calendar Semester of Year].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Delivery Date].[Calendar Semester of
Year].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Delivery Date].[Fiscal Quarter of Year]">
  <UName name="[Delivery Date].[Fiscal Quarter of Year].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Delivery Date].[Fiscal Quarter of Year].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Delivery Date].[Fiscal Quarter of Year].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Delivery Date].[Fiscal Quarter of Year].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Delivery Date].[Fiscal Quarter of Year].[DISPLAY_INFO]"

```

```

        type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Delivery Date].[Calendar Quarter of Year]">
        <UName name="[Delivery Date].[Calendar Quarter of
Year].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Delivery Date].[Calendar Quarter of Year].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Delivery Date].[Calendar Quarter of
Year].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Delivery Date].[Calendar Quarter of Year].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Delivery Date].[Calendar Quarter of
Year].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Delivery Date].[Month of Year]">
        <UName name="[Delivery Date].[Month of Year].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Delivery Date].[Month of Year].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Delivery Date].[Month of Year].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Delivery Date].[Month of Year].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Delivery Date].[Month of Year].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Delivery Date].[Calendar Week of Year]">
        <UName name="[Delivery Date].[Calendar Week of Year].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Delivery Date].[Calendar Week of Year].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Delivery Date].[Calendar Week of Year].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Delivery Date].[Calendar Week of Year].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Delivery Date].[Calendar Week of Year].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Delivery Date].[Fiscal Week of Year]">
        <UName name="[Delivery Date].[Fiscal Week of Year].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Delivery Date].[Fiscal Week of Year].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Delivery Date].[Fiscal Week of Year].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Delivery Date].[Fiscal Week of Year].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Delivery Date].[Fiscal Week of Year].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Customer].[Customer Geography]">
        <UName name="[Customer].[Customer Geography].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Customer].[Customer Geography].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Customer].[Customer Geography].[LEVEL_UNIQUE_NAME]"

```



```

        type="xsd:string" />
        <LNum name="[Customer].[Customer Geography].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Customer].[Customer Geography].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Customer].[Customer]">
        <UName name="[Customer].[Customer].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Customer].[Customer].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Customer].[Customer].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Customer].[Customer].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Customer].[Customer].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Customer].[Postal Code]">
        <UName name="[Customer].[Postal Code].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Customer].[Postal Code].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Customer].[Postal Code].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Customer].[Postal Code].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Customer].[Postal Code].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Customer].[Country]">
        <UName name="[Customer].[Country].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Customer].[Country].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Customer].[Country].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Customer].[Country].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Customer].[Country].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Customer].[State-Province]">
        <UName name="[Customer].[State-Province].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Customer].[State-Province].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Customer].[State-Province].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Customer].[State-Province].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Customer].[State-Province].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Customer].[City]">
        <UName name="[Customer].[City].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Customer].[City].[MEMBER_CAPTION]"
            type="xsd:string" />

```

```

<LName name="[Customer].[City].[LEVEL_UNIQUE_NAME]"
      type="xsd:string" />
<LNum name="[Customer].[City].[LEVEL_NUMBER]"
      type="xsd:int" />
<DisplayInfo name="[Customer].[City].[DISPLAY_INFO]"
      type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Customer].[Yearly Income]">
  <UName name="[Customer].[Yearly Income].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
  <Caption name="[Customer].[Yearly Income].[MEMBER_CAPTION]"
        type="xsd:string" />
  <LName name="[Customer].[Yearly Income].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
  <LNum name="[Customer].[Yearly Income].[LEVEL_NUMBER]"
        type="xsd:int" />
  <DisplayInfo name="[Customer].[Yearly Income].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Customer].[Total Children]">
  <UName name="[Customer].[Total Children].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
  <Caption name="[Customer].[Total Children].[MEMBER_CAPTION]"
        type="xsd:string" />
  <LName name="[Customer].[Total Children].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
  <LNum name="[Customer].[Total Children].[LEVEL_NUMBER]"
        type="xsd:int" />
  <DisplayInfo name="[Customer].[Total Children].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Customer].[Number of Cars Owned]">
  <UName name="[Customer].[Number of Cars Owned].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
  <Caption name="[Customer].[Number of Cars Owned].[MEMBER_CAPTION]"
        type="xsd:string" />
  <LName name="[Customer].[Number of Cars Owned].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
  <LNum name="[Customer].[Number of Cars Owned].[LEVEL_NUMBER]"
        type="xsd:int" />
  <DisplayInfo name="[Customer].[Number of Cars Owned].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Customer].[Number of Children At Home]">
  <UName name="[Customer].[Number of Children At Home].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
  <Caption name="[Customer].[Number of Children At Home].[MEMBER_CAPTION]"
        type="xsd:string" />
  <LName name="[Customer].[Number of Children At Home].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
  <LNum name="[Customer].[Number of Children At Home].[LEVEL_NUMBER]"
        type="xsd:int" />
  <DisplayInfo name="[Customer].[Number of Children At Home].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Customer].[Education]">
  <UName name="[Customer].[Education].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
  <Caption name="[Customer].[Education].[MEMBER_CAPTION]"

```

```

        type="xsd:string" />
<LName name="[Customer].[Education].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
<LNum name="[Customer].[Education].[LEVEL_NUMBER]"
    type="xsd:int" />
<DisplayInfo name="[Customer].[Education].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Customer].[Occupation]">
    <UName name="[Customer].[Occupation].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
    <Caption name="[Customer].[Occupation].[MEMBER_CAPTION]"
        type="xsd:string" />
    <LName name="[Customer].[Occupation].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
    <LNum name="[Customer].[Occupation].[LEVEL_NUMBER]"
        type="xsd:int" />
    <DisplayInfo name="[Customer].[Occupation].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Customer].[Marital Status]">
    <UName name="[Customer].[Marital Status].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
    <Caption name="[Customer].[Marital Status].[MEMBER_CAPTION]"
        type="xsd:string" />
    <LName name="[Customer].[Marital Status].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
    <LNum name="[Customer].[Marital Status].[LEVEL_NUMBER]"
        type="xsd:int" />
    <DisplayInfo name="[Customer].[Marital Status].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Customer].[Gender]">
    <UName name="[Customer].[Gender].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
    <Caption name="[Customer].[Gender].[MEMBER_CAPTION]"
        type="xsd:string" />
    <LName name="[Customer].[Gender].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
    <LNum name="[Customer].[Gender].[LEVEL_NUMBER]"
        type="xsd:int" />
    <DisplayInfo name="[Customer].[Gender].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Customer].[Home Owner]">
    <UName name="[Customer].[Home Owner].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
    <Caption name="[Customer].[Home Owner].[MEMBER_CAPTION]"
        type="xsd:string" />
    <LName name="[Customer].[Home Owner].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
    <LNum name="[Customer].[Home Owner].[LEVEL_NUMBER]"
        type="xsd:int" />
    <DisplayInfo name="[Customer].[Home Owner].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Customer].[Commute Distance]">
    <UName name="[Customer].[Commute Distance].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />

```

```

    <Caption name="[Customer].[Commute Distance].[MEMBER_CAPTION]"
      type="xsd:string" />
    <LName name="[Customer].[Commute Distance].[LEVEL_UNIQUE_NAME]"
      type="xsd:string" />
    <LNum name="[Customer].[Commute Distance].[LEVEL_NUMBER]"
      type="xsd:int" />
    <DisplayInfo name="[Customer].[Commute Distance].[DISPLAY_INFO]"
      type="xsd:unsignedInt" />
  </HierarchyInfo>
  <HierarchyInfo name="[Reseller].[Reseller Type]">
    <UName name="[Reseller].[Reseller Type].[MEMBER_UNIQUE_NAME]"
      type="xsd:string" />
    <Caption name="[Reseller].[Reseller Type].[MEMBER_CAPTION]"
      type="xsd:string" />
    <LName name="[Reseller].[Reseller Type].[LEVEL_UNIQUE_NAME]"
      type="xsd:string" />
    <LNum name="[Reseller].[Reseller Type].[LEVEL_NUMBER]"
      type="xsd:int" />
    <DisplayInfo name="[Reseller].[Reseller Type].[DISPLAY_INFO]"
      type="xsd:unsignedInt" />
  </HierarchyInfo>
  <HierarchyInfo name="[Reseller].[Reseller Bank]">
    <UName name="[Reseller].[Reseller Bank].[MEMBER_UNIQUE_NAME]"
      type="xsd:string" />
    <Caption name="[Reseller].[Reseller Bank].[MEMBER_CAPTION]"
      type="xsd:string" />
    <LName name="[Reseller].[Reseller Bank].[LEVEL_UNIQUE_NAME]"
      type="xsd:string" />
    <LNum name="[Reseller].[Reseller Bank].[LEVEL_NUMBER]"
      type="xsd:int" />
    <DisplayInfo name="[Reseller].[Reseller Bank].[DISPLAY_INFO]"
      type="xsd:unsignedInt" />
  </HierarchyInfo>
  <HierarchyInfo name="[Reseller].[Reseller Order Frequency]">
    <UName name="[Reseller].[Reseller Order Frequency].[MEMBER_UNIQUE_NAME]"
      type="xsd:string" />
    <Caption name="[Reseller].[Reseller Order Frequency].[MEMBER_CAPTION]"
      type="xsd:string" />
    <LName name="[Reseller].[Reseller Order Frequency].[LEVEL_UNIQUE_NAME]"
      type="xsd:string" />
    <LNum name="[Reseller].[Reseller Order Frequency].[LEVEL_NUMBER]"
      type="xsd:int" />
    <DisplayInfo name="[Reseller].[Reseller Order Frequency].[DISPLAY_INFO]"
      type="xsd:unsignedInt" />
  </HierarchyInfo>
  <HierarchyInfo name="[Reseller].[Reseller Order Month]">
    <UName name="[Reseller].[Reseller Order Month].[MEMBER_UNIQUE_NAME]"
      type="xsd:string" />
    <Caption name="[Reseller].[Reseller Order Month].[MEMBER_CAPTION]"
      type="xsd:string" />
    <LName name="[Reseller].[Reseller Order Month].[LEVEL_UNIQUE_NAME]"
      type="xsd:string" />
    <LNum name="[Reseller].[Reseller Order Month].[LEVEL_NUMBER]"
      type="xsd:int" />
    <DisplayInfo name="[Reseller].[Reseller Order Month].[DISPLAY_INFO]"
      type="xsd:unsignedInt" />
  </HierarchyInfo>
  <HierarchyInfo name="[Reseller].[Reseller]">
    <UName name="[Reseller].[Reseller].[MEMBER_UNIQUE_NAME]"

```

```

        type="xsd:string" />
    <Caption name="[Reseller].[Reseller].[MEMBER_CAPTION]"
        type="xsd:string" />
    <LName name="[Reseller].[Reseller].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
    <LNum name="[Reseller].[Reseller].[LEVEL_NUMBER]"
        type="xsd:int" />
    <DisplayInfo name="[Reseller].[Reseller].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Reseller].[Product Line]">
    <UName name="[Reseller].[Product Line].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
    <Caption name="[Reseller].[Product Line].[MEMBER_CAPTION]"
        type="xsd:string" />
    <LName name="[Reseller].[Product Line].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
    <LNum name="[Reseller].[Product Line].[LEVEL_NUMBER]"
        type="xsd:int" />
    <DisplayInfo name="[Reseller].[Product Line].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Reseller].[Business Type]">
    <UName name="[Reseller].[Business Type].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
    <Caption name="[Reseller].[Business Type].[MEMBER_CAPTION]"
        type="xsd:string" />
    <LName name="[Reseller].[Business Type].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
    <LNum name="[Reseller].[Business Type].[LEVEL_NUMBER]"
        type="xsd:int" />
    <DisplayInfo name="[Reseller].[Business Type].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Reseller].[Number of Employees]">
    <UName name="[Reseller].[Number of Employees].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
    <Caption name="[Reseller].[Number of Employees].[MEMBER_CAPTION]"
        type="xsd:string" />
    <LName name="[Reseller].[Number of Employees].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
    <LNum name="[Reseller].[Number of Employees].[LEVEL_NUMBER]"
        type="xsd:int" />
    <DisplayInfo name="[Reseller].[Number of Employees].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Reseller].[Annual Sales]">
    <UName name="[Reseller].[Annual Sales].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
    <Caption name="[Reseller].[Annual Sales].[MEMBER_CAPTION]"
        type="xsd:string" />
    <LName name="[Reseller].[Annual Sales].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
    <LNum name="[Reseller].[Annual Sales].[LEVEL_NUMBER]"
        type="xsd:int" />
    <DisplayInfo name="[Reseller].[Annual Sales].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Reseller].[Annual Revenue]">

```

```

<UName name="[Reseller].[Annual Revenue].[MEMBER_UNIQUE_NAME]"
  type="xsd:string" />
<Caption name="[Reseller].[Annual Revenue].[MEMBER_CAPTION]"
  type="xsd:string" />
<LName name="[Reseller].[Annual Revenue].[LEVEL_UNIQUE_NAME]"
  type="xsd:string" />
<LNum name="[Reseller].[Annual Revenue].[LEVEL_NUMBER]"
  type="xsd:int" />
<DisplayInfo name="[Reseller].[Annual Revenue].[DISPLAY_INFO]"
  type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Reseller].[Bank Name]">
  <UName name="[Reseller].[Bank Name].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Reseller].[Bank Name].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Reseller].[Bank Name].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Reseller].[Bank Name].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Reseller].[Bank Name].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Reseller].[Order Frequency]">
  <UName name="[Reseller].[Order Frequency].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Reseller].[Order Frequency].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Reseller].[Order Frequency].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Reseller].[Order Frequency].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Reseller].[Order Frequency].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Reseller].[Order Month]">
  <UName name="[Reseller].[Order Month].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Reseller].[Order Month].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Reseller].[Order Month].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Reseller].[Order Month].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Reseller].[Order Month].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Geography].[Geography]">
  <UName name="[Geography].[Geography].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Geography].[Geography].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Geography].[Geography].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Geography].[Geography].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Geography].[Geography].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>

```

```

<HierarchyInfo name="[Geography].[City]">
  <UName name="[Geography].[City].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Geography].[City].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Geography].[City].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Geography].[City].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Geography].[City].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Geography].[State-Province]">
  <UName name="[Geography].[State-Province].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Geography].[State-Province].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Geography].[State-Province].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Geography].[State-Province].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Geography].[State-Province].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Geography].[Country]">
  <UName name="[Geography].[Country].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Geography].[Country].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Geography].[Country].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Geography].[Country].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Geography].[Country].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Geography].[Postal Code]">
  <UName name="[Geography].[Postal Code].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Geography].[Postal Code].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Geography].[Postal Code].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Geography].[Postal Code].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Geography].[Postal Code].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Employee].[Employee Department]">
  <UName name="[Employee].[Employee Department].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Employee].[Employee Department].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Employee].[Employee Department].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Employee].[Employee Department].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Employee].[Employee Department].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />

```

```

</HierarchyInfo>
<HierarchyInfo name="[Employee].[Department Name]">
  <UName name="[Employee].[Department Name].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Employee].[Department Name].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Employee].[Department Name].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Employee].[Department Name].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Employee].[Department Name].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Employee].[Sales Person Flag]">
  <UName name="[Employee].[Sales Person Flag].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Employee].[Sales Person Flag].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Employee].[Sales Person Flag].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Employee].[Sales Person Flag].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Employee].[Sales Person Flag].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Employee].[Title]">
  <UName name="[Employee].[Title].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Employee].[Title].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Employee].[Title].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Employee].[Title].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Employee].[Title].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Employee].[Hire Date]">
  <UName name="[Employee].[Hire Date].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Employee].[Hire Date].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Employee].[Hire Date].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Employee].[Hire Date].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Employee].[Hire Date].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Employee].[Sick Leave Hours]">
  <UName name="[Employee].[Sick Leave Hours].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Employee].[Sick Leave Hours].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Employee].[Sick Leave Hours].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Employee].[Sick Leave Hours].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Employee].[Sick Leave Hours].[DISPLAY_INFO]"

```



```

        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Employee].[Vacation Hours]">
  <UName name="[Employee].[Vacation Hours].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Employee].[Vacation Hours].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Employee].[Vacation Hours].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Employee].[Vacation Hours].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Employee].[Vacation Hours].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Employee].[Base Rate]">
  <UName name="[Employee].[Base Rate].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Employee].[Base Rate].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Employee].[Base Rate].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Employee].[Base Rate].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Employee].[Base Rate].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Employee].[Pay Frequency]">
  <UName name="[Employee].[Pay Frequency].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Employee].[Pay Frequency].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Employee].[Pay Frequency].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Employee].[Pay Frequency].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Employee].[Pay Frequency].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Employee].[Phone]">
  <UName name="[Employee].[Phone].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Employee].[Phone].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Employee].[Phone].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Employee].[Phone].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Employee].[Phone].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Employee].[Salaried Flag]">
  <UName name="[Employee].[Salaried Flag].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Employee].[Salaried Flag].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Employee].[Salaried Flag].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Employee].[Salaried Flag].[LEVEL_NUMBER]"
    type="xsd:int" />

```

```

        <DisplayInfo name="[Employee].[Salaried Flag].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Employee].[Gender]">
        <UName name="[Employee].[Gender].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Employee].[Gender].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Employee].[Gender].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Employee].[Gender].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Employee].[Gender].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Employee].[Marital Status]">
        <UName name="[Employee].[Marital Status].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Employee].[Marital Status].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Employee].[Marital Status].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Employee].[Marital Status].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Employee].[Marital Status].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Employee].[Employees]">
        <UName name="[Employee].[Employees].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Employee].[Employees].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Employee].[Employees].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Employee].[Employees].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Employee].[Employees].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Employee].[Status]">
        <UName name="[Employee].[Status].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Employee].[Status].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Employee].[Status].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Employee].[Status].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Employee].[Status].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Employee].[Start Date]">
        <UName name="[Employee].[Start Date].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Employee].[Start Date].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Employee].[Start Date].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Employee].[Start Date].[LEVEL_NUMBER]"

```

```

        type="xsd:int" />
        <DisplayInfo name="[Employee].[Start Date].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Employee].[End Date]">
        <UName name="[Employee].[End Date].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Employee].[End Date].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Employee].[End Date].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Employee].[End Date].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Employee].[End Date].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Employee].[Hire Year]">
        <UName name="[Employee].[Hire Year].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Employee].[Hire Year].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Employee].[Hire Year].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Employee].[Hire Year].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Employee].[Hire Year].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Promotion].[Promotions]">
        <UName name="[Promotion].[Promotions].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Promotion].[Promotions].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Promotion].[Promotions].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Promotion].[Promotions].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Promotion].[Promotions].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Promotion].[Promotion]">
        <UName name="[Promotion].[Promotion].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Promotion].[Promotion].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Promotion].[Promotion].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Promotion].[Promotion].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Promotion].[Promotion].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Promotion].[Discount Percent]">
        <UName name="[Promotion].[Discount Percent].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Promotion].[Discount Percent].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Promotion].[Discount Percent].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />

```

```

    <LNum name="[Promotion].[Discount Percent].[LEVEL_NUMBER]"
        type="xsd:int" />
    <DisplayInfo name="[Promotion].[Discount Percent].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Promotion].[Max Quantity]">
    <UName name="[Promotion].[Max Quantity].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
    <Caption name="[Promotion].[Max Quantity].[MEMBER_CAPTION]"
        type="xsd:string" />
    <LName name="[Promotion].[Max Quantity].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
    <LNum name="[Promotion].[Max Quantity].[LEVEL_NUMBER]"
        type="xsd:int" />
    <DisplayInfo name="[Promotion].[Max Quantity].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Promotion].[Promotion Type]">
    <UName name="[Promotion].[Promotion Type].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
    <Caption name="[Promotion].[Promotion Type].[MEMBER_CAPTION]"
        type="xsd:string" />
    <LName name="[Promotion].[Promotion Type].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
    <LNum name="[Promotion].[Promotion Type].[LEVEL_NUMBER]"
        type="xsd:int" />
    <DisplayInfo name="[Promotion].[Promotion Type].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Promotion].[Min Quantity]">
    <UName name="[Promotion].[Min Quantity].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
    <Caption name="[Promotion].[Min Quantity].[MEMBER_CAPTION]"
        type="xsd:string" />
    <LName name="[Promotion].[Min Quantity].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
    <LNum name="[Promotion].[Min Quantity].[LEVEL_NUMBER]"
        type="xsd:int" />
    <DisplayInfo name="[Promotion].[Min Quantity].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Promotion].[Promotion Category]">
    <UName name="[Promotion].[Promotion Category].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
    <Caption name="[Promotion].[Promotion Category].[MEMBER_CAPTION]"
        type="xsd:string" />
    <LName name="[Promotion].[Promotion Category].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
    <LNum name="[Promotion].[Promotion Category].[LEVEL_NUMBER]"
        type="xsd:int" />
    <DisplayInfo name="[Promotion].[Promotion Category].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Promotion].[End Date]">
    <UName name="[Promotion].[End Date].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
    <Caption name="[Promotion].[End Date].[MEMBER_CAPTION]"
        type="xsd:string" />
    <LName name="[Promotion].[End Date].[LEVEL_UNIQUE_NAME]"

```

```

        type="xsd:string" />
        <LNum name="[Promotion].[End Date].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Promotion].[End Date].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Promotion].[Start Date]">
        <UName name="[Promotion].[Start Date].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Promotion].[Start Date].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Promotion].[Start Date].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Promotion].[Start Date].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Promotion].[Start Date].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Product].[Product Categories]">
        <UName name="[Product].[Product Categories].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Product].[Product Categories].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Product].[Product Categories].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Product].[Product Categories].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Product].[Product Categories].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Product].[Product Model Lines]">
        <UName name="[Product].[Product Model Lines].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Product].[Product Model Lines].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Product].[Product Model Lines].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Product].[Product Model Lines].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Product].[Product Model Lines].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Product].[Stock Level]">
        <UName name="[Product].[Stock Level].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Product].[Stock Level].[MEMBER_CAPTION]"
            type="xsd:string" />
        <LName name="[Product].[Stock Level].[LEVEL_UNIQUE_NAME]"
            type="xsd:string" />
        <LNum name="[Product].[Stock Level].[LEVEL_NUMBER]"
            type="xsd:int" />
        <DisplayInfo name="[Product].[Stock Level].[DISPLAY_INFO]"
            type="xsd:unsignedInt" />
    </HierarchyInfo>
    <HierarchyInfo name="[Product].[Product]">
        <UName name="[Product].[Product].[MEMBER_UNIQUE_NAME]"
            type="xsd:string" />
        <Caption name="[Product].[Product].[MEMBER_CAPTION]"
            type="xsd:string" />

```

```

<LName name="[Product].[Product].[LEVEL_UNIQUE_NAME]"
      type="xsd:string" />
<LNum name="[Product].[Product].[LEVEL_NUMBER]"
      type="xsd:int" />
<DisplayInfo name="[Product].[Product].[DISPLAY_INFO]"
      type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Product].[Standard Cost]">
  <UName name="[Product].[Standard Cost].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
  <Caption name="[Product].[Standard Cost].[MEMBER_CAPTION]"
        type="xsd:string" />
  <LName name="[Product].[Standard Cost].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
  <LNum name="[Product].[Standard Cost].[LEVEL_NUMBER]"
        type="xsd:int" />
  <DisplayInfo name="[Product].[Standard Cost].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Product].[Category]">
  <UName name="[Product].[Category].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
  <Caption name="[Product].[Category].[MEMBER_CAPTION]"
        type="xsd:string" />
  <LName name="[Product].[Category].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
  <LNum name="[Product].[Category].[LEVEL_NUMBER]"
        type="xsd:int" />
  <DisplayInfo name="[Product].[Category].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Product].[Color]">
  <UName name="[Product].[Color].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
  <Caption name="[Product].[Color].[MEMBER_CAPTION]"
        type="xsd:string" />
  <LName name="[Product].[Color].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
  <LNum name="[Product].[Color].[LEVEL_NUMBER]"
        type="xsd:int" />
  <DisplayInfo name="[Product].[Color].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Product].[Safety Stock Level]">
  <UName name="[Product].[Safety Stock Level].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
  <Caption name="[Product].[Safety Stock Level].[MEMBER_CAPTION]"
        type="xsd:string" />
  <LName name="[Product].[Safety Stock Level].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
  <LNum name="[Product].[Safety Stock Level].[LEVEL_NUMBER]"
        type="xsd:int" />
  <DisplayInfo name="[Product].[Safety Stock Level].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Product].[Reorder Point]">
  <UName name="[Product].[Reorder Point].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
  <Caption name="[Product].[Reorder Point].[MEMBER_CAPTION]"

```

```

        type="xsd:string" />
<LName name="[Product].[Reorder Point].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
<LNum name="[Product].[Reorder Point].[LEVEL_NUMBER]"
    type="xsd:int" />
<DisplayInfo name="[Product].[Reorder Point].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Product].[List Price]">
    <UName name="[Product].[List Price].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
    <Caption name="[Product].[List Price].[MEMBER_CAPTION]"
        type="xsd:string" />
    <LName name="[Product].[List Price].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
    <LNum name="[Product].[List Price].[LEVEL_NUMBER]"
        type="xsd:int" />
    <DisplayInfo name="[Product].[List Price].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Product].[Size]">
    <UName name="[Product].[Size].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
    <Caption name="[Product].[Size].[MEMBER_CAPTION]"
        type="xsd:string" />
    <LName name="[Product].[Size].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
    <LNum name="[Product].[Size].[LEVEL_NUMBER]"
        type="xsd:int" />
    <DisplayInfo name="[Product].[Size].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Product].[Size Range]">
    <UName name="[Product].[Size Range].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
    <Caption name="[Product].[Size Range].[MEMBER_CAPTION]"
        type="xsd:string" />
    <LName name="[Product].[Size Range].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
    <LNum name="[Product].[Size Range].[LEVEL_NUMBER]"
        type="xsd:int" />
    <DisplayInfo name="[Product].[Size Range].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Product].[Weight]">
    <UName name="[Product].[Weight].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
    <Caption name="[Product].[Weight].[MEMBER_CAPTION]"
        type="xsd:string" />
    <LName name="[Product].[Weight].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
    <LNum name="[Product].[Weight].[LEVEL_NUMBER]"
        type="xsd:int" />
    <DisplayInfo name="[Product].[Weight].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Product].[Days to Manufacture]">
    <UName name="[Product].[Days to Manufacture].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />

```

```

    <Caption name="[Product].[Days to Manufacture].[MEMBER_CAPTION]"
      type="xsd:string" />
    <LName name="[Product].[Days to Manufacture].[LEVEL_UNIQUE_NAME]"
      type="xsd:string" />
    <LNum name="[Product].[Days to Manufacture].[LEVEL_NUMBER]"
      type="xsd:int" />
    <DisplayInfo name="[Product].[Days to Manufacture].[DISPLAY_INFO]"
      type="xsd:unsignedInt" />
  </HierarchyInfo>
  <HierarchyInfo name="[Product].[Dealer Price]">
    <UName name="[Product].[Dealer Price].[MEMBER_UNIQUE_NAME]"
      type="xsd:string" />
    <Caption name="[Product].[Dealer Price].[MEMBER_CAPTION]"
      type="xsd:string" />
    <LName name="[Product].[Dealer Price].[LEVEL_UNIQUE_NAME]"
      type="xsd:string" />
    <LNum name="[Product].[Dealer Price].[LEVEL_NUMBER]"
      type="xsd:int" />
    <DisplayInfo name="[Product].[Dealer Price].[DISPLAY_INFO]"
      type="xsd:unsignedInt" />
  </HierarchyInfo>
  <HierarchyInfo name="[Product].[Class]">
    <UName name="[Product].[Class].[MEMBER_UNIQUE_NAME]"
      type="xsd:string" />
    <Caption name="[Product].[Class].[MEMBER_CAPTION]"
      type="xsd:string" />
    <LName name="[Product].[Class].[LEVEL_UNIQUE_NAME]"
      type="xsd:string" />
    <LNum name="[Product].[Class].[LEVEL_NUMBER]"
      type="xsd:int" />
    <DisplayInfo name="[Product].[Class].[DISPLAY_INFO]"
      type="xsd:unsignedInt" />
  </HierarchyInfo>
  <HierarchyInfo name="[Product].[Style]">
    <UName name="[Product].[Style].[MEMBER_UNIQUE_NAME]"
      type="xsd:string" />
    <Caption name="[Product].[Style].[MEMBER_CAPTION]"
      type="xsd:string" />
    <LName name="[Product].[Style].[LEVEL_UNIQUE_NAME]"
      type="xsd:string" />
    <LNum name="[Product].[Style].[LEVEL_NUMBER]"
      type="xsd:int" />
    <DisplayInfo name="[Product].[Style].[DISPLAY_INFO]"
      type="xsd:unsignedInt" />
  </HierarchyInfo>
  <HierarchyInfo name="[Product].[Model Name]">
    <UName name="[Product].[Model Name].[MEMBER_UNIQUE_NAME]"
      type="xsd:string" />
    <Caption name="[Product].[Model Name].[MEMBER_CAPTION]"
      type="xsd:string" />
    <LName name="[Product].[Model Name].[LEVEL_UNIQUE_NAME]"
      type="xsd:string" />
    <LNum name="[Product].[Model Name].[LEVEL_NUMBER]"
      type="xsd:int" />
    <DisplayInfo name="[Product].[Model Name].[DISPLAY_INFO]"
      type="xsd:unsignedInt" />
  </HierarchyInfo>
  <HierarchyInfo name="[Product].[Product Line]">
    <UName name="[Product].[Product Line].[MEMBER_UNIQUE_NAME]"

```



```

        type="xsd:string" />
    <Caption name="[Product].[Product Line].[MEMBER_CAPTION]"
        type="xsd:string" />
    <LName name="[Product].[Product Line].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
    <LNum name="[Product].[Product Line].[LEVEL_NUMBER]"
        type="xsd:int" />
    <DisplayInfo name="[Product].[Product Line].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Product].[Subcategory]">
    <UName name="[Product].[Subcategory].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
    <Caption name="[Product].[Subcategory].[MEMBER_CAPTION]"
        type="xsd:string" />
    <LName name="[Product].[Subcategory].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
    <LNum name="[Product].[Subcategory].[LEVEL_NUMBER]"
        type="xsd:int" />
    <DisplayInfo name="[Product].[Subcategory].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Product].[Status]">
    <UName name="[Product].[Status].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
    <Caption name="[Product].[Status].[MEMBER_CAPTION]"
        type="xsd:string" />
    <LName name="[Product].[Status].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
    <LNum name="[Product].[Status].[LEVEL_NUMBER]"
        type="xsd:int" />
    <DisplayInfo name="[Product].[Status].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Product].[Start Date]">
    <UName name="[Product].[Start Date].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
    <Caption name="[Product].[Start Date].[MEMBER_CAPTION]"
        type="xsd:string" />
    <LName name="[Product].[Start Date].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
    <LNum name="[Product].[Start Date].[LEVEL_NUMBER]"
        type="xsd:int" />
    <DisplayInfo name="[Product].[Start Date].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Product].[End Date]">
    <UName name="[Product].[End Date].[MEMBER_UNIQUE_NAME]"
        type="xsd:string" />
    <Caption name="[Product].[End Date].[MEMBER_CAPTION]"
        type="xsd:string" />
    <LName name="[Product].[End Date].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
    <LNum name="[Product].[End Date].[LEVEL_NUMBER]"
        type="xsd:int" />
    <DisplayInfo name="[Product].[End Date].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Product].[Large Photo]">

```

```

<UName name="[Product].[Large Photo].[MEMBER_UNIQUE_NAME]"
  type="xsd:string" />
<Caption name="[Product].[Large Photo].[MEMBER_CAPTION]"
  type="xsd:string" />
<LName name="[Product].[Large Photo].[LEVEL_UNIQUE_NAME]"
  type="xsd:string" />
<LNum name="[Product].[Large Photo].[LEVEL_NUMBER]"
  type="xsd:int" />
<DisplayInfo name="[Product].[Large Photo].[DISPLAY_INFO]"
  type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Sales Territory].[Sales Territory]">
  <UName name="[Sales Territory].[Sales Territory].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Sales Territory].[Sales Territory].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Sales Territory].[Sales Territory].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Sales Territory].[Sales Territory].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Sales Territory].[Sales Territory].
    [DISPLAY_INFO]" type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Sales Territory].[Sales Territory Region]">
  <UName name="[Sales Territory].[Sales Territory Region].
    [MEMBER_UNIQUE_NAME]" type="xsd:string" />
  <Caption name="[Sales Territory].[Sales Territory Region].
    [MEMBER_CAPTION]" type="xsd:string" />
  <LName name="[Sales Territory].[Sales Territory Region].
    [LEVEL_UNIQUE_NAME]" type="xsd:string" />
  <LNum name="[Sales Territory].[Sales Territory Region].
    [LEVEL_NUMBER]" type="xsd:int" />
  <DisplayInfo name="[Sales Territory].[Sales Territory Region].
    [DISPLAY_INFO]" type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Sales Territory].[Sales Territory Country]">
  <UName name="[Sales Territory].[Sales Territory Country].
    [MEMBER_UNIQUE_NAME]" type="xsd:string" />
  <Caption name="[Sales Territory].[Sales Territory Country].
    [MEMBER_CAPTION]" type="xsd:string" />
  <LName name="[Sales Territory].[Sales Territory Country].
    [LEVEL_UNIQUE_NAME]" type="xsd:string" />
  <LNum name="[Sales Territory].[Sales Territory Country].
    [LEVEL_NUMBER]" type="xsd:int" />
  <DisplayInfo name="[Sales Territory].[Sales Territory Country].
    [DISPLAY_INFO]" type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Sales Territory].[Sales Territory Group]">
  <UName name="[Sales Territory].[Sales Territory Group].
    [MEMBER_UNIQUE_NAME]" type="xsd:string" />
  <Caption name="[Sales Territory].[Sales Territory Group].
    [MEMBER_CAPTION]" type="xsd:string" />
  <LName name="[Sales Territory].[Sales Territory Group].
    [LEVEL_UNIQUE_NAME]" type="xsd:string" />
  <LNum name="[Sales Territory].[Sales Territory Group].
    [LEVEL_NUMBER]" type="xsd:int" />
  <DisplayInfo name="[Sales Territory].[Sales Territory Group].
    [DISPLAY_INFO]" type="xsd:unsignedInt" />
</HierarchyInfo>

```

```

<HierarchyInfo name="[Sales Reason].[Sales Reasons]">
  <UName name="[Sales Reason].[Sales Reasons].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Sales Reason].[Sales Reasons].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Sales Reason].[Sales Reasons].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Sales Reason].[Sales Reasons].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Sales Reason].[Sales Reasons].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Sales Reason].[Sales Reason]">
  <UName name="[Sales Reason].[Sales Reason].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Sales Reason].[Sales Reason].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Sales Reason].[Sales Reason].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Sales Reason].[Sales Reason].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Sales Reason].[Sales Reason].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Sales Reason].[Sales Reason Type]">
  <UName name="[Sales Reason].[Sales Reason Type].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Sales Reason].[Sales Reason Type].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Sales Reason].[Sales Reason Type].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Sales Reason].[Sales Reason Type].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Sales Reason].[Sales Reason Type].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Internet Sales Order Details].[Internet Sales Orders]">
  <UName name="[Internet Sales Order Details].[Internet Sales
Orders].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Internet Sales Order Details].[Internet Sales
Orders].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Internet Sales Order Details].[Internet Sales
Orders].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Internet Sales Order Details].[Internet Sales
Orders].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Internet Sales Order Details].[Internet Sales
Orders].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Internet Sales Order Details].[Sales Order Number]">
  <UName name="[Internet Sales Order Details].[Sales Order
Number].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Internet Sales Order Details].[Sales Order
Number].[MEMBER_CAPTION]"

```

```

        type="xsd:string" />
        <LName name="[Internet Sales Order Details].[Sales Order
Number].[LEVEL_UNIQUE_NAME]"
        type="xsd:string" />
        <LNum name="[Internet Sales Order Details].[Sales Order
Number].[LEVEL_NUMBER]"
        type="xsd:int" />
        <DisplayInfo name="[Internet Sales Order Details].[Sales Order
Number].[DISPLAY_INFO]"
        type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Internet Sales Order Details].[Sales Order Line]">
  <UName name="[Internet Sales Order Details].[Sales Order Line].
[MEMBER_UNIQUE_NAME]" type="xsd:string" />
  <Caption name="[Internet Sales Order Details].[Sales Order Line].
[MEMBER_CAPTION]" type="xsd:string" />
  <LName name="[Internet Sales Order Details].[Sales Order Line].
[LEVEL_UNIQUE_NAME]" type="xsd:string" />
  <LNum name="[Internet Sales Order Details].[Sales Order Line].
[LEVEL_NUMBER]" type="xsd:int" />
  <DisplayInfo name="[Internet Sales Order Details].
[Sales Order Line].[DISPLAY_INFO]"
  type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Reseller Sales Order Details].
[Reseller Sales Orders]">
  <UName name="[Reseller Sales Order Details].[Reseller Sales Orders].
[MEMBER_UNIQUE_NAME]" type="xsd:string" />
  <Caption name="[Reseller Sales Order Details].[Reseller Sales Orders].
[MEMBER_CAPTION]" type="xsd:string" />
  <LName name="[Reseller Sales Order Details].[Reseller Sales Orders].
[LEVEL_UNIQUE_NAME]" type="xsd:string" />
  <LNum name="[Reseller Sales Order Details].[Reseller Sales Orders].
[LEVEL_NUMBER]" type="xsd:int" />
  <DisplayInfo name="[Reseller Sales Order Details].
[Reseller Sales Orders].[DISPLAY_INFO]"
  type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Reseller Sales Order Details].
[Carrier Tracking Number]">
  <UName name="[Reseller Sales Order Details].[Carrier Tracking Number].
[MEMBER_UNIQUE_NAME]" type="xsd:string" />
  <Caption name="[Reseller Sales Order Details].[Carrier Tracking Number].
[MEMBER_CAPTION]" type="xsd:string" />
  <LName name="[Reseller Sales Order Details].[Carrier Tracking Number].
[LEVEL_UNIQUE_NAME]" type="xsd:string" />
  <LNum name="[Reseller Sales Order Details].[Carrier Tracking Number].
[LEVEL_NUMBER]" type="xsd:int" />
  <DisplayInfo name="[Reseller Sales Order Details].[Carrier Tracking
Number].
[DISPLAY_INFO]" type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Reseller Sales Order Details].[Customer PO Number]">
  <UName name="[Reseller Sales Order Details].[Customer PO Number].
[MEMBER_UNIQUE_NAME]" type="xsd:string" />
  <Caption name="[Reseller Sales Order Details].[Customer PO Number].
[MEMBER_CAPTION]" type="xsd:string" />
  <LName name="[Reseller Sales Order Details].[Customer PO Number].
[LEVEL_UNIQUE_NAME]" type="xsd:string" />

```

```

<LNum name="[Reseller Sales Order Details].[Customer PO Number].
  [LEVEL_NUMBER]" type="xsd:int" />
<DisplayInfo name="[Reseller Sales Order Details].[Customer PO Number].
  [DISPLAY_INFO]" type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Reseller Sales Order Details].[Sales Order Number]">
  <UName name="[Reseller Sales Order Details].[Sales Order Number].
    [MEMBER_UNIQUE_NAME]" type="xsd:string" />
  <Caption name="[Reseller Sales Order Details].[Sales Order Number].
    [MEMBER_CAPTION]" type="xsd:string" />
  <LName name="[Reseller Sales Order Details].[Sales Order Number].
    [LEVEL_UNIQUE_NAME]" type="xsd:string" />
  <LNum name="[Reseller Sales Order Details].[Sales Order Number].
    [LEVEL_NUMBER]" type="xsd:int" />
  <DisplayInfo name="[Reseller Sales Order Details].[Sales Order Number].
    [DISPLAY_INFO]" type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Reseller Sales Order Details].[Sales Order Line]">
  <UName name="[Reseller Sales Order Details].[Sales Order Line].
    [MEMBER_UNIQUE_NAME]" type="xsd:string" />
  <Caption name="[Reseller Sales Order Details].[Sales Order Line].
    [MEMBER_CAPTION]" type="xsd:string" />
  <LName name="[Reseller Sales Order Details].[Sales Order Line].
    [LEVEL_UNIQUE_NAME]" type="xsd:string" />
  <LNum name="[Reseller Sales Order Details].[Sales Order Line].
    [LEVEL_NUMBER]" type="xsd:int" />
  <DisplayInfo name="[Reseller Sales Order Details].[Sales Order Line].
    [DISPLAY_INFO]" type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Sales Summary Order Details].
  [Sales Orders]">
  <UName name="[Sales Summary Order Details].[Sales Orders].
    [MEMBER_UNIQUE_NAME]" type="xsd:string" />
  <Caption name="[Sales Summary Order Details].[Sales Orders].
    [MEMBER_CAPTION]" type="xsd:string" />
  <LName name="[Sales Summary Order Details].[Sales Orders].
    [LEVEL_UNIQUE_NAME]" type="xsd:string" />
  <LNum name="[Sales Summary Order Details].[Sales Orders].
    [LEVEL_NUMBER]" type="xsd:int" />
  <DisplayInfo name="[Sales Summary Order Details].[Sales Orders].
    [DISPLAY_INFO]" type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Sales Summary Order Details].
  [Carrier Tracking Number]">
  <UName name="[Sales Summary Order Details].[Carrier Tracking Number].
    [MEMBER_UNIQUE_NAME]" type="xsd:string" />
  <Caption name="[Sales Summary Order Details].[Carrier Tracking Number].
    [MEMBER_CAPTION]" type="xsd:string" />
  <LName name="[Sales Summary Order Details].[Carrier Tracking Number].
    [LEVEL_UNIQUE_NAME]" type="xsd:string" />
  <LNum name="[Sales Summary Order Details].[Carrier Tracking Number].
    [LEVEL_NUMBER]" type="xsd:int" />
  <DisplayInfo name="[Sales Summary Order Details].[Carrier Tracking Number].
    [DISPLAY_INFO]" type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Sales Summary Order Details].
  [Customer PO Number]">
  <UName name="[Sales Summary Order Details].[Customer PO Number].
    [MEMBER_UNIQUE_NAME]" type="xsd:string" />

```

```

    <Caption name="[Sales Summary Order Details].[Customer PO Number].
      [MEMBER_CAPTION]" type="xsd:string" />
    <LName name="[Sales Summary Order Details].[Customer PO Number].
      [LEVEL_UNIQUE_NAME]" type="xsd:string" />
    <LNum name="[Sales Summary Order Details].[Customer PO Number].
      [LEVEL_NUMBER]" type="xsd:int" />
    <DisplayInfo name="[Sales Summary Order Details].[Customer PO Number].
      [DISPLAY_INFO]" type="xsd:unsignedInt" />
  </HierarchyInfo>
  <HierarchyInfo name="[Sales Summary Order Details].[Sales Order
    Number]">
    <UName name="[Sales Summary Order Details].[Sales Order Number].
      [MEMBER_UNIQUE_NAME]" type="xsd:string" />
    <Caption name="[Sales Summary Order Details].[Sales Order Number].
      [MEMBER_CAPTION]" type="xsd:string" />
    <LName name="[Sales Summary Order Details].[Sales Order Number].
      [LEVEL_UNIQUE_NAME]" type="xsd:string" />
    <LNum name="[Sales Summary Order Details].[Sales Order Number].
      [LEVEL_NUMBER]" type="xsd:int" />
    <DisplayInfo name="[Sales Summary Order Details].[Sales Order Number].
      [DISPLAY_INFO]" type="xsd:unsignedInt" />
  </HierarchyInfo>
  <HierarchyInfo name="[Sales Summary Order Details].[Sales Order Line]">
    <UName name="[Sales Summary Order Details].[Sales Order Line].
      [MEMBER_UNIQUE_NAME]" type="xsd:string" />
    <Caption name="[Sales Summary Order Details].[Sales Order Line].
      [MEMBER_CAPTION]" type="xsd:string" />
    <LName name="[Sales Summary Order Details].[Sales Order Line].
      [LEVEL_UNIQUE_NAME]" type="xsd:string" />
    <LNum name="[Sales Summary Order Details].[Sales Order Line].
      [LEVEL_NUMBER]" type="xsd:int" />
    <DisplayInfo name="[Sales Summary Order Details].[Sales Order Line].
      [DISPLAY_INFO]" type="xsd:unsignedInt" />
  </HierarchyInfo>
  <HierarchyInfo name="[Source Currency].[Source Currency Code]">
    <UName name="[Source Currency].[Source Currency Code].
      [MEMBER_UNIQUE_NAME]" type="xsd:string" />
    <Caption name="[Source Currency].[Source Currency Code].
      [MEMBER_CAPTION]" type="xsd:string" />
    <LName name="[Source Currency].[Source Currency Code].
      [LEVEL_UNIQUE_NAME]" type="xsd:string" />
    <LNum name="[Source Currency].[Source Currency Code].
      [LEVEL_NUMBER]" type="xsd:int" />
    <DisplayInfo name="[Source Currency].[Source Currency Code].
      [DISPLAY_INFO]" type="xsd:unsignedInt" />
  </HierarchyInfo>
  <HierarchyInfo name="[Source Currency].[Source Currency]">
    <UName name="[Source Currency].[Source Currency].
      [MEMBER_UNIQUE_NAME]" type="xsd:string" />
    <Caption name="[Source Currency].[Source Currency].
      [MEMBER_CAPTION]" type="xsd:string" />
    <LName name="[Source Currency].[Source Currency].
      [LEVEL_UNIQUE_NAME]" type="xsd:string" />
    <LNum name="[Source Currency].[Source Currency].
      [LEVEL_NUMBER]" type="xsd:int" />
    <DisplayInfo name="[Source Currency].[Source Currency].
      [DISPLAY_INFO]" type="xsd:unsignedInt" />
  </HierarchyInfo>
  <HierarchyInfo name="[Destination Currency].[Destination Currency]">

```

```

<UName name="[Destination Currency].[Destination Currency].
  [MEMBER_UNIQUE_NAME]" type="xsd:string" />
<Caption name="[Destination Currency].[Destination Currency].
  [MEMBER_CAPTION]" type="xsd:string" />
<LName name="[Destination Currency].[Destination Currency].
  [LEVEL_UNIQUE_NAME]" type="xsd:string" />
<LNum name="[Destination Currency].[Destination Currency].
  [LEVEL_NUMBER]" type="xsd:int" />
<DisplayInfo name="[Destination Currency].[Destination Currency].
  [DISPLAY_INFO]" type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Destination Currency].
  [Destination Currency Code]">
  <UName name="[Destination Currency].[Destination Currency Code].
    [MEMBER_UNIQUE_NAME]" type="xsd:string" />
  <Caption name="[Destination Currency].[Destination Currency Code].
    [MEMBER_CAPTION]" type="xsd:string" />
  <LName name="[Destination Currency].[Destination Currency Code].
    [LEVEL_UNIQUE_NAME]" type="xsd:string" />
  <LNum name="[Destination Currency].[Destination Currency Code].
    [LEVEL_NUMBER]" type="xsd:int" />
  <DisplayInfo name="[Destination Currency].[Destination Currency Code].
    [DISPLAY_INFO]" type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Sales Channel].[Sales Channel]">
  <UName name="[Sales Channel].[Sales Channel].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Sales Channel].[Sales Channel].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Sales Channel].[Sales Channel].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Sales Channel].[Sales Channel].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Sales Channel].[Sales Channel].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Organization].[Organizations]">
  <UName name="[Organization].[Organizations].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Organization].[Organizations].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Organization].[Organizations].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Organization].[Organizations].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Organization].[Organizations].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Organization].[Currency Code]">
  <UName name="[Organization].[Currency Code].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Organization].[Currency Code].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Organization].[Currency Code].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Organization].[Currency Code].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Organization].[Currency Code].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />

```

```

</HierarchyInfo>
<HierarchyInfo name="[Department].[Departments]">
  <UName name="[Department].[Departments].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Department].[Departments].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Department].[Departments].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Department].[Departments].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Department].[Departments].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Account].[Accounts]">
  <UName name="[Account].[Accounts].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Account].[Accounts].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Account].[Accounts].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Account].[Accounts].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Account].[Accounts].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Account].[Account Type]">
  <UName name="[Account].[Account Type].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Account].[Account Type].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Account].[Account Type].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Account].[Account Type].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Account].[Account Type].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Account].[Account Number]">
  <UName name="[Account].[Account Number].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Account].[Account Number].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Account].[Account Number].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Account].[Account Number].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Account].[Account Number].[DISPLAY_INFO]"
    type="xsd:unsignedInt" />
</HierarchyInfo>
<HierarchyInfo name="[Scenario].[Scenario]">
  <UName name="[Scenario].[Scenario].[MEMBER_UNIQUE_NAME]"
    type="xsd:string" />
  <Caption name="[Scenario].[Scenario].[MEMBER_CAPTION]"
    type="xsd:string" />
  <LName name="[Scenario].[Scenario].[LEVEL_UNIQUE_NAME]"
    type="xsd:string" />
  <LNum name="[Scenario].[Scenario].[LEVEL_NUMBER]"
    type="xsd:int" />
  <DisplayInfo name="[Scenario].[Scenario].[DISPLAY_INFO]"

```



```

        type="xsd:unsignedInt" />
    </HierarchyInfo>
</AxisInfo>
</AxesInfo>
<CellInfo>
    <Value name="VALUE" />
    <FmtValue name="FORMATTED_VALUE" type="xsd:string" />
    <CellOrdinal name="CELL_ORDINAL" type="xsd:unsignedInt" />
</CellInfo>
</OlapInfo>
<Axes>
    <Axis name="Axis0">
        <Tuples>
            <Tuple>
                <Member Hierarchy="[Measures]">
                    <UName>[Measures].[Internet Sales Amount]</UName>
                    <Caption>Internet Sales Amount</Caption>
                    <LName>[Measures].[MeasuresLevel]</LName>
                    <LNum>0</LNum>
                    <DisplayInfo>0</DisplayInfo>
                </Member>
            </Tuple>
            <Tuple>
                <Member Hierarchy="[Measures]">
                    <UName>[Measures].[Internet Order Quantity]</UName>
                    <Caption>Internet Order Quantity</Caption>
                    <LName>[Measures].[MeasuresLevel]</LName>
                    <LNum>0</LNum>
                    <DisplayInfo>131072</DisplayInfo>
                </Member>
            </Tuple>
            <Tuple>
                <Member Hierarchy="[Measures]">
                    <UName>[Measures].[Internet Extended Amount]</UName>
                    <Caption>Internet Extended Amount</Caption>
                    <LName>[Measures].[MeasuresLevel]</LName>
                    <LNum>0</LNum>
                    <DisplayInfo>131072</DisplayInfo>
                </Member>
            </Tuple>
            <Tuple>
                <Member Hierarchy="[Measures]">
                    <UName>[Measures].[Internet Tax Amount]</UName>
                    <Caption>Internet Tax Amount</Caption>
                    <LName>[Measures].[MeasuresLevel]</LName>
                    <LNum>0</LNum>
                    <DisplayInfo>131072</DisplayInfo>
                </Member>
            </Tuple>
            <Tuple>
                <Member Hierarchy="[Measures]">
                    <UName>[Measures].[Internet Freight Cost]</UName>
                    <Caption>Internet Freight Cost</Caption>
                    <LName>[Measures].[MeasuresLevel]</LName>
                    <LNum>0</LNum>
                    <DisplayInfo>131072</DisplayInfo>
                </Member>
            </Tuple>
        </Tuples>
    </Axis>
</Axes>

```

```

    <Member Hierarchy="[Measures]">
      <UName>[Measures].[Internet Total Product Cost]</UName>
      <Caption>Internet Total Product Cost</Caption>
      <LName>[Measures].[MeasuresLevel]</LName>
      <LNum>0</LNum>
      <DisplayInfo>131072</DisplayInfo>
    </Member>
  </Tuple>
</Tuple>
<Tuple>
  <Member Hierarchy="[Measures]">
    <UName>[Measures].[Internet Standard Product Cost]</UName>
    <Caption>Internet Standard Product Cost</Caption>
    <LName>[Measures].[MeasuresLevel]</LName>
    <LNum>0</LNum>
    <DisplayInfo>131072</DisplayInfo>
  </Member>
</Tuple>
</Tuple>
<Tuple>
  <Member Hierarchy="[Measures]">
    <UName>[Measures].[Internet Order Count]</UName>
    <Caption>Internet Order Count</Caption>
    <LName>[Measures].[MeasuresLevel]</LName>
    <LNum>0</LNum>
    <DisplayInfo>131072</DisplayInfo>
  </Member>
</Tuple>
</Tuple>
<Tuple>
  <Member Hierarchy="[Measures]">
    <UName>[Measures].[Customer Count]</UName>
    <Caption>Customer Count</Caption>
    <LName>[Measures].[MeasuresLevel]</LName>
    <LNum>0</LNum>
    <DisplayInfo>131072</DisplayInfo>
  </Member>
</Tuple>
</Tuple>
<Tuple>
  <Member Hierarchy="[Measures]">
    <UName>[Measures].[Reseller Sales Amount]</UName>
    <Caption>Reseller Sales Amount</Caption>
    <LName>[Measures].[MeasuresLevel]</LName>
    <LNum>0</LNum>
    <DisplayInfo>131072</DisplayInfo>
  </Member>
</Tuple>
</Tuple>
<Tuple>
  <Member Hierarchy="[Measures]">
    <UName>[Measures].[Reseller Order Quantity]</UName>
    <Caption>Reseller Order Quantity</Caption>
    <LName>[Measures].[MeasuresLevel]</LName>
    <LNum>0</LNum>
    <DisplayInfo>131072</DisplayInfo>
  </Member>
</Tuple>
</Tuple>
<Tuple>
  <Member Hierarchy="[Measures]">
    <UName>[Measures].[Reseller Extended Amount]</UName>
    <Caption>Reseller Extended Amount</Caption>
    <LName>[Measures].[MeasuresLevel]</LName>
    <LNum>0</LNum>
  </Member>
</Tuple>

```

```

        <DisplayInfo>131072</DisplayInfo>
    </Member>
</Tuple>
<Tuple>
    <Member Hierarchy="[Measures]">
        <UName>[Measures].[Reseller Tax Amount]</UName>
        <Caption>Reseller Tax Amount</Caption>
        <LName>[Measures].[MeasuresLevel]</LName>
        <LNum>0</LNum>
        <DisplayInfo>131072</DisplayInfo>
    </Member>
</Tuple>
<Tuple>
    <Member Hierarchy="[Measures]">
        <UName>[Measures].[Reseller Freight Cost]</UName>
        <Caption>Reseller Freight Cost</Caption>
        <LName>[Measures].[MeasuresLevel]</LName>
        <LNum>0</LNum>
        <DisplayInfo>131072</DisplayInfo>
    </Member>
</Tuple>
<Tuple>
    <Member Hierarchy="[Measures]">
        <UName>[Measures].[Discount Amount]</UName>
        <Caption>Discount Amount</Caption>
        <LName>[Measures].[MeasuresLevel]</LName>
        <LNum>0</LNum>
        <DisplayInfo>131072</DisplayInfo>
    </Member>
</Tuple>
<Tuple>
    <Member Hierarchy="[Measures]">
        <UName>[Measures].[Reseller Total Product Cost]</UName>
        <Caption>Reseller Total Product Cost</Caption>
        <LName>[Measures].[MeasuresLevel]</LName>
        <LNum>0</LNum>
        <DisplayInfo>131072</DisplayInfo>
    </Member>
</Tuple>
<Tuple>
    <Member Hierarchy="[Measures]">
        <UName>[Measures].[Reseller Standard Product Cost]</UName>
        <Caption>Reseller Standard Product Cost</Caption>
        <LName>[Measures].[MeasuresLevel]</LName>
        <LNum>0</LNum>
        <DisplayInfo>131072</DisplayInfo>
    </Member>
</Tuple>
<Tuple>
    <Member Hierarchy="[Measures]">
        <UName>[Measures].[Reseller Order Count]</UName>
        <Caption>Reseller Order Count</Caption>
        <LName>[Measures].[MeasuresLevel]</LName>
        <LNum>0</LNum>
        <DisplayInfo>131072</DisplayInfo>
    </Member>
</Tuple>
<Tuple>
    <Member Hierarchy="[Measures]">

```

```

        <UName>[Measures].[Order Quantity]</UName>
        <Caption>Order Quantity</Caption>
        <LName>[Measures].[MeasuresLevel]</LName>
        <LNum>0</LNum>
        <DisplayInfo>131072</DisplayInfo>
    </Member>
</Tuple>
<Tuple>
    <Member Hierarchy="[Measures]">
        <UName>[Measures].[Extended Amount]</UName>
        <Caption>Extended Amount</Caption>
        <LName>[Measures].[MeasuresLevel]</LName>
        <LNum>0</LNum>
        <DisplayInfo>131072</DisplayInfo>
    </Member>
</Tuple>
<Tuple>
    <Member Hierarchy="[Measures]">
        <UName>[Measures].[Standard Product Cost]</UName>
        <Caption>Standard Product Cost</Caption>
        <LName>[Measures].[MeasuresLevel]</LName>
        <LNum>0</LNum>
        <DisplayInfo>131072</DisplayInfo>
    </Member>
</Tuple>
<Tuple>
    <Member Hierarchy="[Measures]">
        <UName>[Measures].[Total Product Cost]</UName>
        <Caption>Total Product Cost</Caption>
        <LName>[Measures].[MeasuresLevel]</LName>
        <LNum>0</LNum>
        <DisplayInfo>131072</DisplayInfo>
    </Member>
</Tuple>
<Tuple>
    <Member Hierarchy="[Measures]">
        <UName>[Measures].[Sales Amount]</UName>
        <Caption>Sales Amount</Caption>
        <LName>[Measures].[MeasuresLevel]</LName>
        <LNum>0</LNum>
        <DisplayInfo>131072</DisplayInfo>
    </Member>
</Tuple>
<Tuple>
    <Member Hierarchy="[Measures]">
        <UName>[Measures].[Tax Amount]</UName>
        <Caption>Tax Amount</Caption>
        <LName>[Measures].[MeasuresLevel]</LName>
        <LNum>0</LNum>
        <DisplayInfo>131072</DisplayInfo>
    </Member>
</Tuple>
<Tuple>
    <Member Hierarchy="[Measures]">
        <UName>[Measures].[Freight Cost]</UName>
        <Caption>Freight Cost</Caption>
        <LName>[Measures].[MeasuresLevel]</LName>
        <LNum>0</LNum>
        <DisplayInfo>131072</DisplayInfo>
    </Member>
</Tuple>

```

```

    </Member>
  </Tuple>
</Tuple>
<Tuple>
  <Member Hierarchy="[Measures]">
    <UName>[Measures].[Order Count]</UName>
    <Caption>Order Count</Caption>
    <LName>[Measures].[MeasuresLevel]</LName>
    <LNum>0</LNum>
    <DisplayInfo>131072</DisplayInfo>
  </Member>
</Tuple>
<Tuple>
  <Member Hierarchy="[Measures]">
    <UName>[Measures].[Sales Amount Quota]</UName>
    <Caption>Sales Amount Quota</Caption>
    <LName>[Measures].[MeasuresLevel]</LName>
    <LNum>0</LNum>
    <DisplayInfo>131072</DisplayInfo>
  </Member>
</Tuple>
<Tuple>
  <Member Hierarchy="[Measures]">
    <UName>[Measures].[Amount]</UName>
    <Caption>Amount</Caption>
    <LName>[Measures].[MeasuresLevel]</LName>
    <LNum>0</LNum>
    <DisplayInfo>131072</DisplayInfo>
  </Member>
</Tuple>
<Tuple>
  <Member Hierarchy="[Measures]">
    <UName>[Measures].[Average Rate]</UName>
    <Caption>Average Rate</Caption>
    <LName>[Measures].[MeasuresLevel]</LName>
    <LNum>0</LNum>
    <DisplayInfo>131072</DisplayInfo>
  </Member>
</Tuple>
<Tuple>
  <Member Hierarchy="[Measures]">
    <UName>[Measures].[End of Day Rate]</UName>
    <Caption>End of Day Rate</Caption>
    <LName>[Measures].[MeasuresLevel]</LName>
    <LNum>0</LNum>
    <DisplayInfo>131072</DisplayInfo>
  </Member>
</Tuple>
</Tuples>
</Axis>
<Axis name="SlicerAxis">
  <Tuples>
    <Tuple>
      <Member Hierarchy="[Date].[Fiscal]">
        <UName>[Date].[Fiscal].[All Periods]</UName>
        <Caption>All Periods</Caption>
        <LName>[Date].[Fiscal].[ (All) ]</LName>
        <LNum>0</LNum>
        <DisplayInfo>5</DisplayInfo>
      </Member>
    </Tuple>
  </Tuples>
</Axis>

```

```

<Member Hierarchy="[Date].[Calendar]">
  <UName>[Date].[Calendar].[All Periods]</UName>
  <Caption>All Periods</Caption>
  <LName>[Date].[Calendar].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>5</DisplayInfo>
</Member>
<Member Hierarchy="[Date].[Calendar Weeks]">
  <UName>[Date].[Calendar Weeks].[All Periods]</UName>
  <Caption>All Periods</Caption>
  <LName>[Date].[Calendar Weeks].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>5</DisplayInfo>
</Member>
<Member Hierarchy="[Date].[Fiscal Weeks]">
  <UName>[Date].[Fiscal Weeks].[All Periods]</UName>
  <Caption>All Periods</Caption>
  <LName>[Date].[Fiscal Weeks].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>5</DisplayInfo>
</Member>
<Member Hierarchy="[Date].[Fiscal Year]">
  <UName>[Date].[Fiscal Year].[All Periods]</UName>
  <Caption>All Periods</Caption>
  <LName>[Date].[Fiscal Year].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>5</DisplayInfo>
</Member>
<Member Hierarchy="[Date].[Date]">
  <UName>[Date].[Date].[All Periods]</UName>
  <Caption>All Periods</Caption>
  <LName>[Date].[Date].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>1188</DisplayInfo>
</Member>
<Member Hierarchy="[Date].[Day of Week]">
  <UName>[Date].[Day of Week].[All Periods]</UName>
  <Caption>All Periods</Caption>
  <LName>[Date].[Day of Week].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>7</DisplayInfo>
</Member>
<Member Hierarchy="[Date].[Day Name]">
  <UName>[Date].[Day Name].[All Periods]</UName>
  <Caption>All Periods</Caption>
  <LName>[Date].[Day Name].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>7</DisplayInfo>
</Member>
<Member Hierarchy="[Date].[Day of Month]">
  <UName>[Date].[Day of Month].[All Periods]</UName>
  <Caption>All Periods</Caption>
  <LName>[Date].[Day of Month].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>31</DisplayInfo>
</Member>
<Member Hierarchy="[Date].[Day of Year]">
  <UName>[Date].[Day of Year].[All Periods]</UName>
  <Caption>All Periods</Caption>

```

```

    <LName>[Date].[Day of Year].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>365</DisplayInfo>
  </Member>
  <Member Hierarchy="[Date].[Calendar Year]">
    <UName>[Date].[Calendar Year].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Date].[Calendar Year].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>5</DisplayInfo>
  </Member>
  <Member Hierarchy="[Date].[Fiscal Semester of Year]">
    <UName>[Date].[Fiscal Semester of Year].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Date].[Fiscal Semester of Year].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>2</DisplayInfo>
  </Member>
  <Member Hierarchy="[Date].[Calendar Semester of Year]">
    <UName>[Date].[Calendar Semester of Year].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Date].[Calendar Semester of Year].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>2</DisplayInfo>
  </Member>
  <Member Hierarchy="[Date].[Fiscal Quarter of Year]">
    <UName>[Date].[Fiscal Quarter of Year].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Date].[Fiscal Quarter of Year].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>4</DisplayInfo>
  </Member>
  <Member Hierarchy="[Date].[Calendar Quarter of Year]">
    <UName>[Date].[Calendar Quarter of Year].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Date].[Calendar Quarter of Year].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>4</DisplayInfo>
  </Member>
  <Member Hierarchy="[Date].[Month of Year]">
    <UName>[Date].[Month of Year].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Date].[Month of Year].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>12</DisplayInfo>
  </Member>
  <Member Hierarchy="[Date].[Calendar Week of Year]">
    <UName>[Date].[Calendar Week of Year].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Date].[Calendar Week of Year].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>53</DisplayInfo>
  </Member>
  <Member Hierarchy="[Date].[Fiscal Week of Year]">
    <UName>[Date].[Fiscal Week of Year].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Date].[Fiscal Week of Year].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>53</DisplayInfo>

```

```

</Member>
<Member Hierarchy="[Ship Date].[Fiscal]">
  <UName>[Ship Date].[Fiscal].[All Periods]</UName>
  <Caption>All Periods</Caption>
  <LName>[Ship Date].[Fiscal].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>5</DisplayInfo>
</Member>
<Member Hierarchy="[Ship Date].[Calendar]">
  <UName>[Ship Date].[Calendar].[All Periods]</UName>
  <Caption>All Periods</Caption>
  <LName>[Ship Date].[Calendar].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>5</DisplayInfo>
</Member>
<Member Hierarchy="[Ship Date].[Calendar Weeks]">
  <UName>[Ship Date].[Calendar Weeks].[All Periods]</UName>
  <Caption>All Periods</Caption>
  <LName>[Ship Date].[Calendar Weeks].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>5</DisplayInfo>
</Member>
<Member Hierarchy="[Ship Date].[Fiscal Weeks]">
  <UName>[Ship Date].[Fiscal Weeks].[All Periods]</UName>
  <Caption>All Periods</Caption>
  <LName>[Ship Date].[Fiscal Weeks].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>5</DisplayInfo>
</Member>
<Member Hierarchy="[Ship Date].[Fiscal Year]">
  <UName>[Ship Date].[Fiscal Year].[All Periods]</UName>
  <Caption>All Periods</Caption>
  <LName>[Ship Date].[Fiscal Year].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>5</DisplayInfo>
</Member>
<Member Hierarchy="[Ship Date].[Date]">
  <UName>[Ship Date].[Date].[All Periods]</UName>
  <Caption>All Periods</Caption>
  <LName>[Ship Date].[Date].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>1188</DisplayInfo>
</Member>
<Member Hierarchy="[Ship Date].[Day of Week]">
  <UName>[Ship Date].[Day of Week].[All Periods]</UName>
  <Caption>All Periods</Caption>
  <LName>[Ship Date].[Day of Week].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>7</DisplayInfo>
</Member>
<Member Hierarchy="[Ship Date].[Day Name]">
  <UName>[Ship Date].[Day Name].[All Periods]</UName>
  <Caption>All Periods</Caption>
  <LName>[Ship Date].[Day Name].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>7</DisplayInfo>
</Member>
<Member Hierarchy="[Ship Date].[Day of Month]">
  <UName>[Ship Date].[Day of Month].[All Periods]</UName>

```



```

    <Caption>All Periods</Caption>
    <LName>[Ship Date].[Day of Month].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>31</DisplayInfo>
  </Member>
  <Member Hierarchy="[Ship Date].[Day of Year]">
    <UName>[Ship Date].[Day of Year].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Ship Date].[Day of Year].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>365</DisplayInfo>
  </Member>
  <Member Hierarchy="[Ship Date].[Calendar Year]">
    <UName>[Ship Date].[Calendar Year].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Ship Date].[Calendar Year].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>5</DisplayInfo>
  </Member>
  <Member Hierarchy="[Ship Date].[Fiscal Semester of Year]">
    <UName>[Ship Date].[Fiscal Semester of Year].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Ship Date].[Fiscal Semester of Year].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>2</DisplayInfo>
  </Member>
  <Member Hierarchy="[Ship Date].[Calendar Semester of Year]">
    <UName>[Ship Date].[Calendar Semester of Year].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Ship Date].[Calendar Semester of Year].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>2</DisplayInfo>
  </Member>
  <Member Hierarchy="[Ship Date].[Fiscal Quarter of Year]">
    <UName>[Ship Date].[Fiscal Quarter of Year].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Ship Date].[Fiscal Quarter of Year].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>4</DisplayInfo>
  </Member>
  <Member Hierarchy="[Ship Date].[Calendar Quarter of Year]">
    <UName>[Ship Date].[Calendar Quarter of Year].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Ship Date].[Calendar Quarter of Year].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>4</DisplayInfo>
  </Member>
  <Member Hierarchy="[Ship Date].[Month of Year]">
    <UName>[Ship Date].[Month of Year].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Ship Date].[Month of Year].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>12</DisplayInfo>
  </Member>
  <Member Hierarchy="[Ship Date].[Calendar Week of Year]">
    <UName>[Ship Date].[Calendar Week of Year].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Ship Date].[Calendar Week of Year].[All]</LName>
    <LNum>0</LNum>

```

```

    <DisplayInfo>53</DisplayInfo>
  </Member>
  <Member Hierarchy="[Ship Date].[Fiscal Week of Year]">
    <UName>[Ship Date].[Fiscal Week of Year].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Ship Date].[Fiscal Week of Year].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>53</DisplayInfo>
  </Member>
  <Member Hierarchy="[Delivery Date].[Fiscal]">
    <UName>[Delivery Date].[Fiscal].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Delivery Date].[Fiscal].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>5</DisplayInfo>
  </Member>
  <Member Hierarchy="[Delivery Date].[Calendar]">
    <UName>[Delivery Date].[Calendar].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Delivery Date].[Calendar].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>5</DisplayInfo>
  </Member>
  <Member Hierarchy="[Delivery Date].[Calendar Weeks]">
    <UName>[Delivery Date].[Calendar Weeks].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Delivery Date].[Calendar Weeks].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>5</DisplayInfo>
  </Member>
  <Member Hierarchy="[Delivery Date].[Fiscal Weeks]">
    <UName>[Delivery Date].[Fiscal Weeks].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Delivery Date].[Fiscal Weeks].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>5</DisplayInfo>
  </Member>
  <Member Hierarchy="[Delivery Date].[Fiscal Year]">
    <UName>[Delivery Date].[Fiscal Year].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Delivery Date].[Fiscal Year].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>5</DisplayInfo>
  </Member>
  <Member Hierarchy="[Delivery Date].[Date]">
    <UName>[Delivery Date].[Date].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Delivery Date].[Date].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>1188</DisplayInfo>
  </Member>
  <Member Hierarchy="[Delivery Date].[Day of Week]">
    <UName>[Delivery Date].[Day of Week].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Delivery Date].[Day of Week].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>7</DisplayInfo>
  </Member>
  <Member Hierarchy="[Delivery Date].[Day Name]">

```

```

    <UName>[Delivery Date].[Day Name].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Delivery Date].[Day Name].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>7</DisplayInfo>
  </Member>
  <Member Hierarchy="[Delivery Date].[Day of Month]">
    <UName>[Delivery Date].[Day of Month].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Delivery Date].[Day of Month].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>31</DisplayInfo>
  </Member>
  <Member Hierarchy="[Delivery Date].[Day of Year]">
    <UName>[Delivery Date].[Day of Year].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Delivery Date].[Day of Year].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>365</DisplayInfo>
  </Member>
  <Member Hierarchy="[Delivery Date].[Calendar Year]">
    <UName>[Delivery Date].[Calendar Year].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Delivery Date].[Calendar Year].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>5</DisplayInfo>
  </Member>
  <Member Hierarchy="[Delivery Date].[Fiscal Semester of Year]">
    <UName>[Delivery Date].[Fiscal Semester of Year].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Delivery Date].[Fiscal Semester of Year].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>2</DisplayInfo>
  </Member>
  <Member Hierarchy="[Delivery Date].[Calendar Semester of Year]">
    <UName>[Delivery Date].[Calendar Semester of Year].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Delivery Date].[Calendar Semester of Year].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>2</DisplayInfo>
  </Member>
  <Member Hierarchy="[Delivery Date].[Fiscal Quarter of Year]">
    <UName>[Delivery Date].[Fiscal Quarter of Year].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Delivery Date].[Fiscal Quarter of Year].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>4</DisplayInfo>
  </Member>
  <Member Hierarchy="[Delivery Date].[Calendar Quarter of Year]">
    <UName>[Delivery Date].[Calendar Quarter of Year].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Delivery Date].[Calendar Quarter of Year].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>4</DisplayInfo>
  </Member>
  <Member Hierarchy="[Delivery Date].[Month of Year]">
    <UName>[Delivery Date].[Month of Year].[All Periods]</UName>
    <Caption>All Periods</Caption>
    <LName>[Delivery Date].[Month of Year].[ (All) ]</LName>

```

```

        <LNum>0</LNum>
        <DisplayInfo>12</DisplayInfo>
    </Member>
    <Member Hierarchy="[Delivery Date].[Calendar Week of Year]">
        <UName>[Delivery Date].[Calendar Week of Year].[All Periods]</UName>
        <Caption>All Periods</Caption>
        <LName>[Delivery Date].[Calendar Week of Year].[ (All) ]</LName>
        <LNum>0</LNum>
        <DisplayInfo>53</DisplayInfo>
    </Member>
    <Member Hierarchy="[Delivery Date].[Fiscal Week of Year]">
        <UName>[Delivery Date].[Fiscal Week of Year].[All Periods]</UName>
        <Caption>All Periods</Caption>
        <LName>[Delivery Date].[Fiscal Week of Year].[ (All) ]</LName>
        <LNum>0</LNum>
        <DisplayInfo>53</DisplayInfo>
    </Member>
    <Member Hierarchy="[Customer].[Customer Geography]">
        <UName>[Customer].[Customer Geography].[All Customers]</UName>
        <Caption>All Customers</Caption>
        <LName>[Customer].[Customer Geography].[ (All) ]</LName>
        <LNum>0</LNum>
        <DisplayInfo>6</DisplayInfo>
    </Member>
    <Member Hierarchy="[Customer].[Customer]">
        <UName>[Customer].[Customer].[All Customers]</UName>
        <Caption>All Customers</Caption>
        <LName>[Customer].[Customer].[ (All) ]</LName>
        <LNum>0</LNum>
        <DisplayInfo>18484</DisplayInfo>
    </Member>
    <Member Hierarchy="[Customer].[Postal Code]">
        <UName>[Customer].[Postal Code].[All Customers]</UName>
        <Caption>All Customers</Caption>
        <LName>[Customer].[Postal Code].[ (All) ]</LName>
        <LNum>0</LNum>
        <DisplayInfo>655</DisplayInfo>
    </Member>
    <Member Hierarchy="[Customer].[Country]">
        <UName>[Customer].[Country].[All Customers]</UName>
        <Caption>All Customers</Caption>
        <LName>[Customer].[Country].[ (All) ]</LName>
        <LNum>0</LNum>
        <DisplayInfo>6</DisplayInfo>
    </Member>
    <Member Hierarchy="[Customer].[State-Province]">
        <UName>[Customer].[State-Province].[All Customers]</UName>
        <Caption>All Customers</Caption>
        <LName>[Customer].[State-Province].[ (All) ]</LName>
        <LNum>0</LNum>
        <DisplayInfo>71</DisplayInfo>
    </Member>
    <Member Hierarchy="[Customer].[City]">
        <UName>[Customer].[City].[All Customers]</UName>
        <Caption>All Customers</Caption>
        <LName>[Customer].[City].[ (All) ]</LName>
        <LNum>0</LNum>
        <DisplayInfo>587</DisplayInfo>
    </Member>

```

```

<Member Hierarchy="[Customer].[Yearly Income]">
  <UName>[Customer].[Yearly Income].[All Customers]</UName>
  <Caption>All Customers</Caption>
  <LName>[Customer].[Yearly Income].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>5</DisplayInfo>
</Member>
<Member Hierarchy="[Customer].[Total Children]">
  <UName>[Customer].[Total Children].[All Customers]</UName>
  <Caption>All Customers</Caption>
  <LName>[Customer].[Total Children].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>6</DisplayInfo>
</Member>
<Member Hierarchy="[Customer].[Number of Cars Owned]">
  <UName>[Customer].[Number of Cars Owned].[All Customers]</UName>
  <Caption>All Customers</Caption>
  <LName>[Customer].[Number of Cars Owned].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>5</DisplayInfo>
</Member>
<Member Hierarchy="[Customer].[Number of Children At Home]">
  <UName>[Customer].[Number of Children At Home].[All Customers]</UName>
  <Caption>All Customers</Caption>
  <LName>[Customer].[Number of Children At Home].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>6</DisplayInfo>
</Member>
<Member Hierarchy="[Customer].[Education]">
  <UName>[Customer].[Education].[All Customers]</UName>
  <Caption>All Customers</Caption>
  <LName>[Customer].[Education].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>5</DisplayInfo>
</Member>
<Member Hierarchy="[Customer].[Occupation]">
  <UName>[Customer].[Occupation].[All Customers]</UName>
  <Caption>All Customers</Caption>
  <LName>[Customer].[Occupation].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>5</DisplayInfo>
</Member>
<Member Hierarchy="[Customer].[Marital Status]">
  <UName>[Customer].[Marital Status].[All Customers]</UName>
  <Caption>All Customers</Caption>
  <LName>[Customer].[Marital Status].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>2</DisplayInfo>
</Member>
<Member Hierarchy="[Customer].[Gender]">
  <UName>[Customer].[Gender].[All Customers]</UName>
  <Caption>All Customers</Caption>
  <LName>[Customer].[Gender].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>2</DisplayInfo>
</Member>
<Member Hierarchy="[Customer].[Home Owner]">
  <UName>[Customer].[Home Owner].[All Customers]</UName>
  <Caption>All Customers</Caption>

```

```

    <LName>[Customer].[Home Owner].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>2</DisplayInfo>
  </Member>
  <Member Hierarchy="[Customer].[Commute Distance]">
    <UName>[Customer].[Commute Distance].[All Customers]</UName>
    <Caption>All Customers</Caption>
    <LName>[Customer].[Commute Distance].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>5</DisplayInfo>
  </Member>
  <Member Hierarchy="[Reseller].[Reseller Type]">
    <UName>[Reseller].[Reseller Type].[All Resellers]</UName>
    <Caption>All Resellers</Caption>
    <LName>[Reseller].[Reseller Type].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>3</DisplayInfo>
  </Member>
  <Member Hierarchy="[Reseller].[Reseller Bank]">
    <UName>[Reseller].[Reseller Bank].[All Resellers]</UName>
    <Caption>All Resellers</Caption>
    <LName>[Reseller].[Reseller Bank].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>7</DisplayInfo>
  </Member>
  <Member Hierarchy="[Reseller].[Reseller Order Frequency]">
    <UName>[Reseller].[Reseller Order Frequency].[All Resellers]</UName>
    <Caption>All Resellers</Caption>
    <LName>[Reseller].[Reseller Order Frequency].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>3</DisplayInfo>
  </Member>
  <Member Hierarchy="[Reseller].[Reseller Order Month]">
    <UName>[Reseller].[Reseller Order Month].[All Resellers]</UName>
    <Caption>All Resellers</Caption>
    <LName>[Reseller].[Reseller Order Month].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>13</DisplayInfo>
  </Member>
  <Member Hierarchy="[Reseller].[Reseller]">
    <UName>[Reseller].[Reseller].[All Resellers]</UName>
    <Caption>All Resellers</Caption>
    <LName>[Reseller].[Reseller].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>701</DisplayInfo>
  </Member>
  <Member Hierarchy="[Reseller].[Product Line]">
    <UName>[Reseller].[Product Line].[All Resellers]</UName>
    <Caption>All Resellers</Caption>
    <LName>[Reseller].[Product Line].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>3</DisplayInfo>
  </Member>
  <Member Hierarchy="[Reseller].[Business Type]">
    <UName>[Reseller].[Business Type].[All Resellers]</UName>
    <Caption>All Resellers</Caption>
    <LName>[Reseller].[Business Type].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>3</DisplayInfo>

```

```

</Member>
<Member Hierarchy="[Reseller].[Number of Employees]">
  <UName>[Reseller].[Number of Employees].[All Resellers]</UName>
  <Caption>All Resellers</Caption>
  <LName>[Reseller].[Number of Employees].[ (All) ]</LName>
  <LNum>0</LNum>
  <DisplayInfo>4</DisplayInfo>
</Member>
<Member Hierarchy="[Reseller].[Annual Sales]">
  <UName>[Reseller].[Annual Sales].[All Resellers]</UName>
  <Caption>All Resellers</Caption>
  <LName>[Reseller].[Annual Sales].[ (All) ]</LName>
  <LNum>0</LNum>
  <DisplayInfo>5</DisplayInfo>
</Member>
<Member Hierarchy="[Reseller].[Annual Revenue]">
  <UName>[Reseller].[Annual Revenue].[All Resellers]</UName>
  <Caption>All Resellers</Caption>
  <LName>[Reseller].[Annual Revenue].[ (All) ]</LName>
  <LNum>0</LNum>
  <DisplayInfo>5</DisplayInfo>
</Member>
<Member Hierarchy="[Reseller].[Bank Name]">
  <UName>[Reseller].[Bank Name].[All Resellers]</UName>
  <Caption>All Resellers</Caption>
  <LName>[Reseller].[Bank Name].[ (All) ]</LName>
  <LNum>0</LNum>
  <DisplayInfo>7</DisplayInfo>
</Member>
<Member Hierarchy="[Reseller].[Order Frequency]">
  <UName>[Reseller].[Order Frequency].[All Resellers]</UName>
  <Caption>All Resellers</Caption>
  <LName>[Reseller].[Order Frequency].[ (All) ]</LName>
  <LNum>0</LNum>
  <DisplayInfo>3</DisplayInfo>
</Member>
<Member Hierarchy="[Reseller].[Order Month]">
  <UName>[Reseller].[Order Month].[All Resellers]</UName>
  <Caption>All Resellers</Caption>
  <LName>[Reseller].[Order Month].[ (All) ]</LName>
  <LNum>0</LNum>
  <DisplayInfo>13</DisplayInfo>
</Member>
<Member Hierarchy="[Geography].[Geography]">
  <UName>[Geography].[Geography].[All Geographies]</UName>
  <Caption>All Geographies</Caption>
  <LName>[Geography].[Geography].[ (All) ]</LName>
  <LNum>0</LNum>
  <DisplayInfo>6</DisplayInfo>
</Member>
<Member Hierarchy="[Geography].[City]">
  <UName>[Geography].[City].[All Geographies]</UName>
  <Caption>All Geographies</Caption>
  <LName>[Geography].[City].[ (All) ]</LName>
  <LNum>0</LNum>
  <DisplayInfo>587</DisplayInfo>
</Member>
<Member Hierarchy="[Geography].[State-Province]">
  <UName>[Geography].[State-Province].[All Geographies]</UName>

```

```

    <Caption>All Geographies</Caption>
    <LName>[Geography].[State-Province].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>71</DisplayInfo>
  </Member>
  <Member Hierarchy="[Geography].[Country]">
    <UName>[Geography].[Country].[All Geographies]</UName>
    <Caption>All Geographies</Caption>
    <LName>[Geography].[Country].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>6</DisplayInfo>
  </Member>
  <Member Hierarchy="[Geography].[Postal Code]">
    <UName>[Geography].[Postal Code].[All Geographies]</UName>
    <Caption>All Geographies</Caption>
    <LName>[Geography].[Postal Code].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>655</DisplayInfo>
  </Member>
  <Member Hierarchy="[Employee].[Employee Department]">
    <UName>[Employee].[Employee Department].[All Employees]</UName>
    <Caption>All Employees</Caption>
    <LName>[Employee].[Employee Department].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>16</DisplayInfo>
  </Member>
  <Member Hierarchy="[Employee].[Department Name]">
    <UName>[Employee].[Department Name].[All Employees]</UName>
    <Caption>All Employees</Caption>
    <LName>[Employee].[Department Name].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>16</DisplayInfo>
  </Member>
  <Member Hierarchy="[Employee].[Sales Person Flag]">
    <UName>[Employee].[Sales Person Flag].[All Employees]</UName>
    <Caption>All Employees</Caption>
    <LName>[Employee].[Sales Person Flag].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>2</DisplayInfo>
  </Member>
  <Member Hierarchy="[Employee].[Title]">
    <UName>[Employee].[Title].[All Employees]</UName>
    <Caption>All Employees</Caption>
    <LName>[Employee].[Title].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>67</DisplayInfo>
  </Member>
  <Member Hierarchy="[Employee].[Hire Date]">
    <UName>[Employee].[Hire Date].[All Employees]</UName>
    <Caption>All Employees</Caption>
    <LName>[Employee].[Hire Date].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>164</DisplayInfo>
  </Member>
  <Member Hierarchy="[Employee].[Sick Leave Hours]">
    <UName>[Employee].[Sick Leave Hours].[All Employees]</UName>
    <Caption>All Employees</Caption>
    <LName>[Employee].[Sick Leave Hours].[All]</LName>
    <LNum>0</LNum>

```



```

    <DisplayInfo>4</DisplayInfo>
  </Member>
  <Member Hierarchy="[Employee].[Vacation Hours]">
    <UName>[Employee].[Vacation Hours].[All Employees]</UName>
    <Caption>All Employees</Caption>
    <LName>[Employee].[Vacation Hours].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>4</DisplayInfo>
  </Member>
  <Member Hierarchy="[Employee].[Base Rate]">
    <UName>[Employee].[Base Rate].[All Employees]</UName>
    <Caption>All Employees</Caption>
    <LName>[Employee].[Base Rate].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>7</DisplayInfo>
  </Member>
  <Member Hierarchy="[Employee].[Pay Frequency]">
    <UName>[Employee].[Pay Frequency].[All Employees]</UName>
    <Caption>All Employees</Caption>
    <LName>[Employee].[Pay Frequency].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>2</DisplayInfo>
  </Member>
  <Member Hierarchy="[Employee].[Phone]">
    <UName>[Employee].[Phone].[All Employees]</UName>
    <Caption>All Employees</Caption>
    <LName>[Employee].[Phone].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>288</DisplayInfo>
  </Member>
  <Member Hierarchy="[Employee].[Salaried Flag]">
    <UName>[Employee].[Salaried Flag].[All Employees]</UName>
    <Caption>All Employees</Caption>
    <LName>[Employee].[Salaried Flag].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>2</DisplayInfo>
  </Member>
  <Member Hierarchy="[Employee].[Gender]">
    <UName>[Employee].[Gender].[All Employees]</UName>
    <Caption>All Employees</Caption>
    <LName>[Employee].[Gender].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>2</DisplayInfo>
  </Member>
  <Member Hierarchy="[Employee].[Marital Status]">
    <UName>[Employee].[Marital Status].[All Employees]</UName>
    <Caption>All Employees</Caption>
    <LName>[Employee].[Marital Status].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>2</DisplayInfo>
  </Member>
  <Member Hierarchy="[Employee].[Employees]">
    <UName>[Employee].[Employees].[All Employees]</UName>
    <Caption>All Employees</Caption>
    <LName>[Employee].[Employees].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>1</DisplayInfo>
  </Member>
  <Member Hierarchy="[Employee].[Status]">

```

```

    <UName>[Employee].[Status].[All Employees]</UName>
    <Caption>All Employees</Caption>
    <LName>[Employee].[Status].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>2</DisplayInfo>
</Member>
<Member Hierarchy="[Employee].[Start Date]">
    <UName>[Employee].[Start Date].[All Employees]</UName>
    <Caption>All Employees</Caption>
    <LName>[Employee].[Start Date].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>170</DisplayInfo>
</Member>
<Member Hierarchy="[Employee].[End Date]">
    <UName>[Employee].[End Date].[All Employees]</UName>
    <Caption>All Employees</Caption>
    <LName>[Employee].[End Date].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>7</DisplayInfo>
</Member>
<Member Hierarchy="[Employee].[Hire Year]">
    <UName>[Employee].[Hire Year].[All Employees]</UName>
    <Caption>All Employees</Caption>
    <LName>[Employee].[Hire Year].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>8</DisplayInfo>
</Member>
<Member Hierarchy="[Promotion].[Promotions]">
    <UName>[Promotion].[Promotions].[All Promotions]</UName>
    <Caption>All Promotions</Caption>
    <LName>[Promotion].[Promotions].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>1000</DisplayInfo>
</Member>
<Member Hierarchy="[Promotion].[Promotion]">
    <UName>[Promotion].[Promotion].[All Promotions]</UName>
    <Caption>All Promotions</Caption>
    <LName>[Promotion].[Promotion].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>16</DisplayInfo>
</Member>
<Member Hierarchy="[Promotion].[Discount Percent]">
    <UName>[Promotion].[Discount Percent].[All Promotions]</UName>
    <Caption>All Promotions</Caption>
    <LName>[Promotion].[Discount Percent].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>10</DisplayInfo>
</Member>
<Member Hierarchy="[Promotion].[Max Quantity]">
    <UName>[Promotion].[Max Quantity].[All Promotions]</UName>
    <Caption>All Promotions</Caption>
    <LName>[Promotion].[Max Quantity].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>5</DisplayInfo>
</Member>
<Member Hierarchy="[Promotion].[Promotion Type]">
    <UName>[Promotion].[Promotion Type].[All Promotions]</UName>
    <Caption>All Promotions</Caption>
    <LName>[Promotion].[Promotion Type].[ (All) ]</LName>

```

```

        <LNum>0</LNum>
        <DisplayInfo>6</DisplayInfo>
    </Member>
    <Member Hierarchy="[Promotion].[Min Quantity]">
        <UName>[Promotion].[Min Quantity].[All Promotions]</UName>
        <Caption>All Promotions</Caption>
        <LName>[Promotion].[Min Quantity].[ (All) ]</LName>
        <LNum>0</LNum>
        <DisplayInfo>6</DisplayInfo>
    </Member>
    <Member Hierarchy="[Promotion].[Promotion Category]">
        <UName>[Promotion].[Promotion Category].[All Promotions]</UName>
        <Caption>All Promotions</Caption>
        <LName>[Promotion].[Promotion Category].[ (All) ]</LName>
        <LNum>0</LNum>
        <DisplayInfo>3</DisplayInfo>
    </Member>
    <Member Hierarchy="[Promotion].[End Date]">
        <UName>[Promotion].[End Date].[All Promotions]</UName>
        <Caption>All Promotions</Caption>
        <LName>[Promotion].[End Date].[ (All) ]</LName>
        <LNum>0</LNum>
        <DisplayInfo>10</DisplayInfo>
    </Member>
    <Member Hierarchy="[Promotion].[Start Date]">
        <UName>[Promotion].[Start Date].[All Promotions]</UName>
        <Caption>All Promotions</Caption>
        <LName>[Promotion].[Start Date].[ (All) ]</LName>
        <LNum>0</LNum>
        <DisplayInfo>8</DisplayInfo>
    </Member>
    <Member Hierarchy="[Product].[Product Categories]">
        <UName>[Product].[Product Categories].[All Products]</UName>
        <Caption>All Products</Caption>
        <LName>[Product].[Product Categories].[ (All) ]</LName>
        <LNum>0</LNum>
        <DisplayInfo>4</DisplayInfo>
    </Member>
    <Member Hierarchy="[Product].[Product Model Lines]">
        <UName>[Product].[Product Model Lines].[All Products]</UName>
        <Caption>All Products</Caption>
        <LName>[Product].[Product Model Lines].[ (All) ]</LName>
        <LNum>0</LNum>
        <DisplayInfo>5</DisplayInfo>
    </Member>
    <Member Hierarchy="[Product].[Stock Level]">
        <UName>[Product].[Stock Level].[All Products]</UName>
        <Caption>All Products</Caption>
        <LName>[Product].[Stock Level].[ (All) ]</LName>
        <LNum>0</LNum>
        <DisplayInfo>6</DisplayInfo>
    </Member>
    <Member Hierarchy="[Product].[Product]">
        <UName>[Product].[Product].[All Products]</UName>
        <Caption>All Products</Caption>
        <LName>[Product].[Product].[ (All) ]</LName>
        <LNum>0</LNum>
        <DisplayInfo>397</DisplayInfo>
    </Member>

```

```

<Member Hierarchy="[Product].[Standard Cost]">
  <UName>[Product].[Standard Cost].[All Products]</UName>
  <Caption>All Products</Caption>
  <LName>[Product].[Standard Cost].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>135</DisplayInfo>
</Member>
<Member Hierarchy="[Product].[Category]">
  <UName>[Product].[Category].[All Products]</UName>
  <Caption>All Products</Caption>
  <LName>[Product].[Category].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>4</DisplayInfo>
</Member>
<Member Hierarchy="[Product].[Color]">
  <UName>[Product].[Color].[All Products]</UName>
  <Caption>All Products</Caption>
  <LName>[Product].[Color].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>10</DisplayInfo>
</Member>
<Member Hierarchy="[Product].[Safety Stock Level]">
  <UName>[Product].[Safety Stock Level].[All Products]</UName>
  <Caption>All Products</Caption>
  <LName>[Product].[Safety Stock Level].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>6</DisplayInfo>
</Member>
<Member Hierarchy="[Product].[Reorder Point]">
  <UName>[Product].[Reorder Point].[All Products]</UName>
  <Caption>All Products</Caption>
  <LName>[Product].[Reorder Point].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>6</DisplayInfo>
</Member>
<Member Hierarchy="[Product].[List Price]">
  <UName>[Product].[List Price].[All Products]</UName>
  <Caption>All Products</Caption>
  <LName>[Product].[List Price].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>121</DisplayInfo>
</Member>
<Member Hierarchy="[Product].[Size]">
  <UName>[Product].[Size].[All Products]</UName>
  <Caption>All Products</Caption>
  <LName>[Product].[Size].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>19</DisplayInfo>
</Member>
<Member Hierarchy="[Product].[Size Range]">
  <UName>[Product].[Size Range].[All Products]</UName>
  <Caption>All Products</Caption>
  <LName>[Product].[Size Range].[All]</LName>
  <LNum>0</LNum>
  <DisplayInfo>11</DisplayInfo>
</Member>
<Member Hierarchy="[Product].[Weight]">
  <UName>[Product].[Weight].[All Products]</UName>
  <Caption>All Products</Caption>

```

```

    <LName>[Product].[Weight].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>128</DisplayInfo>
  </Member>
  <Member Hierarchy="[Product].[Days to Manufacture]">
    <UName>[Product].[Days to Manufacture].[All Products]</UName>
    <Caption>All Products</Caption>
    <LName>[Product].[Days to Manufacture].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>4</DisplayInfo>
  </Member>
  <Member Hierarchy="[Product].[Dealer Price]">
    <UName>[Product].[Dealer Price].[All Products]</UName>
    <Caption>All Products</Caption>
    <LName>[Product].[Dealer Price].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>121</DisplayInfo>
  </Member>
  <Member Hierarchy="[Product].[Class]">
    <UName>[Product].[Class].[All Products]</UName>
    <Caption>All Products</Caption>
    <LName>[Product].[Class].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>4</DisplayInfo>
  </Member>
  <Member Hierarchy="[Product].[Style]">
    <UName>[Product].[Style].[All Products]</UName>
    <Caption>All Products</Caption>
    <LName>[Product].[Style].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>4</DisplayInfo>
  </Member>
  <Member Hierarchy="[Product].[Model Name]">
    <UName>[Product].[Model Name].[All Products]</UName>
    <Caption>All Products</Caption>
    <LName>[Product].[Model Name].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>120</DisplayInfo>
  </Member>
  <Member Hierarchy="[Product].[Product Line]">
    <UName>[Product].[Product Line].[All Products]</UName>
    <Caption>All Products</Caption>
    <LName>[Product].[Product Line].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>5</DisplayInfo>
  </Member>
  <Member Hierarchy="[Product].[Subcategory]">
    <UName>[Product].[Subcategory].[All Products]</UName>
    <Caption>All Products</Caption>
    <LName>[Product].[Subcategory].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>37</DisplayInfo>
  </Member>
  <Member Hierarchy="[Product].[Status]">
    <UName>[Product].[Status].[All Products]</UName>
    <Caption>All Products</Caption>
    <LName>[Product].[Status].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>2</DisplayInfo>

```

```

    </Member>
    <Member Hierarchy="[Product].[Start Date]">
      <UName>[Product].[Start Date].[All Products]</UName>
      <Caption>All Products</Caption>
      <LName>[Product].[Start Date].[All]</LName>
      <LNum>0</LNum>
      <DisplayInfo>4</DisplayInfo>
    </Member>
    <Member Hierarchy="[Product].[End Date]">
      <UName>[Product].[End Date].[All Products]</UName>
      <Caption>All Products</Caption>
      <LName>[Product].[End Date].[All]</LName>
      <LNum>0</LNum>
      <DisplayInfo>3</DisplayInfo>
    </Member>
    <Member Hierarchy="[Product].[Large Photo]">
      <UName>[Product].[Large Photo].[All Products]</UName>
      <Caption>All Products</Caption>
      <LName>[Product].[Large Photo].[All]</LName>
      <LNum>0</LNum>
      <DisplayInfo>606</DisplayInfo>
    </Member>
    <Member Hierarchy="[Sales Territory].[Sales Territory]">
      <UName>[Sales Territory].[Sales Territory].[All Sales
Territories]</UName>
      <Caption>All Sales Territories</Caption>
      <LName>[Sales Territory].[Sales Territory].[All]</LName>
      <LNum>0</LNum>
      <DisplayInfo>4</DisplayInfo>
    </Member>
    <Member Hierarchy="[Sales Territory].[Sales Territory Region]">
      <UName>[Sales Territory].[Sales Territory Region].[All Sales
Territories]</UName>
      <Caption>All Sales Territories</Caption>
      <LName>[Sales Territory].[Sales Territory Region].[All]</LName>
      <LNum>0</LNum>
      <DisplayInfo>11</DisplayInfo>
    </Member>
    <Member Hierarchy="[Sales Territory].[Sales Territory Country]">
      <UName>[Sales Territory].[Sales Territory Country].[All Sales
Territories]</UName>
      <Caption>All Sales Territories</Caption>
      <LName>[Sales Territory].[Sales Territory Country].[All]</LName>
      <LNum>0</LNum>
      <DisplayInfo>7</DisplayInfo>
    </Member>
    <Member Hierarchy="[Sales Territory].[Sales Territory Group]">
      <UName>[Sales Territory].[Sales Territory Group].[All Sales
Territories]</UName>
      <Caption>All Sales Territories</Caption>
      <LName>[Sales Territory].[Sales Territory Group].[All]</LName>
      <LNum>0</LNum>
      <DisplayInfo>4</DisplayInfo>
    </Member>
    <Member Hierarchy="[Sales Reason].[Sales Reasons]">
      <UName>[Sales Reason].[Sales Reasons].[All Sales Reasons]</UName>
      <Caption>All Sales Reasons</Caption>
      <LName>[Sales Reason].[Sales Reasons].[All]</LName>
      <LNum>0</LNum>

```

```

        <DisplayInfo>3</DisplayInfo>
    </Member>
    <Member Hierarchy="[Sales Reason].[Sales Reason]">
        <UName>[Sales Reason].[Sales Reason].[All Sales Reasons]</UName>
        <Caption>All Sales Reasons</Caption>
        <LName>[Sales Reason].[Sales Reason].[ (All) ]</LName>
        <LNum>0</LNum>
        <DisplayInfo>10</DisplayInfo>
    </Member>
    <Member Hierarchy="[Sales Reason].[Sales Reason Type]">
        <UName>[Sales Reason].[Sales Reason Type].[All Sales Reasons]</UName>
        <Caption>All Sales Reasons</Caption>
        <LName>[Sales Reason].[Sales Reason Type].[ (All) ]</LName>
        <LNum>0</LNum>
        <DisplayInfo>3</DisplayInfo>
    </Member>
    <Member Hierarchy="[Internet Sales Order Details].[Internet Sales Orders]">
        <UName>[Internet Sales Order Details].[Internet Sales
Orders]. [All]</UName>
        <Caption>All</Caption>
        <LName>[Internet Sales Order Details].[Internet Sales
Orders]. [ (All) ]</LName>
        <LNum>0</LNum>
        <DisplayInfo>1000</DisplayInfo>
    </Member>
    <Member Hierarchy="[Internet Sales Order Details].[Sales Order Number]">
        <UName>[Internet Sales Order Details].[Sales Order Number].[All Internet
Sales Orders]</UName>
        <Caption>All Internet Sales Orders</Caption>
        <LName>[Internet Sales Order Details].[Sales Order
Number]. [ (All) ]</LName>
        <LNum>0</LNum>
        <DisplayInfo>1000</DisplayInfo>
    </Member>
    <Member Hierarchy="[Internet Sales Order Details].[Sales Order Line]">
        <UName>[Internet Sales Order Details].[Sales Order Line].[All Internet
Sales Orders]</UName>
        <Caption>All Internet Sales Orders</Caption>
        <LName>[Internet Sales Order Details].[Sales Order Line]. [ (All) ]</LName>
        <LNum>0</LNum>
        <DisplayInfo>1000</DisplayInfo>
    </Member>
    <Member Hierarchy="[Reseller Sales Order Details].[Reseller Sales Orders]">
        <UName>[Reseller Sales Order Details].[Reseller Sales
Orders]. [All]</UName>
        <Caption>All</Caption>
        <LName>[Reseller Sales Order Details].[Reseller Sales
Orders]. [ (All) ]</LName>
        <LNum>0</LNum>
        <DisplayInfo>1000</DisplayInfo>
    </Member>
    <Member Hierarchy="[Reseller Sales Order Details].[Carrier Tracking
Number]">
        <UName>[Reseller Sales Order Details].[Carrier Tracking Number].[All
Reseller Sales Orders]</UName>
        <Caption>All Reseller Sales Orders</Caption>
        <LName>[Reseller Sales Order Details].[Carrier Tracking
Number]. [ (All) ]</LName>
        <LNum>0</LNum>
        <DisplayInfo>1000</DisplayInfo>

```

```

        </Member>
        <Member Hierarchy="[Reseller Sales Order Details].[Customer PO Number]">
        <UName>[Reseller Sales Order Details].[Customer PO Number].[All Reseller
Sales Orders]</UName>
        <Caption>All Reseller Sales Orders</Caption>
        <LName>[Reseller Sales Order Details].[Customer PO
Number].[All]</LName>
        <LNum>0</LNum>
        <DisplayInfo>1000</DisplayInfo>
        </Member>
        <Member Hierarchy="[Reseller Sales Order Details].[Sales Order Number]">
        <UName>[Reseller Sales Order Details].[Sales Order Number].[All Reseller
Sales Orders]</UName>
        <Caption>All Reseller Sales Orders</Caption>
        <LName>[Reseller Sales Order Details].[Sales Order
Number].[All]</LName>
        <LNum>0</LNum>
        <DisplayInfo>1000</DisplayInfo>
        </Member>
        <Member Hierarchy="[Reseller Sales Order Details].[Sales Order Line]">
        <UName>[Reseller Sales Order Details].[Sales Order Line].[All Reseller
Sales Orders]</UName>
        <Caption>All Reseller Sales Orders</Caption>
        <LName>[Reseller Sales Order Details].[Sales Order Line].[All]</LName>
        <LNum>0</LNum>
        <DisplayInfo>1000</DisplayInfo>
        </Member>
        <Member Hierarchy="[Sales Summary Order Details].[Sales Orders]">
        <UName>[Sales Summary Order Details].[Sales Orders].[All]</UName>
        <Caption>All</Caption>
        <LName>[Sales Summary Order Details].[Sales Orders].[All]</LName>
        <LNum>0</LNum>
        <DisplayInfo>1000</DisplayInfo>
        </Member>
        <Member Hierarchy="[Sales Summary Order Details].[Carrier Tracking
Number]">
        <UName>[Sales Summary Order Details].[Carrier Tracking Number].[All Sales
Order Details]</UName>
        <Caption>All Sales Order Details</Caption>
        <LName>[Sales Summary Order Details].[Carrier Tracking
Number].[All]</LName>
        <LNum>0</LNum>
        <DisplayInfo>1000</DisplayInfo>
        </Member>
        <Member Hierarchy="[Sales Summary Order Details].[Customer PO Number]">
        <UName>[Sales Summary Order Details].[Customer PO Number].[All Sales
Order Details]</UName>
        <Caption>All Sales Order Details</Caption>
        <LName>[Sales Summary Order Details].[Customer PO Number].[All]</LName>
        <LNum>0</LNum>
        <DisplayInfo>1000</DisplayInfo>
        </Member>
        <Member Hierarchy="[Sales Summary Order Details].[Sales Order Number]">
        <UName>[Sales Summary Order Details].[Sales Order Number].[All Sales
Order Details]</UName>
        <Caption>All Sales Order Details</Caption>
        <LName>[Sales Summary Order Details].[Sales Order Number].[All]</LName>
        <LNum>0</LNum>
        <DisplayInfo>1000</DisplayInfo>
        </Member>

```



```

    <Member Hierarchy="[Sales Summary Order Details].[Sales Order Line]">
    <UName>[Sales Summary Order Details].[Sales Order Line].[All Sales Order
Details]</UName>
    <Caption>All Sales Order Details</Caption>
    <LName>[Sales Summary Order Details].[Sales Order Line].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>1000</DisplayInfo>
    </Member>
    <Member Hierarchy="[Source Currency].[Source Currency Code]">
    <UName>[Source Currency].[Source Currency Code].[All Source
Currencies]</UName>
    <Caption>All Source Currencies</Caption>
    <LName>[Source Currency].[Source Currency Code].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>105</DisplayInfo>
    </Member>
    <Member Hierarchy="[Source Currency].[Source Currency]">
    <UName>[Source Currency].[Source Currency].[All Source
Currencies]</UName>
    <Caption>All Source Currencies</Caption>
    <LName>[Source Currency].[Source Currency].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>105</DisplayInfo>
    </Member>
    <Member Hierarchy="[Destination Currency].[Destination Currency]">
    <UName>[Destination Currency].[Destination Currency].&[US
Dollar]</UName>
    <Caption>US Dollar</Caption>
    <LName>[Destination Currency].[Destination Currency].[Destination
Currency]</LName>
    <LNum>0</LNum>
    <DisplayInfo>0</DisplayInfo>
    </Member>
    <Member Hierarchy="[Destination Currency].[Destination Currency Code]">
    <UName>[Destination Currency].[Destination Currency Code].[All
Destination Currencies]</UName>
    <Caption>All Destination Currencies</Caption>
    <LName>[Destination Currency].[Destination Currency Code].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>14</DisplayInfo>
    </Member>
    <Member Hierarchy="[Sales Channel].[Sales Channel]">
    <UName>[Sales Channel].[Sales Channel].[All Sales Channels]</UName>
    <Caption>All Sales Channels</Caption>
    <LName>[Sales Channel].[Sales Channel].[ (All) ]</LName>
    <LNum>0</LNum>
    <DisplayInfo>2</DisplayInfo>
    </Member>
    <Member Hierarchy="[Organization].[Organizations]">
    <UName>[Organization].[Organizations].&[1]</UName>
    <Caption>AdventureWorks Cycle</Caption>
    <LName>[Organization].[Organizations].[Organization Level 01]</LName>
    <LNum>0</LNum>
    <DisplayInfo>3</DisplayInfo>
    </Member>
    <Member Hierarchy="[Organization].[Currency Code]">
    <UName>[Organization].[Currency Code].[All Organizations]</UName>
    <Caption>All Organizations</Caption>
    <LName>[Organization].[Currency Code].[ (All) ]</LName>

```

```

    <LNum>0</LNum>
    <DisplayInfo>4</DisplayInfo>
  </Member>
  <Member Hierarchy="[Department].[Departments]">
    <UName>[Department].[Departments].&[1]</UName>
    <Caption>Corporate</Caption>
    <LName>[Department].[Departments].[Department Level 01]</LName>
    <LNum>0</LNum>
    <DisplayInfo>6</DisplayInfo>
  </Member>
  <Member Hierarchy="[Account].[Accounts]">
    <UName>[Account].[Accounts].&[47]</UName>
    <Caption>Net Income</Caption>
    <LName>[Account].[Accounts].[Account Level 01]</LName>
    <LNum>0</LNum>
    <DisplayInfo>3</DisplayInfo>
  </Member>
  <Member Hierarchy="[Account].[Account Type]">

```

<UName>[Account].[Account Type].[All Accounts]</UName>

```

    <Caption>All Accounts</Caption>
    <LName>[Account].[Account Type].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>8</DisplayInfo>
  </Member>
  <Member Hierarchy="[Account].[Account Number]">
    <UName>[Account].[Account Number].[All Accounts]</UName>
    <Caption>All Accounts</Caption>
    <LName>[Account].[Account Number].[All]</LName>
    <LNum>0</LNum>
    <DisplayInfo>99</DisplayInfo>
  </Member>
  <Member Hierarchy="[Scenario].[Scenario]">
    <UName>[Scenario].[Scenario].&[1]</UName>
    <Caption>Actual</Caption>
    <LName>[Scenario].[Scenario].[Scenario]</LName>
    <LNum>0</LNum>
    <DisplayInfo>0</DisplayInfo>
  </Member>
</Tuple>
</Tuples>
</Axis>
</Axes>
<CellData>
  <Cell CellOrdinal="0">
    <Value xsi:type="xsd:decimal">29358677.2207</Value>
    <FmtValue>$29,358,677.22</FmtValue>
  </Cell>
  <Cell CellOrdinal="1">
    <Value xsi:type="xsd:int">60398</Value>
    <FmtValue>60,398</FmtValue>
  </Cell>
  <Cell CellOrdinal="2">
    <Value xsi:type="xsd:decimal">29358677.2207</Value>
    <FmtValue>$29,358,677.22</FmtValue>
  </Cell>

```

```
<Cell CellOrdinal="3">
  <Value xsi:type="xsd:decimal">2348694.2301</Value>
  <FmtValue>$2,348,694.23</FmtValue>
</Cell>
<Cell CellOrdinal="4">
  <Value xsi:type="xsd:decimal">733969.6091</Value>
  <FmtValue>$733,969.61</FmtValue>
</Cell>
<Cell CellOrdinal="5">
  <Value xsi:type="xsd:decimal">17277793.5757</Value>
  <FmtValue>$17,277,793.58</FmtValue>
</Cell>
<Cell CellOrdinal="6">
  <Value xsi:type="xsd:decimal">17277793.5757</Value>
  <FmtValue>$17,277,793.58</FmtValue>
</Cell>
<Cell CellOrdinal="7">
  <Value xsi:type="xsd:int">27659</Value>
  <FmtValue>27,659</FmtValue>
</Cell>
<Cell CellOrdinal="8">
  <Value xsi:type="xsd:int">18484</Value>
  <FmtValue>18,484</FmtValue>
</Cell>
<Cell CellOrdinal="9">
  <Value xsi:type="xsd:decimal">80450596.9823</Value>
  <FmtValue>$80,450,596.98</FmtValue>
</Cell>
<Cell CellOrdinal="10">
  <Value xsi:type="xsd:int">214378</Value>
  <FmtValue>214,378</FmtValue>
</Cell>
<Cell CellOrdinal="11">
  <Value xsi:type="xsd:decimal">80978104.8707</Value>
  <FmtValue>$80,978,104.87</FmtValue>
</Cell>
<Cell CellOrdinal="12">
  <Value xsi:type="xsd:decimal">6436047.6066</Value>
  <FmtValue>$6,436,047.61</FmtValue>
</Cell>
<Cell CellOrdinal="13">
  <Value xsi:type="xsd:decimal">2011265.9158</Value>
  <FmtValue>$2,011,265.92</FmtValue>
</Cell>
<Cell CellOrdinal="14">
  <Value xsi:type="xsd:double">5.275079261999995E5</Value>
  <FmtValue>$527,507.93</FmtValue>
</Cell>
<Cell CellOrdinal="15">
  <Value xsi:type="xsd:decimal">79980114.379</Value>
  <FmtValue>$79,980,114.38</FmtValue>
</Cell>
<Cell CellOrdinal="16">
  <Value xsi:type="xsd:decimal">26693830.5727</Value>
  <FmtValue>$26,693,830.57</FmtValue>
</Cell>
<Cell CellOrdinal="17">
  <Value xsi:type="xsd:int">3796</Value>
  <FmtValue>3,796</FmtValue>
```

```

</Cell>
<Cell CellOrdinal="18">
  <Value xsi:type="xsd:int">274776</Value>
  <FmtValue>274,776</FmtValue>
</Cell>
<Cell CellOrdinal="19">
  <Value xsi:type="xsd:double">1.1033678209139487E8</Value>
  <FmtValue>$110,336,782.09</FmtValue>
</Cell>
<Cell CellOrdinal="20">
  <Value xsi:type="xsd:double">4.3971624148397945E7</Value>
  <FmtValue>$43,971,624.15</FmtValue>
</Cell>
<Cell CellOrdinal="21">
  <Value xsi:type="xsd:double">9.725790795469773E7</Value>
  <FmtValue>$97,257,907.95</FmtValue>
</Cell>
<Cell CellOrdinal="22">
  <Value xsi:type="xsd:double">1.098092742029948E8</Value>
  <FmtValue>$109,809,274.20</FmtValue>
</Cell>
<Cell CellOrdinal="23">
  <Value xsi:type="xsd:double">8.7847418366998E6</Value>
  <FmtValue>$8,784,741.84</FmtValue>
</Cell>
<Cell CellOrdinal="24">
  <Value xsi:type="xsd:double">2.745235524899713E6</Value>
  <FmtValue>$2,745,235.52</FmtValue>
</Cell>
<Cell CellOrdinal="25">
  <Value xsi:type="xsd:int">31455</Value>
  <FmtValue>31,455</FmtValue>
</Cell>
<Cell CellOrdinal="26">
  <Value xsi:type="xsd:double">1.1425355E8</Value>
  <FmtValue>$114,253,550.00</FmtValue>
</Cell>
<Cell CellOrdinal="27">
  <Value xsi:type="xsd:double">1.2609503E7</Value>
  <FmtValue>$12,609,503.00</FmtValue>
</Cell>
<Cell CellOrdinal="28">
  <Value xsi:type="xsd:double">1.</Value>
  <FmtValue>1.00</FmtValue>
</Cell>
<Cell CellOrdinal="29">
  <Value xsi:type="xsd:double">1.</Value>
  <FmtValue>1.00</FmtValue>
</Cell>
</CellData>
</root>
</return>
</ExecuteResponse>
</soap:Body>
</soap:Envelope>

```

4.14 Create

In this example, the client sends an XMLA Create command to the server.

4.14.1 Client Sends Request

The client sends the following request:

```
<Create xmlns="http://schemas.microsoft.com/analysisservices/2003/engine">
  <ObjectDefinition>
    <Database xmlns:xsd="http://www.w3.org/2001/XMLSchema"
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
      xmlns:dml2="http://schemas.microsoft.com/analysisservices/2003/engine/2"
      xmlns:dml2_2="http://schemas.microsoft.com/analysisservices/2003/engine/2/2"
      xmlns:dml100_100="http://schemas.microsoft.com/analysisservices/2008/engine/100/100">
      <ID>Adventure_SSAS</ID>
      <Name>Adventure_SSAS</Name>
      <Language>1033</Language>
      <Collation>Latin1_General_CI_AS</Collation>
      <DataSourceImpersonationInfo>
        <ImpersonationMode>Default</ImpersonationMode>
      </DataSourceImpersonationInfo>
      <Dimensions>
        <Dimension>
          <ID>Dim Date</ID>
          <Name>Date</Name>
          <Annotations>
            <Annotation>
              <Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramLayout</Name>
              <Value>
                <dds xmlns="">
                  <diagram fontclsid="{0BE35203-8F91-11CE-9DE3-00AA004BB851}"
                    mouseiconclsid="{0BE35204-8F91-11CE-9DE3-00AA004BB851}" defaultlayout="MSDDS.Rectilinear"
                    defaultlineroute="MSDDS.Rectilinear" version="7" nextobject="2" scale="100"
                    pagebreakanchorx="0" pagebreakanchory="0" pagebreaksizex="0" pagebreaksizey="0" scrollleft="-
                    1356" scrolltop="-4617" gridx="150" gridy="150" marginx="5000" marginy="5000" zoom="100"
                    x="7276" y="14235" bgcolor="15334399" defaultpersistence="2" PrintPageNumbersMode="3"
                    PrintMarginTop="0" PrintMarginBottom="635" PrintMarginLeft="0" PrintMarginRight="0"
                    marqueeselectionmode="0" mousepointer="0" snaptogrid="0" autotypeannotation="1"
                    showscrollbars="0" viewpagebreaks="0" donotforceconnectorsbehindshapes="1"
                    backpictureclsid="{00000000-0000-0000-0000-000000000000}">
                    <font>
                      <ddsxmlobjectstreamwrapper binary="01000000900144420100065461686f6d61"
                    />
                    </font>
                    <mouseicon>
                      <ddsxmlobjectstreamwrapper binary="6c74000000000000" />
                    </mouseicon>
                    </diagram>
                    <layoutmanager>
                      <ddsxmlobj />
                    </layoutmanager>
                    <ddscontrol controlprogid="DdsShapes.DdsObjectManagedBridge.2"
                      tooltip="DimDate" left="20" top="0" logicalid="1" controlid="1" masterid="0" hint1="0"
                      hint2="0" width="4524" height="5000" noresize="0" nomove="0" nodefaultattachpoints="0"
                      autodrag="1" usedefaultiddshape="1" selectable="1" showselectionhandles="1" allownudging="1"
                      isannotation="0" dontautolayout="0" groupcollapsed="0" tabstop="1" visible="1"
                      snaptogrid="0">
                </Value>
              </Annotation>
            </Annotations>
          </Dimension>
        </Dimensions>
      </Database>
    </ObjectDefinition>
  </Create>
```

```

        <control>
          <ddsxmlobjectstreaminitwrapper binary="00080000ac11000088130000" />
        </control>
        <layoutobject>
          <ddsxmlobj>
            <property name="LogicalObject" value="dbo_DimDate" vartype="8" />
          </ddsxmlobj>
        </layoutobject>
        <shape groupshapeid="0" groupnode="0" />
      </ddscontrol>
    </dds>
  </Value>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:ShowFriendlyNames</Name>
  <Value>true</Value>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:ShowRelationshipNames</Name>
  <Value>>false</Value>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:UseDiagramDefaultLayout</Name>
  <Value>true</Value>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramViewPortLeft</Name>
  <Value>-1356</Value>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramViewPortTop</Name>
  <Value>-4617</Value>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramBoundingLeft</Name>
  <Value>20</Value>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramBoundingTop</Name>
  <Value>0</Value>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramZoom</Name>
  <Value>100</Value>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:ARDiagramLayout</Name>
  <Value>
    <DiagramLayout ZoomPercent="100" ViewPortX="0" ViewPortY="0" xmlns="">
      <Shapes NodeWidth="161">
        <Shape Id="Date Key" Expanded="true">

```

```

        <Attributes>
          <Attribute Id="Date Key" />
        </Attributes>
        <Position x="20" y="20" />
      </Shape>
      <Shape Id="Calendar Quarter" Expanded="false">
        <Attributes>
          <Attribute Id="Calendar Quarter" />
        </Attributes>
        <Position x="226" y="20" />
      </Shape>
      <Shape Id="English Month Name" Expanded="false">
        <Attributes>
          <Attribute Id="English Month Name" />
        </Attributes>
        <Position x="226" y="68" />
      </Shape>
      <Shape Id="Week Number Of Year" Expanded="false">
        <Attributes>
          <Attribute Id="Week Number Of Year" />
        </Attributes>
        <Position x="226" y="116" />
      </Shape>
      <Shape Id="Full Date Alternate Key" Expanded="false">
        <Attributes>
          <Attribute Id="Full Date Alternate Key" />
        </Attributes>
        <Position x="226" y="164" />
      </Shape>
    </Shapes>
  </DiagramLayout>
</Value>
</Annotation>
</Annotations>
<Source xsi:type="DataSourceViewBinding">
  <DataSourceViewID>dsvAdventureWorksDW2008</DataSourceViewID>
</Source>
<ErrorConfiguration>
  <KeyNotFound>ReportAndStop</KeyNotFound>
  <KeyDuplicate>ReportAndStop</KeyDuplicate>
  <NullKeyNotAllowed>ReportAndStop</NullKeyNotAllowed>
</ErrorConfiguration>
<Language>1033</Language>
<Collation>Latin1_General_CI_AS</Collation>
<UnknownMemberName>Unknown</UnknownMemberName>
<Attributes>
  <Attribute>
    <ID>Date Key</ID>
    <Name>Date Key</Name>
    <Usage>Key</Usage>
    <EstimatedCount>1188</EstimatedCount>
    <KeyColumns>
      <KeyColumn>
        <DataType>Integer</DataType>
        <Source xsi:type="ColumnBinding">
          <TableID>dbo_DimDate</TableID>
          <ColumnID>DateKey</ColumnID>
        </Source>
      </KeyColumn>
    </KeyColumns>
  </Attribute>

```

```

</KeyColumns>
<NameColumn>
  <DataType>WChar</DataType>
  <Source xsi:type="ColumnBinding">
    <TableID>dbo_DimDate</TableID>
    <ColumnID>DateKey</ColumnID>
  </Source>
</NameColumn>
<AttributeRelationships>
  <AttributeRelationship>
    <AttributeID>Full Date Alternate Key</AttributeID>
    <Name>Full Date Alternate Key</Name>
  </AttributeRelationship>
  <AttributeRelationship>
    <AttributeID>Week Number Of Year</AttributeID>
    <Name>Week Number Of Year</Name>
  </AttributeRelationship>
  <AttributeRelationship>
    <AttributeID>Calendar Quarter</AttributeID>
    <Name>Calendar Quarter</Name>
  </AttributeRelationship>
  <AttributeRelationship>
    <AttributeID>English Month Name</AttributeID>
    <Name>English Month Name</Name>
  </AttributeRelationship>
  <AttributeRelationship>
    <AttributeID>Calendar Year</AttributeID>
    <Name>Calendar Year</Name>
  </AttributeRelationship>
</AttributeRelationships>
</Attribute>
<Attribute>
  <ID>Full Date Alternate Key</ID>
  <Name>Full Date Alternate Key</Name>
  <KeyColumns>
    <KeyColumn>
      <DataType>Date</DataType>
      <Source xsi:type="ColumnBinding">
        <TableID>dbo_DimDate</TableID>
        <ColumnID>FullDateAlternateKey</ColumnID>
      </Source>
    </KeyColumn>
  </KeyColumns>
</Attribute>
<Attribute>
  <ID>Week Number Of Year</ID>
  <Name>Week Number Of Year</Name>
  <KeyColumns>
    <KeyColumn>
      <DataType>UnsignedTinyInt</DataType>
      <Source xsi:type="ColumnBinding">
        <TableID>dbo_DimDate</TableID>

```



```

        <ColumnID>WeekNumberOfYear</ColumnID>
    </Source>
</KeyColumn>
</KeyColumns>
<NameColumn>
    <DataType>WChar</DataType>
    <Source xsi:type="ColumnBinding">
        <TableID>dbo_DimDate</TableID>
        <ColumnID>WeekNumberOfYear</ColumnID>
    </Source>
</NameColumn>
<OrderBy>Key</OrderBy>
</Attribute>
<Attribute>
    <ID>Calendar Quarter</ID>
    <Name>Calendar Quarter</Name>
    <KeyColumns>
        <KeyColumn>
            <DataType>UnsignedTinyInt</DataType>
            <Source xsi:type="ColumnBinding">
                <TableID>dbo_DimDate</TableID>
                <ColumnID>CalendarQuarter</ColumnID>
            </Source>
        </KeyColumn>
    </KeyColumns>
    <NameColumn>
        <DataType>WChar</DataType>
        <Source xsi:type="ColumnBinding">
            <TableID>dbo_DimDate</TableID>
            <ColumnID>CalendarQuarter</ColumnID>
        </Source>
    </NameColumn>
    <OrderBy>Key</OrderBy>
</Attribute>
<Attribute>
    <ID>English Month Name</ID>
    <Name>English Month Name</Name>
    <KeyColumns>
        <KeyColumn>
            <DataType>WChar</DataType>
            <DataSize>10</DataSize>
            <Source xsi:type="ColumnBinding">
                <TableID>dbo_DimDate</TableID>
                <ColumnID>EnglishMonthName</ColumnID>
            </Source>
        </KeyColumn>
    </KeyColumns>
    <NameColumn>
        <DataType>WChar</DataType>
        <DataSize>10</DataSize>
        <Source xsi:type="ColumnBinding">
            <TableID>dbo_DimDate</TableID>
            <ColumnID>EnglishMonthName</ColumnID>
        </Source>
    </NameColumn>
    <OrderBy>Key</OrderBy>
</Attribute>
<Attribute>
    <ID>Calendar Year</ID>

```

```

<Name>Calendar Year</Name>
<EstimatedCount>5</EstimatedCount>
<KeyColumns>
  <KeyColumn>
    <DataType>SmallInt</DataType>
    <Source xsi:type="ColumnBinding">
      <TableID>dbo_DimDate</TableID>
      <ColumnID>CalendarYear</ColumnID>
    </Source>
  </KeyColumn>
</KeyColumns>
<NameColumn>
  <DataType>WChar</DataType>
  <Source xsi:type="ColumnBinding">
    <TableID>dbo_DimDate</TableID>
    <ColumnID>CalendarYear</ColumnID>
  </Source>
</NameColumn>
<OrderBy>Key</OrderBy>
</Attribute>
</Attributes>
<Hierarchies>
  <Hierarchy>
    <ID>Hierarchy</ID>
    <Name>Calendar Hierarchy</Name>
    <Levels>
      <Level>
        <ID>Calendar Year</ID>
        <Name>Calendar Year</Name>
        <SourceAttributeID>Calendar Year</SourceAttributeID>
      </Level>
      <Level>
        <ID>Calendar Quarter</ID>
        <Name>Calendar Quarter</Name>
        <SourceAttributeID>Calendar Quarter</SourceAttributeID>
      </Level>
      <Level>
        <ID>English Month Name</ID>
        <Name>English Month Name</Name>
        <SourceAttributeID>English Month Name</SourceAttributeID>
      </Level>
      <Level>
        <ID>Week Number Of Year</ID>
        <Name>Week Number Of Year</Name>
        <SourceAttributeID>Week Number Of Year</SourceAttributeID>
      </Level>
      <Level>
        <ID>Full Date Alternate Key</ID>
        <Name>Full Date Alternate Key</Name>
        <SourceAttributeID>Full Date Alternate Key</SourceAttributeID>
      </Level>
    </Levels>
  </Hierarchy>
</Hierarchies>
<ProactiveCaching>
  <SilenceInterval>-PT1S</SilenceInterval>
  <Latency>-PT1S</Latency>
  <SilenceOverrideInterval>-PT1S</SilenceOverrideInterval>
  <ForceRebuildInterval>-PT1S</ForceRebuildInterval>

```

```

        <Source xsi:type="ProactiveCachingInheritedBinding" />
    </ProactiveCaching>
</Dimension>
<Dimension>
    <ID>Dim Customer</ID>
    <Name>Customer</Name>
    <Annotations>
        <Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramLayout</Name>
    </Annotation>
    <Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:ShowFriendlyNames</Name>
    <Value>true</Value>
    </Annotation>
    <Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:ShowRelationshipNames</Name>
    <Value>>false</Value>
    </Annotation>
    <Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:UseDiagramDefaultLayout</Name>
    <Value>true</Value>
    </Annotation>
    <Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramViewPortLeft</Name>
    <Value>0</Value>
    </Annotation>
    <Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramViewPortTop</Name>
    <Value>0</Value>
    </Annotation>
    <Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramBoundingLeft</Name>
    <Value>0</Value>
    </Annotation>
    <Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramBoundingTop</Name>
    <Value>0</Value>
    </Annotation>
    <Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramZoom</Name>
    <Value>100</Value>
    </Annotation>
    </Annotations>
    <Source xsi:type="DataSourceViewBinding">
        <DataSourceViewID>dsvAdventureWorksDW2008</DataSourceViewID>
    </Source>
    <ErrorConfiguration>
        <KeyNotFound>ReportAndStop</KeyNotFound>
        <KeyDuplicate>ReportAndStop</KeyDuplicate>
        <NullKeyNotAllowed>ReportAndStop</NullKeyNotAllowed>
    </ErrorConfiguration>

```

```

<Language>1033</Language>
<Collation>Latin1_General_CI_AS</Collation>
<UnknownMemberName>Unknown</UnknownMemberName>
<Attributes>
  <Attribute>
    <ID>Customer Key</ID>
    <Name>Customer Key</Name>
    <Usage>Key</Usage>
    <EstimatedCount>18484</EstimatedCount>
    <KeyColumns>
      <KeyColumn>
        <DataType>Integer</DataType>
        <Source xsi:type="ColumnBinding">
          <TableID>dbo_DimCustomer</TableID>
          <ColumnID>CustomerKey</ColumnID>
        </Source>
      </KeyColumn>
    </KeyColumns>
    <NameColumn>
      <DataType>WChar</DataType>
      <Source xsi:type="ColumnBinding">
        <TableID>dbo_DimCustomer</TableID>
        <ColumnID>CustomerKey</ColumnID>
      </Source>
    </NameColumn>
    <OrderBy>Key</OrderBy>
  </Attribute>
</Attributes>
<ProactiveCaching>
  <SilenceInterval>-PT1S</SilenceInterval>
  <Latency>-PT1S</Latency>
  <SilenceOverrideInterval>-PT1S</SilenceOverrideInterval>
  <ForceRebuildInterval>-PT1S</ForceRebuildInterval>
  <Source xsi:type="ProactiveCachingInheritedBinding" />
</ProactiveCaching>
</Dimension>
<Dimension>
  <ID>Dim Sales Territory</ID>
  <Name>Sales Territory</Name>
  <Annotations>
    <Annotation>
      <Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramLayout</Name>
      </Annotation>
    <Annotation>
      <Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:ShowFriendlyNames</Name>
      <Value>true</Value>
      </Annotation>
    <Annotation>
      <Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:ShowRelationshipNames</Name>
      <Value>>false</Value>
      </Annotation>
    <Annotation>
      <Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:UseDiagramDefaultLayout</Name>
      <Value>true</Value>
      </Annotation>
  </Annotations>

```

```

    <Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramViewPortLeft</Name>
  <Value>0</Value>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramViewPortTop</Name>
  <Value>0</Value>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramBoundingLeft</Name>
  <Value>0</Value>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramBoundingTop</Name>
  <Value>0</Value>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramZoom</Name>
  <Value>100</Value>
</Annotation>
</Annotations>
<Source xsi:type="DataSourceViewBinding">
  <DataSourceViewID>dsvAdventureWorksDW2008</DataSourceViewID>
</Source>
<ErrorConfiguration>
  <KeyNotFound>ReportAndStop</KeyNotFound>
  <KeyDuplicate>ReportAndStop</KeyDuplicate>
  <NullKeyNotAllowed>ReportAndStop</NullKeyNotAllowed>
</ErrorConfiguration>
<Language>1033</Language>
<Collation>Latin1_General_CI_AS</Collation>
<UnknownMemberName>Unknown</UnknownMemberName>
<Attributes>
  <Attribute>
    <ID>Sales Territory Key</ID>
    <Name>Sales Territory Key</Name>
    <Usage>Key</Usage>
    <EstimatedCount>11</EstimatedCount>
    <KeyColumns>
      <KeyColumn>
        <DataType>Integer</DataType>
        <Source xsi:type="ColumnBinding">
          <TableID>dbo_DimSalesTerritory</TableID>
          <ColumnID>SalesTerritoryKey</ColumnID>
        </Source>
      </KeyColumn>
    </KeyColumns>
    <NameColumn>
      <DataType>WChar</DataType>
      <Source xsi:type="ColumnBinding">
        <TableID>dbo_DimSalesTerritory</TableID>
        <ColumnID>SalesTerritoryKey</ColumnID>
      </Source>
    </NameColumn>
  </Attribute>
</Attributes>

```

```

        <OrderBy>Key</OrderBy>
    </Attribute>
</Attributes>
<ProactiveCaching>
    <SilenceInterval>-PT1S</SilenceInterval>
    <Latency>-PT1S</Latency>
    <SilenceOverrideInterval>-PT1S</SilenceOverrideInterval>
    <ForceRebuildInterval>-PT1S</ForceRebuildInterval>
    <Source xsi:type="ProactiveCachingInheritedBinding" />
</ProactiveCaching>
</Dimension>
<Dimension>
    <ID>Dim Product</ID>
    <Name>Product</Name>
    <Annotations>
        <Annotation>
<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramLayout</Name>
    <Value>
        <dds xmlns="">
            <diagram fontclsid="{0BE35203-8F91-11CE-9DE3-00AA004BB851}"
mouseiconclsid="{0BE35204-8F91-11CE-9DE3-00AA004BB851}" defaultlayout="MSDDS.Rectilinear"
defaultlineroute="MSDDS.Rectilinear" version="7" nextobject="12" scale="100"
pagebreakanchorx="0" pagebreakanchory="0" pagebreaksize="0" pagebreaksizey="0"
scrollleft="1715" scrolltop="-2135" gridx="150" gridy="150" marginx="5000" marginy="5000"
zoom="75" x="11695" y="14235" bgcolor="15334399" defaultpersistence="2"
PrintPageNumbersMode="3" PrintMarginTop="0" PrintMarginBottom="635" PrintMarginLeft="0"
PrintMarginRight="0" marqueeselectionmode="0" mousepointer="0" snaptogrid="0"
autotypeannotation="1" showscrollbars="0" viewpagebreaks="0"
donotforceconnectorsbehindshapes="1" backpictureclsid="{00000000-0000-0000-0000-
000000000000}">
                <font>
                    <ddsxmlobjectstreamwrapper binary="01000000900144420100065461686f6d61"
/>
                </font>
                <mouseicon>
                    <ddsxmlobjectstreamwrapper binary="6c74000000000000" />
                </mouseicon>
            </diagram>
            <layoutmanager>
                <ddsxmlobj />
            </layoutmanager>
            <ddscontrol controlprogid="DdsShapes.DdsObjectManagedBridge.2"
tooltip="DimProductCategory" left="2870" top="-353" logicalid="6" controlid="1" masterid="0"
hint1="0" hint2="0" width="6818" height="3149" noresize="0" nomove="0"
nodefaultattachpoints="0" autodrag="1" usedefaultiddshape="1" selectable="1"
showselectionhandles="1" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
                <control>
                    <ddsxmlobjectstreaminitwrapper binary="00080000a21a00004d0c0000" />
                </control>
                <layoutobject>
                    <ddsxmlobj>
                        <property name="LogicalObject" value="dbo_DimProductCategory"
vartype="8" />
                    </ddsxmlobj>
                </layoutobject>
                <shape groupshapeid="0" groupnode="0" />
            </ddscontrol>
            <ddscontrol controlprogid="DdsShapes.DdsObjectManagedBridge.2"
tooltip="DimProduct" left="3107" top="9112" logicalid="7" controlid="2" masterid="0"

```

```

hint1="0" hint2="0" width="7858" height="5352" noresize="0" nomove="0"
nodefaultattachpoints="0" autodrag="1" usedefaultiddshape="1" selectable="1"
showselectionhandles="1" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
  <control>
    <ddsxmlobjectstreaminitwrapper binary="00080000b21e0000e8140000" />
  </control>
  <layoutobject>
    <ddsxmlobj>
      <property name="LogicalObject" value="dbo_DimProduct" vartype="8" />
    </ddsxmlobj>
  </layoutobject>
  <shape groupshapeid="0" groupnode="0" />
</ddscontrol>
  <ddscontrol controlprogid="DdsShapes.DdsObjectManagedBridge.2"
tooltip="DimProductSubcategory" left="2913" top="4126" logicalid="8" controlid="3"
masterid="0" hint1="0" hint2="0" width="8423" height="3572" noresize="0" nomove="0"
nodefaultattachpoints="0" autodrag="1" usedefaultiddshape="1" selectable="1"
showselectionhandles="1" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
  <control>
    <ddsxmlobjectstreaminitwrapper binary="00080000e7200000f40d0000" />
  </control>
  <layoutobject>
    <ddsxmlobj>
      <property name="LogicalObject" value="dbo_DimProductSubcategory"
vartype="8" />
    </ddsxmlobj>
  </layoutobject>
  <shape groupshapeid="0" groupnode="0" />
</ddscontrol>
  <ddscontrol controlprogid="MSDDS.Polyline" left="2580" top="2297"
logicalid="9" controlid="4" masterid="0" hint1="0" hint2="0" width="7594" height="2129"
noresize="0" nomove="0" nodefaultattachpoints="1" autodrag="0" usedefaultiddshape="0"
selectable="1" showselectionhandles="0" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
  <control>
    <ddsxmlobj>
      <polyline endtypedst="6" endtypesrc="3" usercolor="0" linestyle="0"
linerender="1" customendtypedstid="0" customendtypesrcid="0" adornsvisible="1" />
    </ddsxmlobj>
  </control>
  <layoutobject>
    <ddsxmlobj>
      <property name="LogicalObject"
value="dataSet.Relations[FK_DimProductSubcategory_DimProductCategory]" vartype="8" />
      <property name="Virtual" value="0" vartype="11" />
      <property name="VisibleAP" value="0" vartype="3" />
    </ddsxmlobj>
  </layoutobject>
  <connector lineroutestyle="MSDDS.Rectilinear" sourceid="1" destid="3"
sourceattachpoint="1" destattachpoint="24" segmenteditmode="0" bendpointeditmode="0"
bendpointvisibility="0" relatedid="0" virtual="0">
    <point x="2979" y="2796" />
    <point x="2979" y="3726" />
    <point x="9874" y="3726" />
    <point x="9874" y="4126" />
  </connector>
</ddscontrol>
  <ddscontrol controlprogid="MSDDS.Polyline" left="2875" top="7199"
logicalid="10" controlid="5" masterid="0" hint1="0" hint2="0" width="1161" height="2213"

```

```

noresize="0" nomove="0" nodefaultattachpoints="1" autodrag="0" usedefaultiddshape="0"
selectable="1" showselectionhandles="0" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
  <control>
    <ddsxmlobj>
      <polyline endtypedst="6" endtypesrc="3" usercolor="0" linestyle="0"
linerender="1" customendtypedstid="0" customendtypesrcid="0" adornsvisible="1" />
    </ddsxmlobj>
  </control>
  <layoutobject>
    <ddsxmlobj>
      <property name="LogicalObject"
value="dataSet.Relations[FK_DimProduct_DimProductSubcategory]" vartype="8" />
      <property name="Virtual" value="0" vartype="11" />
      <property name="VisibleAP" value="0" vartype="3" />
    </ddsxmlobj>
  </layoutobject>
  <connector lineroutestyle="MSDDS.Rectilinear" sourceid="3" destid="2"
sourceattachpoint="1" destattachpoint="0" segmenteditmode="0" bendpointeditmode="0"
bendpointvisibility="0" relatedid="0" virtual="0">
    <point x="3274" y="7698" />
    <point x="3274" y="8899" />
    <point x="3540" y="8899" />
    <point x="3540" y="8712" />
    <point x="3736" y="8712" />
    <point x="3736" y="9112" />
  </connector>
</ddscontrol>
</dds>
</Value>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:ShowFriendlyNames</Name>
  <Value>true</Value>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:ShowRelationshipNames</Name>
  <Value>>false</Value>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:UseDiagramDefaultLayout</Name>
  <Value>true</Value>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramViewPortLeft</Name>
  <Value>1715</Value>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramViewPortTop</Name>
  <Value>-2135</Value>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramBoundingLeft</Name>
  <Value>2870</Value>
</Annotation>

```



```

    <Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramBoundingTop</Name>
  <Value>-353</Value>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramZoom</Name>
  <Value>75</Value>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:ARDiagramLayout</Name>
  <Value>
    <DiagramLayout ZoomPercent="100" ViewPortX="0" ViewPortY="0" xmlns="">
      <Shapes NodeWidth="177">
        <Shape Id="Product Key" Expanded="true">
          <Attributes>
            <Attribute Id="Product Key" />
          </Attributes>
          <Position x="20" y="20" />
        </Shape>
        <Shape Id="English Product Name" Expanded="false">
          <Attributes>
            <Attribute Id="English Product Name" />
          </Attributes>
          <Position x="246" y="20" />
        </Shape>
      </Shapes>
    </DiagramLayout>
  </Value>
</Annotation>
</Annotations>
<Source xsi:type="DataSourceViewBinding">
  <DataSourceViewID>dsvAdventureWorksDW2008</DataSourceViewID>
</Source>
<UnknownMember>Visible</UnknownMember>
<ErrorConfiguration>
  <KeyNotFound>ReportAndStop</KeyNotFound>
  <KeyDuplicate>ReportAndStop</KeyDuplicate>
  <NullKeyNotAllowed>ReportAndStop</NullKeyNotAllowed>
</ErrorConfiguration>
<Language>1033</Language>
<Collation>Latin1_General_CI_AS</Collation>
<UnknownMemberName>Unknown</UnknownMemberName>
<Attributes>
  <Attribute>
    <ID>Product Key</ID>
    <Name>Product Key</Name>
    <Usage>Key</Usage>
    <EstimatedCount>606</EstimatedCount>
    <KeyColumns>
      <KeyColumn>
        <DataType>Integer</DataType>
        <Source xsi:type="ColumnBinding">
          <TableID>dbo_DimProduct</TableID>
          <ColumnID>ProductKey</ColumnID>
        </Source>
      </KeyColumn>
    </KeyColumns>
  </Attribute>

```

```

</KeyColumns>
<NameColumn>
  <DataType>WChar</DataType>
  <Source xsi:type="ColumnBinding">
    <TableID>dbo_DimProduct</TableID>
    <ColumnID>ProductKey</ColumnID>
  </Source>
</NameColumn>
<AttributeRelationships>
  <AttributeRelationship>
    <AttributeID>English Product Name</AttributeID>
    <Name>English Product Name</Name>
  </AttributeRelationship>
  <AttributeRelationship>
    <AttributeID>English Product Subcategory Name</AttributeID>
    <Name>English Product Subcategory Name</Name>
  </AttributeRelationship>
  <AttributeRelationship>
    <AttributeID>Product Subcategory Key</AttributeID>
    <Name>Product Subcategory Key</Name>
  </AttributeRelationship>
  <AttributeRelationship>
    <AttributeID>Product Category Key</AttributeID>
    <Name>Product Category Key</Name>
  </AttributeRelationship>
  <AttributeRelationship>
    <AttributeID>English Product Category Name</AttributeID>
    <Name>English Product Category Name</Name>
  </AttributeRelationship>
</AttributeRelationships>
<OrderBy>Key</OrderBy>
</Attribute>
<Attribute>
  <ID>English Product Name</ID>
  <Name>English Product Name</Name>
  <KeyColumns>
    <KeyColumn>
      <DataType>WChar</DataType>
      <DataSize>50</DataSize>
      <Source xsi:type="ColumnBinding">
        <TableID>dbo_DimProduct</TableID>
        <ColumnID>EnglishProductName</ColumnID>
      </Source>
    </KeyColumn>
  </KeyColumns>
</Attribute>
<Attribute>
  <DataType>WChar</DataType>
  <DataSize>50</DataSize>
  <Source xsi:type="ColumnBinding">
    <TableID>dbo_DimProduct</TableID>
    <ColumnID>EnglishProductName</ColumnID>
  </Source>
</NameColumn>
</Attribute>
<Attribute>
  <ID>English Product Subcategory Name</ID>
  <Name>English Product Subcategory Name</Name>
  <KeyColumns>
    <KeyColumn>

```

```

        <DataType>WChar</DataType>
        <DataSize>50</DataSize>
        <Source xsi:type="ColumnBinding">
            <TableID>dbo_DimProductSubcategory</TableID>
            <ColumnID>EnglishProductSubcategoryName</ColumnID>
        </Source>
    </KeyColumn>
</KeyColumns>
<NameColumn>
    <DataType>WChar</DataType>
    <DataSize>50</DataSize>
    <Source xsi:type="ColumnBinding">
        <TableID>dbo_DimProductSubcategory</TableID>
        <ColumnID>EnglishProductSubcategoryName</ColumnID>
    </Source>
</NameColumn>
</Attribute>
<Attribute>
    <ID>Product Subcategory Key</ID>
    <Name>Product Subcategory Key</Name>
    <KeyColumns>
        <KeyColumn>
            <DataType>Integer</DataType>
            <Source xsi:type="ColumnBinding">
                <TableID>dbo_DimProductSubcategory</TableID>
                <ColumnID>ProductSubcategoryKey</ColumnID>
            </Source>
        </KeyColumn>
    </KeyColumns>
</NameColumn>
    <DataType>WChar</DataType>
    <Source xsi:type="ColumnBinding">
        <TableID>dbo_DimProductSubcategory</TableID>
        <ColumnID>ProductSubcategoryKey</ColumnID>
    </Source>
</NameColumn>
</Attribute>
<Attribute>
    <ID>Product Category Key</ID>
    <Name>Product Category Key</Name>
    <KeyColumns>
        <KeyColumn>
            <DataType>Integer</DataType>
            <Source xsi:type="ColumnBinding">
                <TableID>dbo_DimProductCategory</TableID>
                <ColumnID>ProductCategoryKey</ColumnID>
            </Source>
        </KeyColumn>
    </KeyColumns>
</NameColumn>
    <DataType>WChar</DataType>
    <Source xsi:type="ColumnBinding">
        <TableID>dbo_DimProductCategory</TableID>
        <ColumnID>ProductCategoryKey</ColumnID>
    </Source>
</NameColumn>
</Attribute>
<Attribute>
    <ID>English Product Category Name</ID>

```

```

<Name>English Product Category Name</Name>
<EstimatedCount>4</EstimatedCount>
<KeyColumns>
  <KeyColumn>
    <DataType>WChar</DataType>
    <DataSize>50</DataSize>
    <Source xsi:type="ColumnBinding">
      <TableID>dbo_DimProductCategory</TableID>
      <ColumnID>EnglishProductCategoryName</ColumnID>
    </Source>
  </KeyColumn>
</KeyColumns>
<NameColumn>
  <DataType>WChar</DataType>
  <DataSize>50</DataSize>
  <Source xsi:type="ColumnBinding">
    <TableID>dbo_DimProductCategory</TableID>
    <ColumnID>EnglishProductCategoryName</ColumnID>
  </Source>
</NameColumn>
</Attribute>
</Attributes>
<Hierarchies>
  <Hierarchy>
    <ID>Hierarchy</ID>
    <Name>Product Hierarchy</Name>
    <Levels>
      <Level>
        <ID>English Product Category Name</ID>
        <Name>English Product Category Name</Name>
        <SourceAttributeID>English Product Category Name</SourceAttributeID>
      </Level>
      <Level>
        <ID>English Product Subcategory Name</ID>
        <Name>English Product Subcategory Name</Name>
        <SourceAttributeID>English Product Subcategory Name</SourceAttributeID>
      </Level>
      <Level>
        <ID>English Product Name</ID>
        <Name>English Product Name</Name>
        <SourceAttributeID>English Product Name</SourceAttributeID>
      </Level>
    </Levels>
  </Hierarchy>
</Hierarchies>
<ProactiveCaching>
  <SilenceInterval>-PT1S</SilenceInterval>
  <Latency>-PT1S</Latency>
  <SilenceOverrideInterval>-PT1S</SilenceOverrideInterval>
  <ForceRebuildInterval>-PT1S</ForceRebuildInterval>
  <Source xsi:type="ProactiveCachingInheritedBinding" />
</ProactiveCaching>
</Dimension>
</Dimensions>
<Cubes>
  <Cube>
    <ID>AdventureWorksDW2008Cube</ID>
    <Name>AdventureWorksDW2008Cube</Name>
    <Annotations>

```

```

<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramLayout</Name>
  <Value>
    <dds xmlns="">
      <diagram fontclsid="{0BE35203-8F91-11CE-9DE3-00AA004BB851}"
mouseiconclsid="{0BE35204-8F91-11CE-9DE3-00AA004BB851}" defaultlayout="MSDDS.Rectilinear"
defaultlineroute="MSDDS.Rectilinear" version="7" nextobject="32" scale="100"
pagebreakanchorx="0" pagebreakanchory="0" pagebreaksizex="0" pagebreaksizey="0" scrollleft="-
2240" scrolltop="5062" gridx="150" gridy="150" marginx="5000" marginy="5000" zoom="75"
x="16034" y="10821" bgcolor="15334399" defaultpersistence="2" PrintPageNumbersMode="3"
PrintMarginTop="0" PrintMarginBottom="635" PrintMarginLeft="0" PrintMarginRight="0"
marqueeselectionmode="0" mousepointer="0" snaptogrid="0" autotypeannotation="1"
showscrollbars="1" viewpagebreaks="0" donotforceconnectorsbehindshapes="1"
backpictureclsid="{00000000-0000-0000-0000-000000000000}">
      <font>
        <ddsxmlobjectstreamwrapper binary="0100000090014420100065461686f6d61"
/>
      </font>
      <mouseicon>
        <ddsxmlobjectstreamwrapper binary="6c74000000000000" />
      </mouseicon>
      </diagram>
      <layoutmanager>
        <ddsxmlobj />
      </layoutmanager>
      <ddscontrol controlprogid="DdsShapes.DdsObjectManagedBridge.2"
tooltip="DimSalesTerritory" left="-1850" top="1213" logicalid="16" controlid="1" masterid="0"
hint1="0" hint2="0" width="4498" height="3149" noresize="0" nomove="0"
nodefaultattachpoints="0" autodrag="1" usedefaultiddshape="1" selectable="1"
showselectionhandles="1" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
        <control>
          <ddsxmlobjectstreaminitwrapper binary="00080000921100004d0c0000" />
        </control>
        <layoutobject>
          <ddsxmlobj>
            <property name="LogicalObject" value="dbo_DimSalesTerritory"
vartype="8" />
          </ddsxmlobj>
        </layoutobject>
        <shape groupshapeid="0" groupnode="0" />
      </ddscontrol>
      <ddscontrol controlprogid="DdsShapes.DdsObjectManagedBridge.2"
tooltip="FactInternetSales" left="6494" top="3004" logicalid="17" controlid="2" masterid="0"
hint1="0" hint2="0" width="4101" height="5000" noresize="0" nomove="0"
nodefaultattachpoints="0" autodrag="1" usedefaultiddshape="1" selectable="1"
showselectionhandles="1" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
        <control>
          <ddsxmlobjectstreaminitwrapper binary="000800000510000088130000" />
        </control>
        <layoutobject>
          <ddsxmlobj>
            <property name="LogicalObject" value="dbo_FactInternetSales"
vartype="8" />
          </ddsxmlobj>
        </layoutobject>
        <shape groupshapeid="0" groupnode="0" />
      </ddscontrol>

```

```

        <ddscontrol controlprogid="DdsShapes.DdsObjectManagedBridge.2"
tooltip="DimCustomer" left="9185" top="10454" logicalid="18" controlid="3" masterid="0"
hint1="0" hint2="0" width="4207" height="5000" noresize="0" nomove="0"
nodefaultattachpoints="0" autodrag="1" usedefaultiddshape="1" selectable="1"
showselectionhandles="1" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
        <control>
            <ddsxmlobjectstreaminitwrapper binary="000800006f1000088130000" />
        </control>
        <layoutobject>
            <ddsxmlobj>
                <property name="LogicalObject" value="dbo_DimCustomer" vartype="8" />
            </ddsxmlobj>
        </layoutobject>
        <shape groupshapeid="0" groupnode="0" />
    </ddscontrol>
    <ddscontrol controlprogid="DdsShapes.DdsObjectManagedBridge.2"
tooltip="DimProductSubcategory" left="15782" top="6836" logicalid="19" controlid="4"
masterid="0" hint1="0" hint2="0" width="5530" height="3572" noresize="0" nomove="0"
nodefaultattachpoints="0" autodrag="1" usedefaultiddshape="1" selectable="1"
showselectionhandles="1" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
    <control>
        <ddsxmlobjectstreaminitwrapper binary="000800009a150000f40d0000" />
    </control>
    <layoutobject>
        <ddsxmlobj>
            <property name="LogicalObject" value="dbo_DimProductSubcategory"
vartype="8" />
        </ddsxmlobj>
    </layoutobject>
    <shape groupshapeid="0" groupnode="0" />
</ddscontrol>
<ddscontrol controlprogid="DdsShapes.DdsObjectManagedBridge.2"
tooltip="DimProductCategory" left="16020" top="12808" logicalid="20" controlid="5"
masterid="0" hint1="0" hint2="0" width="5054" height="3149" noresize="0" nomove="0"
nodefaultattachpoints="0" autodrag="1" usedefaultiddshape="1" selectable="1"
showselectionhandles="1" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
    <control>
        <ddsxmlobjectstreaminitwrapper binary="00080000be1300004d0c0000" />
    </control>
    <layoutobject>
        <ddsxmlobj>
            <property name="LogicalObject" value="dbo_DimProductCategory"
vartype="8" />
        </ddsxmlobj>
    </layoutobject>
    <shape groupshapeid="0" groupnode="0" />
</ddscontrol>
<ddscontrol controlprogid="DdsShapes.DdsObjectManagedBridge.2"
tooltip="DimDate" left="479" top="10128" logicalid="21" controlid="6" masterid="0" hint1="0"
hint2="0" width="4524" height="5000" noresize="0" nomove="0" nodefaultattachpoints="0"
autodrag="1" usedefaultiddshape="1" selectable="1" showselectionhandles="1" allownudging="1"
isannotation="0" dontautolayout="0" groupcollapsed="0" tabstop="1" visible="1"
snaptogrid="0">
    <control>
        <ddsxmlobjectstreaminitwrapper binary="00080000ac1100088130000" />
    </control>
    <layoutobject>
        <ddsxmlobj>

```

```

        <property name="LogicalObject" value="dbo_DimDate" vartype="8" />
    </ddxmlobj>
</layoutobject>
<shape groupshapeid="0" groupnode="0" />
</ddscontrol>
<ddscontrol controlprogid="DdsShapes.DdsObjectManagedBridge.2"
tooltip="DimProduct" left="16364" top="-564" logicalid="22" controlid="7" masterid="0"
hint1="0" hint2="0" width="4366" height="5000" noresize="0" nomove="0"
nodefaultattachpoints="0" autodrag="1" usedefaultiddshape="1" selectable="1"
showselectionhandles="1" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
    <control>
        <ddxmlobjectstreaminitwrapper binary="00080000e1100088130000" />
    </control>
    <layoutobject>
        <ddxmlobj>
            <property name="LogicalObject" value="dbo_DimProduct" vartype="8" />
        </ddxmlobj>
    </layoutobject>
</shape groupshapeid="0" groupnode="0" />
</ddscontrol>
<ddscontrol controlprogid="MSDDS.Polyline" left="2348" top="1288"
logicalid="23" controlid="8" masterid="0" hint1="0" hint2="0" width="4446" height="4516"
noresize="0" nomove="0" nodefaultattachpoints="1" autodrag="0" usedefaultiddshape="0"
selectable="1" showselectionhandles="0" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
    <control>
        <ddxmlobj>
            <polyline endtypedst="6" endtypesrc="3" usercolor="0" linestyle="0"
linerender="1" customendtypedstid="0" customendtypesrcid="0" adornsvisible="1" />
        </ddxmlobj>
    </control>
    <layoutobject>
        <ddxmlobj>
            <property name="LogicalObject"
value="dataSet.Relations[FK_FactInternetSales_DimSalesTerritory]" vartype="8" />
            <property name="Virtual" value="0" vartype="11" />
            <property name="VisibleAP" value="0" vartype="3" />
        </ddxmlobj>
    </layoutobject>
    <connector lineroutestyle="MSDDS.Rectilinear" sourceid="1" destid="2"
sourceattachpoint="15" destattachpoint="22" segmenteditmode="0" bendpointeditmode="0"
bendpointvisibility="0" relatedid="0" virtual="0">
        <point x="2648" y="1687" />
        <point x="5718" y="1687" />
        <point x="5718" y="5504" />
        <point x="6494" y="5504" />
    </connector>
</ddscontrol>
<ddscontrol controlprogid="MSDDS.Polyline" left="3992" top="7704"
logicalid="24" controlid="9" masterid="0" hint1="0" hint2="0" width="4302" height="2924"
noresize="0" nomove="0" nodefaultattachpoints="1" autodrag="0" usedefaultiddshape="0"
selectable="1" showselectionhandles="0" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
    <control>
        <ddxmlobj>
            <polyline endtypedst="6" endtypesrc="3" usercolor="0" linestyle="0"
linerender="1" customendtypedstid="0" customendtypesrcid="0" adornsvisible="1" />
        </ddxmlobj>
    </control>
    <layoutobject>

```

```

        <ddxmlobj>
            <property name="LogicalObject"
value="dataSet.Relations[FK_FactInternetSales_DimDate]" vartype="8" />
            <property name="Virtual" value="0" vartype="11" />
            <property name="VisibleAP" value="0" vartype="3" />
        </ddxmlobj>
    </layoutobject>
    <connector lineroutestyle="MSDDS.Rectilinear" sourceid="6" destid="2"
sourceattachpoint="12" destattachpoint="5" segmenteditmode="0" bendpointeditmode="0"
bendpointvisibility="0" relatedid="0" virtual="0">
        <point x="4391" y="10128" />
        <point x="4391" y="9066" />
        <point x="7994" y="9066" />
        <point x="7994" y="8004" />
    </connector>
</ddscontrol>
<ddscontrol controlprogid="MSDDS.Polyline" left="3442" top="7704"
logicalid="25" controlid="10" masterid="0" hint1="0" hint2="0" width="4302" height="2924"
noresize="0" nomove="0" nodefaultattachpoints="1" autodrag="0" usedefaultiddshape="0"
selectable="1" showselectionhandles="0" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
    <control>
        <ddxmlobj>
            <polyline endtypedst="6" endtypesrc="3" usercolor="0" linestyle="0"
linerender="1" customendtypedstid="0" customendtypesrcid="0" adornsvisible="1" />
        </ddxmlobj>
    </control>
</layoutobject>
<ddxmlobj>
    <property name="LogicalObject"
value="dataSet.Relations[FK_FactInternetSales_DimDate2]" vartype="8" />
    <property name="Virtual" value="0" vartype="11" />
    <property name="VisibleAP" value="0" vartype="3" />
</ddxmlobj>
</layoutobject>
<connector lineroutestyle="MSDDS.Rectilinear" sourceid="6" destid="2"
sourceattachpoint="10" destattachpoint="3" segmenteditmode="0" bendpointeditmode="0"
bendpointvisibility="0" relatedid="0" virtual="0">
        <point x="3841" y="10128" />
        <point x="3841" y="9066" />
        <point x="7444" y="9066" />
        <point x="7444" y="8004" />
    </connector>
</ddscontrol>
<ddscontrol controlprogid="MSDDS.Polyline" left="2892" top="7704"
logicalid="26" controlid="11" masterid="0" hint1="0" hint2="0" width="4302" height="2924"
noresize="0" nomove="0" nodefaultattachpoints="1" autodrag="0" usedefaultiddshape="0"
selectable="1" showselectionhandles="0" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
    <control>
        <ddxmlobj>
            <polyline endtypedst="6" endtypesrc="3" usercolor="0" linestyle="0"
linerender="1" customendtypedstid="0" customendtypesrcid="0" adornsvisible="1" />
        </ddxmlobj>
    </control>
</layoutobject>
<ddxmlobj>
    <property name="LogicalObject"
value="dataSet.Relations[FK_FactInternetSales_DimDate1]" vartype="8" />
    <property name="Virtual" value="0" vartype="11" />

```



```

        <property name="VisibleAP" value="0" vartype="3" />
    </ddsxmlobj>
</layoutobj>
<connector lineroutestyle="MSDDS.Rectilinear" sourceid="6" destid="2"
sourceattachpoint="8" destattachpoint="1" segmenteditmode="0" bendpointeditmode="0"
bendpointvisibility="0" relatedid="0" virtual="0">
    <point x="3291" y="10128" />
    <point x="3291" y="9066" />
    <point x="6894" y="9066" />
    <point x="6894" y="8004" />
</connector>
</ddscontrol>
<ddscontrol controlprogid="MSDDS.Polyline" left="10295" top="5754"
logicalid="27" controlid="12" masterid="0" hint1="0" hint2="0" width="2493" height="5200"
noresize="0" nomove="0" nodefaultattachpoints="1" autodrag="0" usedefaultiddshape="0"
selectable="1" showselectionhandles="0" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
    <control>
        <ddsxmlobj>
            <polyline endtypedst="6" endtypesrc="3" usercolor="0" linestyle="0"
linerender="1" customendtypedstid="0" customendtypesrcid="0" adornsvisible="1" />
        </ddsxmlobj>
    </control>
    <layoutobj>
        <ddsxmlobj>
            <property name="LogicalObject"
value="dataSet.Relations[FK_FactInternetSales_DimCustomer]" vartype="8" />
            <property name="Virtual" value="0" vartype="11" />
            <property name="VisibleAP" value="0" vartype="3" />
        </ddsxmlobj>
    </layoutobj>
    <connector lineroutestyle="MSDDS.Rectilinear" sourceid="3" destid="2"
sourceattachpoint="10" destattachpoint="25" segmenteditmode="0" bendpointeditmode="0"
bendpointvisibility="0" relatedid="0" virtual="0">
        <point x="12388" y="10454" />
        <point x="12388" y="6054" />
        <point x="10595" y="6054" />
    </connector>
</ddscontrol>
<ddscontrol controlprogid="MSDDS.Polyline" left="10295" top="1537"
logicalid="28" controlid="13" masterid="0" hint1="0" hint2="0" width="6369" height="3167"
noresize="0" nomove="0" nodefaultattachpoints="1" autodrag="0" usedefaultiddshape="0"
selectable="1" showselectionhandles="0" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
    <control>
        <ddsxmlobj>
            <polyline endtypedst="6" endtypesrc="3" usercolor="0" linestyle="0"
linerender="1" customendtypedstid="0" customendtypesrcid="0" adornsvisible="1" />
        </ddsxmlobj>
    </control>
    <layoutobj>
        <ddsxmlobj>
            <property name="LogicalObject"
value="dataSet.Relations[FK_FactInternetSales_DimProduct]" vartype="8" />
            <property name="Virtual" value="0" vartype="11" />
            <property name="VisibleAP" value="0" vartype="3" />
        </ddsxmlobj>
    </layoutobj>
    <connector lineroutestyle="MSDDS.Rectilinear" sourceid="7" destid="2"
sourceattachpoint="22" destattachpoint="19" segmenteditmode="0" bendpointeditmode="0"
bendpointvisibility="0" relatedid="0" virtual="0">

```

```

        <point x="16364" y="1936" />
        <point x="12510" y="1936" />
        <point x="12510" y="4404" />
        <point x="10595" y="4404" />
    </connector>
</ddscontrol>
<ddscontrol controlprogid="MSDDS.Polyline" left="18148" top="10108"
logicalid="29" controlid="14" masterid="0" hint1="0" hint2="0" width="799" height="3200"
noresize="0" nomove="0" nodefaultattachpoints="1" autodrag="0" usedefaultiddshape="0"
selectable="1" showselectionhandles="0" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
    <control>
        <ddsxmlobj>
            <polyline endtypedst="6" endtypesrc="3" usercolor="0" linestyle="0"
linerender="1" customendtypedstid="0" customendtypesrcid="0" adornsvisible="1" />
        </ddsxmlobj>
    </control>
    <layoutobject>
        <ddsxmlobj>
            <property name="LogicalObject"
value="dataSet.Relations[FK_DimProductSubcategory_DimProductCategory]" vartype="8" />
            <property name="Virtual" value="0" vartype="11" />
            <property name="VisibleAP" value="0" vartype="3" />
        </ddsxmlobj>
    </layoutobject>
    <connector lineroutestyle="MSDDS.Rectilinear" sourceid="5" destid="4"
sourceattachpoint="8" destattachpoint="9" segmenteditmode="0" bendpointeditmode="0"
bendpointvisibility="0" relatedid="0" virtual="0">
        <point x="18547" y="12808" />
        <point x="18547" y="10408" />
    </connector>
</ddscontrol>
<ddscontrol controlprogid="MSDDS.Polyline" left="18148" top="4136"
logicalid="30" controlid="15" masterid="0" hint1="0" hint2="0" width="799" height="3200"
noresize="0" nomove="0" nodefaultattachpoints="1" autodrag="0" usedefaultiddshape="0"
selectable="1" showselectionhandles="0" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
    <control>
        <ddsxmlobj>
            <polyline endtypedst="6" endtypesrc="3" usercolor="0" linestyle="0"
linerender="1" customendtypedstid="0" customendtypesrcid="0" adornsvisible="1" />
        </ddsxmlobj>
    </control>
    <layoutobject>
        <ddsxmlobj>
            <property name="LogicalObject"
value="dataSet.Relations[FK_DimProduct_DimProductSubcategory]" vartype="8" />
            <property name="Virtual" value="0" vartype="11" />
            <property name="VisibleAP" value="0" vartype="3" />
        </ddsxmlobj>
    </layoutobject>
    <connector lineroutestyle="MSDDS.Rectilinear" sourceid="4" destid="7"
sourceattachpoint="8" destattachpoint="7" segmenteditmode="0" bendpointeditmode="0"
bendpointvisibility="0" relatedid="0" virtual="0">
        <point x="18547" y="6836" />
        <point x="18547" y="4436" />
    </connector>
</ddscontrol>
</dds>
</Value>

```

```

    </Annotation>
    <Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:ShowFriendlyNames</Name>
    <Value>true</Value>
    </Annotation>
    <Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:ShowRelationshipNames</Name>
    <Value>false</Value>
    </Annotation>
    <Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:UseDiagramDefaultLayout</Name>
    <Value>true</Value>
    </Annotation>
    <Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramViewPortLeft</Name>
    <Value>-2240</Value>
    </Annotation>
    <Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramViewPortTop</Name>
    <Value>5062</Value>
    </Annotation>
    <Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramBoundingLeft</Name>
    <Value>-1850</Value>
    </Annotation>
    <Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramBoundingTop</Name>
    <Value>-564</Value>
    </Annotation>
    <Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramZoom</Name>
    <Value>75</Value>
    </Annotation>
</Annotations>
<Language>1033</Language>
<Collation>Latin1_General_CI_AS</Collation>
<Dimensions>
    <Dimension>
        <ID>Order Date</ID>
        <Name>Order Date</Name>
        <DimensionID>Dim Date</DimensionID>
        <Attributes>
            <Attribute>
                <AttributeID>Date Key</AttributeID>
            </Attribute>
            <Attribute>
                <AttributeID>Full Date Alternate Key</AttributeID>
            </Attribute>
            <Attribute>
                <AttributeID>Week Number Of Year</AttributeID>
            </Attribute>
            <Attribute>

```

```

        <AttributeID>Calendar Quarter</AttributeID>
    </Attribute>
</Attribute>
        <AttributeID>English Month Name</AttributeID>
    </Attribute>
</Attribute>
        <AttributeID>Calendar Year</AttributeID>
    </Attribute>
</Attributes>
<Hierarchies>
    <Hierarchy>
        <HierarchyID>Hierarchy</HierarchyID>
    </Hierarchy>
</Hierarchies>
</Dimension>
<Dimension>
    <ID>Ship Date</ID>
    <Name>Ship Date</Name>
    <DimensionID>Dim Date</DimensionID>
    <Attributes>
        <Attribute>
            <AttributeID>Date Key</AttributeID>
        </Attribute>
        <Attribute>
            <AttributeID>Full Date Alternate Key</AttributeID>
        </Attribute>
        <Attribute>
            <AttributeID>Week Number Of Year</AttributeID>
        </Attribute>
        <Attribute>
            <AttributeID>Calendar Quarter</AttributeID>
        </Attribute>
        <Attribute>
            <AttributeID>English Month Name</AttributeID>
        </Attribute>
        <Attribute>
            <AttributeID>Calendar Year</AttributeID>
        </Attribute>
    </Attributes>
    <Hierarchies>
        <Hierarchy>
            <HierarchyID>Hierarchy</HierarchyID>
        </Hierarchy>
    </Hierarchies>
</Dimension>
<Dimension>
    <ID>Due Date</ID>
    <Name>Due Date</Name>
    <DimensionID>Dim Date</DimensionID>
    <Attributes>
        <Attribute>
            <AttributeID>Date Key</AttributeID>
        </Attribute>
        <Attribute>
            <AttributeID>Full Date Alternate Key</AttributeID>
        </Attribute>
        <Attribute>
            <AttributeID>Week Number Of Year</AttributeID>
        </Attribute>
    </Attributes>

```

```

    <Attribute>
      <AttributeID>Calendar Quarter</AttributeID>
    </Attribute>
  </Attribute>
  <Attribute>
    <AttributeID>English Month Name</AttributeID>
  </Attribute>
  <Attribute>
    <AttributeID>Calendar Year</AttributeID>
  </Attribute>
</Attributes>
<Hierarchies>
  <Hierarchy>
    <HierarchyID>Hierarchy</HierarchyID>
  </Hierarchy>
</Hierarchies>
</Dimension>
<Dimension>
  <ID>Dim Customer</ID>
  <Name>Customer</Name>
  <DimensionID>Dim Customer</DimensionID>
  <Attributes>
    <Attribute>
      <AttributeID>Customer Key</AttributeID>
    </Attribute>
  </Attributes>
</Dimension>
<Dimension>
  <ID>Dim Sales Territory</ID>
  <Name>Sales Territory</Name>
  <DimensionID>Dim Sales Territory</DimensionID>
  <Attributes>
    <Attribute>
      <AttributeID>Sales Territory Key</AttributeID>
    </Attribute>
  </Attributes>
</Dimension>
<Dimension>
  <ID>Dim Product</ID>
  <Name>Product</Name>
  <DimensionID>Dim Product</DimensionID>
  <Attributes>
    <Attribute>
      <AttributeID>Product Key</AttributeID>
    </Attribute>
    <Attribute>
      <AttributeID>English Product Name</AttributeID>
    </Attribute>
    <Attribute>
      <AttributeID>English Product Subcategory Name</AttributeID>
    </Attribute>
    <Attribute>
      <AttributeID>Product Subcategory Key</AttributeID>
    </Attribute>
    <Attribute>
      <AttributeID>Product Category Key</AttributeID>
    </Attribute>
    <Attribute>
      <AttributeID>English Product Category Name</AttributeID>
    </Attribute>
  </Attributes>

```

```

</Attributes>
<Hierarchies>
  <Hierarchy>
    <HierarchyID>Hierarchy</HierarchyID>
  </Hierarchy>
</Hierarchies>
</Dimension>
</Dimensions>
<MeasureGroups>
  <MeasureGroup>
    <ID>Fact Internet Sales</ID>
    <Name>Fact Internet Sales</Name>
    <Measures>
      <Measure>
        <ID>Order Quantity</ID>
        <Name>Order Quantity</Name>
        <DataType>Integer</DataType>
        <Source>
          <DataType>Integer</DataType>
          <Source xsi:type="ColumnBinding">
            <TableID>dbo_FactInternetSales</TableID>
            <ColumnID>OrderQuantity</ColumnID>
          </Source>
        </Source>
      </Measure>
      <Measure>
        <ID>Sales Amount</ID>
        <Name>Sales Amount</Name>
        <DataType>Double</DataType>
        <Source>
          <DataType>Double</DataType>
          <Source xsi:type="ColumnBinding">
            <TableID>dbo_FactInternetSales</TableID>
            <ColumnID>SalesAmount</ColumnID>
          </Source>
        </Source>
      </Measure>
      <Measure>
        <ID>Tax Amt</ID>
        <Name>Tax Amt</Name>
        <DataType>Double</DataType>
        <Source>
          <DataType>Double</DataType>
          <Source xsi:type="ColumnBinding">
            <TableID>dbo_FactInternetSales</TableID>
            <ColumnID>TaxAmt</ColumnID>
          </Source>
        </Source>
      </Measure>
      <Measure>
        <ID>Fact Internet Sales Count</ID>
        <Name>Fact Internet Sales Count</Name>
        <AggregateFunction>Count</AggregateFunction>
        <DataType>Integer</DataType>
        <Source>
          <DataType>Integer</DataType>
          <DataSize>4</DataSize>
          <Source xsi:type="RowBinding">
            <TableID>dbo_FactInternetSales</TableID>

```

```

        </Source>
    </Source>
</Measure>
<Measure>
    <ID>Total Amount</ID>
    <Name>Total Amount</Name>
    <DataType>Double</DataType>
    <Source>
        <DataType>Double</DataType>
        <Source xsi:type="ColumnBinding">
            <TableID>dbo_FactInternetSales</TableID>
            <ColumnID>Total_x0020_Amount</ColumnID>
        </Source>
    </Source>
</Measure>
</Measures>
<StorageMode>Molap</StorageMode>
<EstimatedRows>60398</EstimatedRows>
<ProcessingMode>Regular</ProcessingMode>
<Dimensions>
    <Dimension xsi:type="RegularMeasureGroupDimension">
        <CubeDimensionID>Dim Customer</CubeDimensionID>
        <Attributes>
            <Attribute>
                <AttributeID>Customer Key</AttributeID>
                <KeyColumns>
                    <KeyColumn>
                        <DataType>Integer</DataType>
                        <Source xsi:type="ColumnBinding">
                            <TableID>dbo_FactInternetSales</TableID>
                            <ColumnID>CustomerKey</ColumnID>
                        </Source>
                    </KeyColumn>
                </KeyColumns>
                <Type>Granularity</Type>
            </Attribute>
        </Attributes>
    </Dimension>
    <Dimension xsi:type="RegularMeasureGroupDimension">
        <CubeDimensionID>Dim Sales Territory</CubeDimensionID>
        <Attributes>
            <Attribute>
                <AttributeID>Sales Territory Key</AttributeID>
                <KeyColumns>
                    <KeyColumn>
                        <DataType>Integer</DataType>
                        <Source xsi:type="ColumnBinding">
                            <TableID>dbo_FactInternetSales</TableID>
                            <ColumnID>SalesTerritoryKey</ColumnID>
                        </Source>
                    </KeyColumn>
                </KeyColumns>
                <Type>Granularity</Type>
            </Attribute>
        </Attributes>
    </Dimension>
    <Dimension xsi:type="RegularMeasureGroupDimension">
        <CubeDimensionID>Dim Product</CubeDimensionID>
        <Attributes>

```

```

<Attribute>
  <AttributeID>Product Key</AttributeID>
  <KeyColumns>
    <KeyColumn>
      <DataType>Integer</DataType>
      <Source xsi:type="ColumnBinding">
        <TableID>dbo_FactInternetSales</TableID>
        <ColumnID>ProductKey</ColumnID>
      </Source>
    </KeyColumn>
  </KeyColumns>
  <Type>Granularity</Type>
</Attribute>
<Attribute>
  <AttributeID>English Product Name</AttributeID>
  <KeyColumns>
    <KeyColumn>
      <DataType>WChar</DataType>
      <DataSize>50</DataSize>
      <Source xsi:type="InheritedBinding" />
    </KeyColumn>
  </KeyColumns>
</Attribute>
<Attribute>
  <AttributeID>English Product Subcategory Name</AttributeID>
  <KeyColumns>
    <KeyColumn>
      <DataType>WChar</DataType>
      <DataSize>50</DataSize>
      <Source xsi:type="InheritedBinding" />
    </KeyColumn>
  </KeyColumns>
</Attribute>
<Attribute>
  <AttributeID>Product Subcategory Key</AttributeID>
  <KeyColumns>
    <KeyColumn>
      <DataType>Integer</DataType>
      <Source xsi:type="InheritedBinding" />
    </KeyColumn>
  </KeyColumns>
</Attribute>
<Attribute>
  <AttributeID>Product Category Key</AttributeID>
  <KeyColumns>
    <KeyColumn>
      <DataType>Integer</DataType>
      <Source xsi:type="InheritedBinding" />
    </KeyColumn>
  </KeyColumns>
</Attribute>
<Attribute>
  <AttributeID>English Product Category Name</AttributeID>
  <KeyColumns>
    <KeyColumn>
      <DataType>WChar</DataType>
      <DataSize>50</DataSize>
      <Source xsi:type="InheritedBinding" />
    </KeyColumn>
  </KeyColumns>

```



```

        </KeyColumns>
    </Attribute>
</Attributes>
</Dimension>
<Dimension xsi:type="RegularMeasureGroupDimension">
    <CubeDimensionID>Due Date</CubeDimensionID>
    <Attributes>
        <Attribute>
            <AttributeID>Date Key</AttributeID>
            <KeyColumns>
                <KeyColumn>
                    <DataType>Integer</DataType>
                    <Source xsi:type="ColumnBinding">
                        <TableID>dbo_FactInternetSales</TableID>
                        <ColumnID>DueDateKey</ColumnID>
                    </Source>
                </KeyColumn>
            </KeyColumns>
            <Type>Granularity</Type>
        </Attribute>
        <Attribute>
            <AttributeID>Full Date Alternate Key</AttributeID>
            <KeyColumns>
                <KeyColumn>
                    <DataType>Date</DataType>
                    <Source xsi:type="InheritedBinding" />
                </KeyColumn>
            </KeyColumns>
        </Attribute>
        <Attribute>
            <AttributeID>Week Number Of Year</AttributeID>
            <KeyColumns>
                <KeyColumn>
                    <DataType>UnsignedTinyInt</DataType>
                    <Source xsi:type="InheritedBinding" />
                </KeyColumn>
            </KeyColumns>
        </Attribute>
        <Attribute>
            <AttributeID>Calendar Quarter</AttributeID>
            <KeyColumns>
                <KeyColumn>
                    <DataType>UnsignedTinyInt</DataType>
                    <Source xsi:type="InheritedBinding" />
                </KeyColumn>
            </KeyColumns>
        </Attribute>
        <Attribute>
            <AttributeID>English Month Name</AttributeID>
            <KeyColumns>
                <KeyColumn>
                    <DataType>WChar</DataType>
                    <DataSize>10</DataSize>
                    <Source xsi:type="InheritedBinding" />
                </KeyColumn>
            </KeyColumns>
        </Attribute>
        <Attribute>
            <AttributeID>Calendar Year</AttributeID>

```

```

        <KeyColumns>
            <KeyColumn>
                <DataType>SmallInt</DataType>
                <Source xsi:type="InheritedBinding" />
            </KeyColumn>
        </KeyColumns>
    </Attribute>
</Attributes>
</Dimension>
<Dimension xsi:type="RegularMeasureGroupDimension">
    <CubeDimensionID>Ship Date</CubeDimensionID>
    <Attributes>
        <Attribute>
            <AttributeID>Date Key</AttributeID>
            <KeyColumns>
                <KeyColumn>
                    <DataType>Integer</DataType>
                    <Source xsi:type="ColumnBinding">
                        <TableID>dbo_FactInternetSales</TableID>
                        <ColumnID>ShipDateKey</ColumnID>
                    </Source>
                </KeyColumn>
            </KeyColumns>
            <Type>Granularity</Type>
        </Attribute>
        <Attribute>
            <AttributeID>Full Date Alternate Key</AttributeID>
            <KeyColumns>
                <KeyColumn>
                    <DataType>Date</DataType>
                    <Source xsi:type="InheritedBinding" />
                </KeyColumn>
            </KeyColumns>
        </Attribute>
        <Attribute>
            <AttributeID>Week Number Of Year</AttributeID>
            <KeyColumns>
                <KeyColumn>
                    <DataType>UnsignedTinyInt</DataType>
                    <Source xsi:type="InheritedBinding" />
                </KeyColumn>
            </KeyColumns>
        </Attribute>
        <Attribute>
            <AttributeID>Calendar Quarter</AttributeID>
            <KeyColumns>
                <KeyColumn>
                    <DataType>UnsignedTinyInt</DataType>
                    <Source xsi:type="InheritedBinding" />
                </KeyColumn>
            </KeyColumns>
        </Attribute>
        <Attribute>
            <AttributeID>English Month Name</AttributeID>
            <KeyColumns>
                <KeyColumn>
                    <DataType>WChar</DataType>
                    <DataSize>10</DataSize>
                    <Source xsi:type="InheritedBinding" />
                </KeyColumn>
            </KeyColumns>
        </Attribute>
    </Attributes>
</Dimension>

```

```

        </KeyColumn>
    </KeyColumns>
</Attribute>
<Attribute>
    <AttributeID>Calendar Year</AttributeID>
    <KeyColumns>
        <KeyColumn>
            <DataType>SmallInt</DataType>
            <Source xsi:type="InheritedBinding" />
        </KeyColumn>
    </KeyColumns>
</Attribute>
</Attributes>
</Dimension>
<Dimension xsi:type="RegularMeasureGroupDimension">
    <CubeDimensionID>Order Date</CubeDimensionID>
    <Attributes>
        <Attribute>
            <AttributeID>Date Key</AttributeID>
            <KeyColumns>
                <KeyColumn>
                    <DataType>Integer</DataType>
                    <Source xsi:type="ColumnBinding">
                        <TableID>dbo_FactInternetSales</TableID>
                        <ColumnID>OrderDateKey</ColumnID>
                    </Source>
                </KeyColumn>
            </KeyColumns>
            <Type>Granularity</Type>
        </Attribute>
        <Attribute>
            <AttributeID>Full Date Alternate Key</AttributeID>
            <KeyColumns>
                <KeyColumn>
                    <DataType>Date</DataType>
                    <Source xsi:type="InheritedBinding" />
                </KeyColumn>
            </KeyColumns>
        </Attribute>
        <Attribute>
            <AttributeID>Week Number Of Year</AttributeID>
            <KeyColumns>
                <KeyColumn>
                    <DataType>UnsignedTinyInt</DataType>
                    <Source xsi:type="InheritedBinding" />
                </KeyColumn>
            </KeyColumns>
        </Attribute>
        <Attribute>
            <AttributeID>Calendar Quarter</AttributeID>
            <KeyColumns>
                <KeyColumn>
                    <DataType>UnsignedTinyInt</DataType>
                    <Source xsi:type="InheritedBinding" />
                </KeyColumn>
            </KeyColumns>
        </Attribute>
    </Attributes>
    <AttributeID>English Month Name</AttributeID>

```

```

        <KeyColumns>
          <KeyColumn>
            <DataType>WChar</DataType>
            <DataSize>10</DataSize>
            <Source xsi:type="InheritedBinding" />
          </KeyColumn>
        </KeyColumns>
      </Attribute>
    <Attribute>
      <AttributeID>Calendar Year</AttributeID>
      <KeyColumns>
        <KeyColumn>
          <DataType>SmallInt</DataType>
          <Source xsi:type="InheritedBinding" />
        </KeyColumn>
      </KeyColumns>
    </Attribute>
  </Attributes>
</Dimension>
</Dimensions>
<Partitions>
  <Partition>
    <ID>Fact Internet Sales</ID>
    <Name>Fact Internet Sales 01-04</Name>
    <Source xsi:type="DsvTableBinding">
      <DataSourceViewID>dsvAdventureWorksDW2008</DataSourceViewID>
      <TableID>dbo_FactInternetSales</TableID>
    </Source>
    <StorageMode>Molap</StorageMode>
    <ProcessingMode>Regular</ProcessingMode>
    <ProactiveCaching>
      <SilenceInterval>-PT1S</SilenceInterval>
      <Latency>-PT1S</Latency>
      <SilenceOverrideInterval>-PT1S</SilenceOverrideInterval>
      <ForceRebuildInterval>-PT1S</ForceRebuildInterval>
      <Source xsi:type="ProactiveCachingInheritedBinding" />
    </ProactiveCaching>
    <EstimatedRows>60398</EstimatedRows>
    <AggregationDesignID>AggregationDesign</AggregationDesignID>
  </Partition>
</Partitions>
<AggregationDesigns>
  <AggregationDesign>
    <ID>AggregationDesign</ID>
    <Name>AggregationDesign</Name>
    <EstimatedRows>60398</EstimatedRows>
    <Dimensions>
      <Dimension>
        <CubeDimensionID>Dim Customer</CubeDimensionID>
        <Attributes>
          <Attribute>
            <AttributeID>Customer Key</AttributeID>
            <EstimatedCount>18484</EstimatedCount>
          </Attribute>
        </Attributes>
      </Dimension>
      <Dimension>
        <CubeDimensionID>Dim Sales Territory</CubeDimensionID>
        <Attributes>

```

```

    <Attribute>
      <AttributeID>Sales Territory Key</AttributeID>
      <EstimatedCount>11</EstimatedCount>
    </Attribute>
  </Attributes>
</Dimension>
<Dimension>
  <CubeDimensionID>Dim Product</CubeDimensionID>
  <Attributes>
    <Attribute>
      <AttributeID>Product Key</AttributeID>
      <EstimatedCount>606</EstimatedCount>
    </Attribute>
    <Attribute>
      <AttributeID>English Product Name</AttributeID>
    </Attribute>
    <Attribute>
      <AttributeID>English Product Subcategory Name</AttributeID>
    </Attribute>
    <Attribute>
      <AttributeID>Product Subcategory Key</AttributeID>
    </Attribute>
    <Attribute>
      <AttributeID>Product Category Key</AttributeID>
    </Attribute>
    <Attribute>
      <AttributeID>English Product Category Name</AttributeID>
      <EstimatedCount>4</EstimatedCount>
    </Attribute>
  </Attributes>
</Dimension>
<Dimension>
  <CubeDimensionID>Due Date</CubeDimensionID>
  <Attributes>
    <Attribute>
      <AttributeID>Date Key</AttributeID>
      <EstimatedCount>1188</EstimatedCount>
    </Attribute>
    <Attribute>
      <AttributeID>Full Date Alternate Key</AttributeID>
    </Attribute>
    <Attribute>
      <AttributeID>Week Number Of Year</AttributeID>
    </Attribute>
    <Attribute>
      <AttributeID>Calendar Quarter</AttributeID>
    </Attribute>
    <Attribute>
      <AttributeID>English Month Name</AttributeID>
    </Attribute>
    <Attribute>
      <AttributeID>Calendar Year</AttributeID>
      <EstimatedCount>5</EstimatedCount>
    </Attribute>
  </Attributes>
</Dimension>
<Dimension>
  <CubeDimensionID>Ship Date</CubeDimensionID>
  <Attributes>

```

```

    <Attribute>
      <AttributeID>Date Key</AttributeID>
      <EstimatedCount>1188</EstimatedCount>
    </Attribute>
  </Attribute>
  <Attribute>
    <AttributeID>Full Date Alternate Key</AttributeID>
  </Attribute>
  <Attribute>
    <AttributeID>Week Number Of Year</AttributeID>
  </Attribute>
  <Attribute>
    <AttributeID>Calendar Quarter</AttributeID>
  </Attribute>
  <Attribute>
    <AttributeID>English Month Name</AttributeID>
  </Attribute>
  <Attribute>
    <AttributeID>Calendar Year</AttributeID>
    <EstimatedCount>5</EstimatedCount>
  </Attribute>
</Attributes>
</Dimension>
<Dimension>
  <CubeDimensionID>Order Date</CubeDimensionID>
  <Attributes>
    <Attribute>
      <AttributeID>Date Key</AttributeID>
      <EstimatedCount>1188</EstimatedCount>
    </Attribute>
    <Attribute>
      <AttributeID>Full Date Alternate Key</AttributeID>
    </Attribute>
    <Attribute>
      <AttributeID>Week Number Of Year</AttributeID>
    </Attribute>
    <Attribute>
      <AttributeID>Calendar Quarter</AttributeID>
    </Attribute>
    <Attribute>
      <AttributeID>English Month Name</AttributeID>
    </Attribute>
    <Attribute>
      <AttributeID>Calendar Year</AttributeID>
      <EstimatedCount>5</EstimatedCount>
    </Attribute>
  </Attributes>
</Dimension>
</Dimensions>
<Aggregations>
  <Aggregation>
    <ID>Aggregation 0</ID>
    <Name>Aggregation 0</Name>
    <Dimensions>
      <Dimension>
        <CubeDimensionID>Dim Customer</CubeDimensionID>
      </Dimension>
      <Dimension>
        <CubeDimensionID>Dim Sales Territory</CubeDimensionID>
      </Dimension>
    </Dimensions>
  </Aggregation>
</Aggregations>

```

```

<Dimension>
  <CubeDimensionID>Dim Product</CubeDimensionID>
  <Attributes>
    <Attribute>
      <AttributeID>English Product Category Name</AttributeID>
    </Attribute>
  </Attributes>
</Dimension>
<Dimension>
  <CubeDimensionID>Due Date</CubeDimensionID>
  <Attributes>
    <Attribute>
      <AttributeID>Calendar Year</AttributeID>
    </Attribute>
  </Attributes>
</Dimension>
<Dimension>
  <CubeDimensionID>Ship Date</CubeDimensionID>
</Dimension>
<Dimension>
  <CubeDimensionID>Order Date</CubeDimensionID>
</Dimension>
</Dimensions>
</Aggregation>
<Aggregation>
  <ID>Aggregation 1</ID>
  <Name>Aggregation 1</Name>
  <Dimensions>
    <Dimension>
      <CubeDimensionID>Dim Customer</CubeDimensionID>
    </Dimension>
    <Dimension>
      <CubeDimensionID>Dim Sales Territory</CubeDimensionID>
    </Dimension>
    <Dimension>
      <CubeDimensionID>Dim Product</CubeDimensionID>
      <Attributes>
        <Attribute>
          <AttributeID>English Product Category Name</AttributeID>
        </Attribute>
      </Attributes>
    </Dimension>
    <Dimension>
      <CubeDimensionID>Due Date</CubeDimensionID>
    </Dimension>
    <Dimension>
      <CubeDimensionID>Ship Date</CubeDimensionID>
      <Attributes>
        <Attribute>
          <AttributeID>Calendar Year</AttributeID>
        </Attribute>
      </Attributes>
    </Dimension>
    <Dimension>
      <CubeDimensionID>Order Date</CubeDimensionID>
    </Dimension>
  </Dimensions>
</Aggregation>
<Aggregation>

```

```

<ID>Aggregation 2</ID>
<Name>Aggregation 2</Name>
<Dimensions>
  <Dimension>
    <CubeDimensionID>Dim Customer</CubeDimensionID>
  </Dimension>
  <Dimension>
    <CubeDimensionID>Dim Sales Territory</CubeDimensionID>
  </Dimension>
  <Dimension>
    <CubeDimensionID>Dim Product</CubeDimensionID>
    <Attributes>
      <Attribute>
        <AttributeID>English Product Category Name</AttributeID>
      </Attribute>
    </Attributes>
  </Dimension>
  <Dimension>
    <CubeDimensionID>Due Date</CubeDimensionID>
  </Dimension>
  <Dimension>
    <CubeDimensionID>Ship Date</CubeDimensionID>
  </Dimension>
  <Dimension>
    <CubeDimensionID>Order Date</CubeDimensionID>
    <Attributes>
      <Attribute>
        <AttributeID>Calendar Year</AttributeID>
      </Attribute>
    </Attributes>
  </Dimension>
</Dimensions>
</Aggregation>
<Aggregation>
  <ID>Aggregation 3</ID>
  <Name>Aggregation 3</Name>
  <Dimensions>
    <Dimension>
      <CubeDimensionID>Dim Customer</CubeDimensionID>
    </Dimension>
    <Dimension>
      <CubeDimensionID>Dim Sales Territory</CubeDimensionID>
    </Dimension>
    <Dimension>
      <CubeDimensionID>Dim Product</CubeDimensionID>
    </Dimension>
    <Dimension>
      <CubeDimensionID>Due Date</CubeDimensionID>
      <Attributes>
        <Attribute>
          <AttributeID>Calendar Year</AttributeID>
        </Attribute>
      </Attributes>
    </Dimension>
    <Dimension>
      <CubeDimensionID>Ship Date</CubeDimensionID>
    </Dimension>
    <Dimension>
      <CubeDimensionID>Order Date</CubeDimensionID>
    </Dimension>
  </Dimensions>
</Aggregation>

```



```

        <Attributes>
            <Attribute>
                <AttributeID>Calendar Year</AttributeID>
            </Attribute>
        </Attributes>
    </Dimension>
</Dimensions>
</Aggregation>
<Aggregation>
    <ID>Aggregation 4</ID>
    <Name>Aggregation 4</Name>
    <Dimensions>
        <Dimension>
            <CubeDimensionID>Dim Customer</CubeDimensionID>
        </Dimension>
        <Dimension>
            <CubeDimensionID>Dim Sales Territory</CubeDimensionID>
        </Dimension>
        <Dimension>
            <CubeDimensionID>Dim Product</CubeDimensionID>
        </Dimension>
        <Dimension>
            <CubeDimensionID>Due Date</CubeDimensionID>
        </Dimension>
        <Dimension>
            <CubeDimensionID>Ship Date</CubeDimensionID>
            <Attributes>
                <Attribute>
                    <AttributeID>Calendar Year</AttributeID>
                </Attribute>
            </Attributes>
        </Dimension>
        <Dimension>
            <CubeDimensionID>Order Date</CubeDimensionID>
            <Attributes>
                <Attribute>
                    <AttributeID>Calendar Year</AttributeID>
                </Attribute>
            </Attributes>
        </Dimension>
    </Dimensions>
</Aggregation>
<Aggregation>
    <ID>Aggregation 5</ID>
    <Name>Aggregation 5</Name>
    <Dimensions>
        <Dimension>
            <CubeDimensionID>Dim Customer</CubeDimensionID>
        </Dimension>
        <Dimension>
            <CubeDimensionID>Dim Sales Territory</CubeDimensionID>
        </Dimension>
        <Dimension>
            <CubeDimensionID>Dim Product</CubeDimensionID>
        </Dimension>
        <Dimension>
            <CubeDimensionID>Due Date</CubeDimensionID>
            <Attributes>
                <Attribute>

```

```

        <AttributeID>Calendar Year</AttributeID>
      </Attribute>
    </Attributes>
  </Dimension>
<Dimension>
  <CubeDimensionID>Ship Date</CubeDimensionID>
  <Attributes>
    <Attribute>
      <AttributeID>Calendar Year</AttributeID>
    </Attribute>
  </Attributes>
</Dimension>
<Dimension>
  <CubeDimensionID>Order Date</CubeDimensionID>
</Dimension>
</Dimensions>
</Aggregation>
<Aggregation>
  <ID>Aggregation 6</ID>
  <Name>Aggregation 6</Name>
  <Dimensions>
    <Dimension>
      <CubeDimensionID>Dim Customer</CubeDimensionID>
    </Dimension>
    <Dimension>
      <CubeDimensionID>Dim Sales Territory</CubeDimensionID>
      <Attributes>
        <Attribute>
          <AttributeID>Sales Territory Key</AttributeID>
        </Attribute>
      </Attributes>
    </Dimension>
    <Dimension>
      <CubeDimensionID>Dim Product</CubeDimensionID>
      <Attributes>
        <Attribute>
          <AttributeID>English Product Category Name</AttributeID>
        </Attribute>
      </Attributes>
    </Dimension>
    <Dimension>
      <CubeDimensionID>Due Date</CubeDimensionID>
    </Dimension>
    <Dimension>
      <CubeDimensionID>Ship Date</CubeDimensionID>
    </Dimension>
    <Dimension>
      <CubeDimensionID>Order Date</CubeDimensionID>
    </Dimension>
  </Dimensions>
</Aggregation>
<Aggregation>
  <ID>Aggregation 7</ID>
  <Name>Aggregation 7</Name>
  <Dimensions>
    <Dimension>
      <CubeDimensionID>Dim Customer</CubeDimensionID>
    </Dimension>
    <Dimension>

```

```

        <CubeDimensionID>Dim Sales Territory</CubeDimensionID>
        <Attributes>
            <Attribute>
                <AttributeID>Sales Territory Key</AttributeID>
            </Attribute>
        </Attributes>
    </Dimension>
</Dimension>
    <CubeDimensionID>Dim Product</CubeDimensionID>
</Dimension>
<Dimension>
    <CubeDimensionID>Due Date</CubeDimensionID>
</Dimension>
<Dimension>
    <CubeDimensionID>Ship Date</CubeDimensionID>
</Dimension>
<Dimension>
    <CubeDimensionID>Order Date</CubeDimensionID>
    <Attributes>
        <Attribute>
            <AttributeID>Calendar Year</AttributeID>
        </Attribute>
    </Attributes>
</Dimension>
</Dimensions>
</Aggregation>
<Aggregation>
    <ID>Aggregation 8</ID>
    <Name>Aggregation 8</Name>
    <Dimensions>
        <Dimension>
            <CubeDimensionID>Dim Customer</CubeDimensionID>
        </Dimension>
        <Dimension>
            <CubeDimensionID>Dim Sales Territory</CubeDimensionID>
            <Attributes>
                <Attribute>
                    <AttributeID>Sales Territory Key</AttributeID>
                </Attribute>
            </Attributes>
        </Dimension>
        <Dimension>
            <CubeDimensionID>Dim Product</CubeDimensionID>
        </Dimension>
        <Dimension>
            <CubeDimensionID>Due Date</CubeDimensionID>
            <Attributes>
                <Attribute>
                    <AttributeID>Calendar Year</AttributeID>
                </Attribute>
            </Attributes>
        </Dimension>
        <Dimension>
            <CubeDimensionID>Ship Date</CubeDimensionID>
        </Dimension>
        <Dimension>
            <CubeDimensionID>Order Date</CubeDimensionID>
        </Dimension>
    </Dimensions>

```

```

        </Aggregation>
    </Aggregations>
</AggregationDesign>
</AggregationDesigns>
<ProactiveCaching>
    <SilenceInterval>-PT1S</SilenceInterval>
    <Latency>-PT1S</Latency>
    <SilenceOverrideInterval>-PT1S</SilenceOverrideInterval>
    <ForceRebuildInterval>-PT1S</ForceRebuildInterval>
    <Source xsi:type="ProactiveCachingInheritedBinding" />
</ProactiveCaching>
</MeasureGroup>
</MeasureGroups>
<Source>
    <DataSourceViewID>dsvAdventureWorksDW2008</DataSourceViewID>
</Source>
<MdxScripts>
    <MdxScript>
        <ID>MdxScript</ID>
        <Name>MdxScript</Name>
        <Commands>
            <Command>
                <Text>
                    /*
                    The CALCULATE command controls the aggregation of leaf cells in the cube.
                    If the CALCULATE command is deleted or modified, the data within the cube
                    is affected.
                    You should edit this command only if you manually specify how the cube is
                    aggregated.
                    */
                    CALCULATE;
                </Text>
            </Command>
        </Commands>
    </MdxScript>
</MdxScripts>
<ProactiveCaching>
    <SilenceInterval>-PT1S</SilenceInterval>
    <Latency>-PT1S</Latency>
    <SilenceOverrideInterval>-PT1S</SilenceOverrideInterval>
    <ForceRebuildInterval>-PT1S</ForceRebuildInterval>
    <Source xsi:type="ProactiveCachingInheritedBinding" />
</ProactiveCaching>
</Cube>
</Cubes>
<MiningStructures>
    <MiningStructure>
        <ID>Dim Product Mining</ID>
        <Name>Dim Product Mining</Name>
        <Annotations>
            <Annotation>
                <Name>MDXFilterComponent</Name>
                <Value>&lt;?xml version="1.0" encoding="utf-16"?&gt;&lt;Filter
                    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
                    xmlns:xsd="http://www.w3.org/2001/XMLSchema"
                    xmlns="http://schemas.microsoft.com/SQLServer/reporting/QuerySpecification"&gt;&lt;FilterItem
                    s xmlns="http://schemas.microsoft.com/AnalysisServices/QueryDefinition"
                    /&gt;&lt;/Filter&gt;</Value>
            </Annotation>
        </Annotations>
    </MiningStructure>
</MiningStructures>

```

```

    <Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:ShowFriendlyNames</Name>
  <Value>true</Value>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramLayout</Name>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:ShowRelationshipNames</Name>
  <Value>>false</Value>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:UseDiagramDefaultLayout</Name>
  <Value>true</Value>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramViewPortLeft</Name>
  <Value>0</Value>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramViewPortTop</Name>
  <Value>0</Value>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramBoundingLeft</Name>
  <Value>0</Value>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramBoundingTop</Name>
  <Value>0</Value>
</Annotation>
<Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramZoom</Name>
  <Value>100</Value>
</Annotation>
</Annotations>
<Source xsi:type="CubeDimensionBinding">
  <DataSourceID>.</DataSourceID>
  <CubeID>AdventureWorksDW2008Cube</CubeID>
  <CubeDimensionID>Dim Product</CubeDimensionID>
</Source>
<Language>1033</Language>
<Collation>Latin1_General_CI_AS</Collation>
<Columns>
  <Column xsi:type="ScalarMiningStructureColumn">
    <ID>English Product Name</ID>
    <Name>English Product Name</Name>
    <IsKey>true</IsKey>
    <Type>Text</Type>
    <Source xsi:type="CubeAttributeBinding">
      <CubeID>AdventureWorksDW2008Cube</CubeID>

```

```

        <CubeDimensionID>Dim Product</CubeDimensionID>
        <AttributeID>English Product Name</AttributeID>
        <Type>All</Type>
    </Source>
    <Content>Key</Content>
</Column>
<Column xsi:type="ScalarMiningStructureColumn">
    <ID>Order Quantity</ID>
    <Name>Order Quantity</Name>
    <Type>Long</Type>
    <Source xsi:type="MeasureBinding">
        <MeasureID>Order Quantity</MeasureID>
    </Source>
    <Content>Continuous</Content>
</Column>
<Column xsi:type="ScalarMiningStructureColumn">
    <ID>Sales Amount</ID>
    <Name>Sales Amount</Name>
    <Type>Double</Type>
    <Source xsi:type="MeasureBinding">
        <MeasureID>Sales Amount</MeasureID>
    </Source>
    <Content>Continuous</Content>
</Column>
<Column xsi:type="ScalarMiningStructureColumn">
    <ID>Tax Amt</ID>
    <Name>Tax Amt</Name>
    <Type>Double</Type>
    <Source xsi:type="MeasureBinding">
        <MeasureID>Tax Amt</MeasureID>
    </Source>
    <Content>Continuous</Content>
</Column>
<Column xsi:type="ScalarMiningStructureColumn">
    <ID>Total Amount</ID>
    <Name>Total Amount</Name>
    <Type>Double</Type>
    <Source xsi:type="MeasureBinding">
        <MeasureID>Total Amount</MeasureID>
    </Source>
    <Content>Continuous</Content>
</Column>
</Columns>
<MiningModels>
    <MiningModel>
        <ID>Dim Product</ID>
        <Name>Dim Product</Name>
        <Algorithm>Microsoft_Decision_Trees</Algorithm>
        <Columns>
            <Column>
                <ID>English Product Name</ID>
                <Name>English Product Name</Name>
                <SourceColumnID>English Product Name</SourceColumnID>
                <Usage>Key</Usage>
            </Column>
            <Column>
                <ID>Order Quantity</ID>
                <Name>Order Quantity</Name>
                <SourceColumnID>Order Quantity</SourceColumnID>

```

```

        <ModelingFlags>
          <ModelingFlag>REGRESSOR</ModelingFlag>
        </ModelingFlags>
      </Column>
    <Column>
      <ID>Sales Amount</ID>
      <Name>Sales Amount</Name>
      <SourceColumnID>Sales Amount</SourceColumnID>
      <Usage>Predict</Usage>
      <ModelingFlags>
        <ModelingFlag>REGRESSOR</ModelingFlag>
      </ModelingFlags>
    </Column>
    <Column>
      <ID>Tax Amt</ID>
      <Name>Tax Amt</Name>
      <SourceColumnID>Tax Amt</SourceColumnID>
      <ModelingFlags>
        <ModelingFlag>REGRESSOR</ModelingFlag>
      </ModelingFlags>
    </Column>
    <Column>
      <ID>Total Amount</ID>
      <Name>Total Amount</Name>
      <SourceColumnID>Total Amount</SourceColumnID>
      <ModelingFlags>
        <ModelingFlag>REGRESSOR</ModelingFlag>
      </ModelingFlags>
    </Column>
  </Columns>
  <AllowDrillThrough>true</AllowDrillThrough>
  <Language>1033</Language>
  <Collation>Latin1_General_CI_AS</Collation>
</MiningModel>
</MiningModels>
<ddl100_100:HoldoutMaxPercent>30</ddl100_100:HoldoutMaxPercent>
</MiningStructure>
</MiningStructures>
<DataSources>
  <DataSource_xsi:type="RelationalDataSource">
    <ID>dsAdventureWorksDW2008</ID>
    <Name>dsAdventureWorksDW2008</Name>
    <ConnectionString>Provider=SQLNCLI10.1;Data Source=NY-SQL-02;Integrated
Security=SSPI;Initial Catalog=AdventureWorksDW2008</ConnectionString>
    <ImpersonationInfo>
      <ImpersonationMode>ImpersonateServiceAccount</ImpersonationMode>
    </ImpersonationInfo>
    <Timeout>PT0S</Timeout>
  </DataSource>
</DataSources>
<DataSourceViews>
  <DataSourceView>
    <ID>dsvAdventureWorksDW2008</ID>
    <Name>dsvAdventureWorksDW2008</Name>
    <Annotations>
      <Annotation>
        <Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:ShowFriendlyNames</Name>
        <Value>true</Value>
      </Annotation>
    </Annotations>
  </DataSourceView>
</DataSourceViews>

```

```

    </Annotation>
    <Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:CurrentLayout</Name>
    <Value>_ALL_TABLES_</Value>
    </Annotation>
    <Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:SchemaRestriction</Name>
    </Annotation>
    <Annotation>

<Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:RetrieveRelationships</Name>
    <Value>true</Value>
    </Annotation>
    <Annotation>
    <Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:Layouts</Name>
    <Value>
        <Layouts xmlns="">
            <Diagram>
                <Name>_ALL_TABLES_</Name>
                <DiagramLayout>
                    <dds>
                        <diagram fontclsid="{0BE35203-8F91-11CE-9DE3-00AA004BB851}"
mouseiconclsid="{0BE35204-8F91-11CE-9DE3-00AA004BB851}" defaultlayout="MSDDS.Rectilinear"
defaultlineroute="MSDDS.Rectilinear" version="7" nextobject="32" scale="100"
pagebreakanchorx="0" pagebreakanchory="0" pagebreaksizex="0" pagebreaksizey="0"
scrollleft="4450" scrolltop="7616" gridx="150" gridy="150" marginx="5000" marginy="5000"
zoom="75" x="14975" y="12938" bgcolor="15334399" defaultpersistence="2"
PrintPageNumbersMode="3" PrintMarginTop="0" PrintMarginBottom="635" PrintMarginLeft="0"
PrintMarginRight="0" marqueeselectionmode="0" mousepointer="0" snaptogrid="0"
autotypeannotation="1" showscrollbars="1" viewpagebreaks="0"
donotforceconnectorsbehindshapes="1" backpictureclsid="{00000000-0000-0000-0000-
000000000000}">
                            <font>
                                <ddsxmlobjectstreamwrapper
binary="01000000900144420100065461686f6d61" />
                            </font>
                            <mouseicon>
                                <ddsxmlobjectstreamwrapper binary="6c74000000000000" />
                            </mouseicon>
                        </diagram>
                    <layoutmanager>
                        <ddsxmlobj />
                    </layoutmanager>
                    <ddscontrol controlprogid="DdsShapes.DdsObjectManagedBridge.2"
tooltip="FactInternetSales" left="6122" top="9460" logicalid="16" controlid="1" masterid="0"
hint1="0" hint2="0" width="4629" height="4965" noresize="0" nomove="0"
nodefaultattachpoints="0" autodrag="1" usedefaultiddshape="1" selectable="1"
showselectionhandles="1" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
                        <control>
                            <ddsxmlobjectstreaminitwrapper binary="000800001512000065130000"
/>
                        </control>
                    <layoutobject>
                        <ddsxmlobj>
                            <property name="LogicalObject" value="dbo_FactInternetSales"
vartype="8" />
                        </ddsxmlobj>
                    </layoutobject>
                </dds>
            </Diagram>
        </Layouts>
    </Value>
    </Annotation>

```



```

        <shape groupshapeid="0" groupnode="0" />
    </ddscontrol>
    <ddscontrol controlprogid="DdsShapes.DdsObjectManagedBridge.2"
tooltip="DimProduct" left="13981" top="0" logicalid="17" controlid="2" masterid="0" hint1="0"
hint2="0" width="4366" height="5000" noresize="0" nomove="0" nodefaultattachpoints="0"
autodrag="1" usedefaultiddshape="1" selectable="1" showselectionhandles="1" allownudging="1"
isannotation="0" dontautolayout="0" groupcollapsed="0" tabstop="1" visible="1"
snaptogrid="0">
        <control>
            <ddsxmlobjectstreaminitwrapper binary="000800000e11000088130000"
/>
        </control>
    </layoutobject>
    <ddsxmlobj>
        <property name="LogicalObject" value="dbo_DimProduct"
vartype="8" />
    </ddsxmlobj>
</layoutobject>
<shape groupshapeid="0" groupnode="0" />
</ddscontrol>
<ddscontrol controlprogid="DdsShapes.DdsObjectManagedBridge.2"
tooltip="DimSalesTerritory" left="0" top="10385" logicalid="18" controlid="3" masterid="0"
hint1="0" hint2="0" width="4498" height="3149" noresize="0" nomove="0"
nodefaultattachpoints="0" autodrag="1" usedefaultiddshape="1" selectable="1"
showselectionhandles="1" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
        <control>
            <ddsxmlobjectstreaminitwrapper binary="00080000921100004d0c0000"
/>
        </control>
    </layoutobject>
    <ddsxmlobj>
        <property name="LogicalObject" value="dbo_DimSalesTerritory"
vartype="8" />
    </ddsxmlobj>
</layoutobject>
<shape groupshapeid="0" groupnode="0" />
</ddscontrol>
<ddscontrol controlprogid="DdsShapes.DdsObjectManagedBridge.2"
tooltip="DimDate" left="3383" top="26320" logicalid="19" controlid="4" masterid="0" hint1="0"
hint2="0" width="4524" height="5000" noresize="0" nomove="0" nodefaultattachpoints="0"
autodrag="1" usedefaultiddshape="1" selectable="1" showselectionhandles="1" allownudging="1"
isannotation="0" dontautolayout="0" groupcollapsed="0" tabstop="1" visible="1"
snaptogrid="0">
        <control>
            <ddsxmlobjectstreaminitwrapper binary="00080000ac11000088130000"
/>
        </control>
    </layoutobject>
    <ddsxmlobj>
        <property name="LogicalObject" value="dbo_DimDate" vartype="8"
/>
    </ddsxmlobj>
</layoutobject>
<shape groupshapeid="0" groupnode="0" />
</ddscontrol>
<ddscontrol controlprogid="DdsShapes.DdsObjectManagedBridge.2"
tooltip="DimCustomer" left="10307" top="26320" logicalid="20" controlid="5" masterid="0"
hint1="0" hint2="0" width="4207" height="5000" noresize="0" nomove="0"
nodefaultattachpoints="0" autodrag="1" usedefaultiddshape="1" selectable="1"

```

```

showselectionhandles="1" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
    <control>
        <ddsxmlobjectstreaminitwrapper binary="000800006f10000088130000"
/>
    </control>
</layoutobject>
<ddsxmlobj>
    <property name="LogicalObject" value="dbo_DimCustomer"
vartype="8" />
</ddsxmlobj>
</layoutobject>
<shape groupshapeid="0" groupnode="0" />
</ddscontrol>
<ddscontrol controlprogid="DdsShapes.DdsObjectManagedBridge.2"
tooltip="DimProductCategory" left="13637" top="13372" logicalid="21" controlid="6"
masterid="0" hint1="0" hint2="0" width="5054" height="3149" noresize="0" nomove="0"
nodefaultattachpoints="0" autodrag="1" usedefaultiddshape="1" selectable="1"
showselectionhandles="1" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
    <control>
        <ddsxmlobjectstreaminitwrapper binary="00080000be1300004d0c0000"
/>
    </control>
</layoutobject>
<ddsxmlobj>
    <property name="LogicalObject" value="dbo_DimProductCategory"
vartype="8" />
</ddsxmlobj>
</layoutobject>
<shape groupshapeid="0" groupnode="0" />
</ddscontrol>
<ddscontrol controlprogid="DdsShapes.DdsObjectManagedBridge.2"
tooltip="DimProductSubcategory" left="13399" top="7400" logicalid="22" controlid="7"
masterid="0" hint1="0" hint2="0" width="5530" height="3572" noresize="0" nomove="0"
nodefaultattachpoints="0" autodrag="1" usedefaultiddshape="1" selectable="1"
showselectionhandles="1" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
    <control>
        <ddsxmlobjectstreaminitwrapper binary="000800009a150000f40d0000"
/>
    </control>
</layoutobject>
<ddsxmlobj>
    <property name="LogicalObject"
value="dbo_DimProductSubcategory" vartype="8" />
</ddsxmlobj>
</layoutobject>
<shape groupshapeid="0" groupnode="0" />
</ddscontrol>
<ddscontrol controlprogid="MSDDS.Polyline" left="6896" top="14125"
logicalid="23" controlid="8" masterid="0" hint1="0" hint2="0" width="1840" height="12695"
noresize="0" nomove="0" nodefaultattachpoints="1" autodrag="0" usedefaultiddshape="0"
selectable="1" showselectionhandles="0" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
    <control>
        <ddsxmlobj>
            <polyline endtypedst="6" endtypesrc="3" usercolor="0"
linestyle="0" linerender="1" customendtypedstid="0" customendtypesrcid="0" adornsvisible="1"
/>
        </ddsxmlobj>
    </control>

```

```

<layoutobject>
  <ddsxmlobj>
    <property name="LogicalObject"
value="dataSet.Relations[FK_FactInternetSales_DimDate]" vartype="8" />
    <property name="Virtual" value="0" vartype="11" />
    <property name="VisibleAP" value="0" vartype="3" />
  </ddsxmlobj>
</layoutobject>
<connector lineroutestyle="MSDDS.Rectilinear" sourceid="4"
destid="1" sourceattachpoint="12" destattachpoint="9" segmenteditmode="0"
bendpointeditmode="0" bendpointvisibility="0" relatedid="0" virtual="0">
  <point x="7295" y="26320" />
  <point x="7295" y="20390" />
  <point x="8436" y="20390" />
  <point x="8436" y="14425" />
</connector>
</ddscontrol>
<ddscontrol controlprogid="MSDDS.Polyline" left="6346" top="14125"
logicalid="24" controlid="9" masterid="0" hint1="0" hint2="0" width="1840" height="12695"
noresize="0" nomove="0" nodefaultattachpoints="1" autodrag="0" usedefaultiddshape="0"
selectable="1" showselectionhandles="0" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
  <control>
    <ddsxmlobj>
      <polyline endtypedst="6" endtypesrc="3" usercolor="0"
linestyle="0" linerender="1" customendtypedstid="0" customendtypesrcid="0" adornsvisible="1"
/>
    </ddsxmlobj>
  </control>
</layoutobject>
  <ddsxmlobj>
    <property name="LogicalObject"
value="dataSet.Relations[FK_FactInternetSales_DimDate2]" vartype="8" />
    <property name="Virtual" value="0" vartype="11" />
    <property name="VisibleAP" value="0" vartype="3" />
  </ddsxmlobj>
</layoutobject>
<connector lineroutestyle="MSDDS.Rectilinear" sourceid="4"
destid="1" sourceattachpoint="10" destattachpoint="7" segmenteditmode="0"
bendpointeditmode="0" bendpointvisibility="0" relatedid="0" virtual="0">
  <point x="6745" y="26320" />
  <point x="6745" y="20390" />
  <point x="7886" y="20390" />
  <point x="7886" y="14425" />
</connector>
</ddscontrol>
<ddscontrol controlprogid="MSDDS.Polyline" left="5796" top="14125"
logicalid="25" controlid="10" masterid="0" hint1="0" hint2="0" width="1840" height="12695"
noresize="0" nomove="0" nodefaultattachpoints="1" autodrag="0" usedefaultiddshape="0"
selectable="1" showselectionhandles="0" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
  <control>
    <ddsxmlobj>
      <polyline endtypedst="6" endtypesrc="3" usercolor="0"
linestyle="0" linerender="1" customendtypedstid="0" customendtypesrcid="0" adornsvisible="1"
/>
    </ddsxmlobj>
  </control>
</layoutobject>
  <ddsxmlobj>

```

```

        <property name="LogicalObject"
value="dataSet.Relations[FK_FactInternetSales_DimDate1]" vartype="8" />
        <property name="Virtual" value="0" vartype="11" />
        <property name="VisibleAP" value="0" vartype="3" />
    </ddsxmlobj>
</layoutobject>
    <connector lineroutestyle="MSDDS.Rectilinear" sourceid="4"
destid="1" sourceattachpoint="8" destattachpoint="5" segmenteditmode="0"
bendpointeditmode="0" bendpointvisibility="0" relatedid="0" virtual="0">
        <point x="6195" y="26320" />
        <point x="6195" y="20390" />
        <point x="7336" y="20390" />
        <point x="7336" y="14425" />
    </connector>
</ddscontrol>
    <ddscontrol controlprogid="MSDDS.Polyline" left="10451" top="13842"
logicalid="26" controlid="11" masterid="0" hint1="0" hint2="0" width="2359" height="12978"
noresize="0" nomove="0" nodefaultattachpoints="1" autodrag="0" usedefaultiddshape="0"
selectable="1" showselectionhandles="0" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
    <control>
        <ddsxmlobj>
            <polyline endtypedst="6" endtypesrc="3" usercolor="0"
linestyle="0" linerender="2" customendtypedstid="0" customendtypesrcid="0" adornsvisible="1"
/>
        </ddsxmlobj>
    </control>
</layoutobject>
    <ddsxmlobj>
        <property name="LogicalObject"
value="dataSet.Relations[FK_FactInternetSales_DimCustomer]" vartype="8" />
        <property name="Virtual" value="0" vartype="11" />
        <property name="VisibleAP" value="0" vartype="3" />
    </ddsxmlobj>
</layoutobject>
    <connector lineroutestyle="MSDDS.Rectilinear" sourceid="5"
destid="1" sourceattachpoint="6" destattachpoint="35" segmenteditmode="0"
bendpointeditmode="0" bendpointvisibility="0" relatedid="0" virtual="0">
        <point x="12410" y="26320" />
        <point x="12410" y="20390" />
        <point x="11828" y="20390" />
        <point x="11828" y="14142" />
        <point x="10751" y="14142" />
    </connector>
</ddscontrol>
    <ddscontrol controlprogid="MSDDS.Polyline" left="4198" top="11560"
logicalid="27" controlid="12" masterid="0" hint1="0" hint2="0" width="2224" height="799"
noresize="0" nomove="0" nodefaultattachpoints="1" autodrag="0" usedefaultiddshape="0"
selectable="1" showselectionhandles="0" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
    <control>
        <ddsxmlobj>
            <polyline endtypedst="6" endtypesrc="3" usercolor="0"
linestyle="0" linerender="1" customendtypedstid="0" customendtypesrcid="0" adornsvisible="1"
/>
        </ddsxmlobj>
    </control>
</layoutobject>
    <ddsxmlobj>
        <property name="LogicalObject"
value="dataSet.Relations[FK_FactInternetSales_DimSalesTerritory]" vartype="8" />

```

```

        <property name="Virtual" value="0" vartype="11" />
        <property name="VisibleAP" value="0" vartype="3" />
    </ddsxmlobj>
</layoutobj>
    <connector lineroutestyle="MSDDS.Rectilinear" sourceid="3"
destid="1" sourceattachpoint="19" destattachpoint="26" segmenteditmode="0"
bendpointeditmode="0" bendpointvisibility="0" relatedid="0" virtual="0">
        <point x="4498" y="11959" />
        <point x="5698" y="11959" />
        <point x="5698" y="11942" />
        <point x="6122" y="11942" />
    </connector>
</ddscontrol>
    <ddscontrol controlprogid="MSDDS.Polyline" left="10451" top="2101"
logicalid="28" controlid="13" masterid="0" hint1="0" hint2="0" width="3830" height="9041"
noresize="0" nomove="0" nodefaultattachpoints="1" autodrag="0" usedefaultiddshape="0"
selectable="1" showselectionhandles="0" allownudging="1" isannotation="0" dontauto layout="0"
groupcollapsed="0" tabstop="1" visible="1" snapto grid="0">
    <control>
        <ddsxmlobj>
            <polyline endtypedst="6" endtypesrc="3" usercolor="0"
linestyle="0" linerender="1" customendtypedstid="0" customendtypesrcid="0" adornsvisible="1"
/>
        </ddsxmlobj>
    </control>
    <layoutobj>
        <ddsxmlobj>
            <property name="LogicalObject"
value="dataSet.Relations[FK_FactInternetSales_DimProduct]" vartype="8" />
            <property name="Virtual" value="0" vartype="11" />
            <property name="VisibleAP" value="0" vartype="3" />
        </ddsxmlobj>
    </layoutobj>
    <connector lineroutestyle="MSDDS.Rectilinear" sourceid="2"
destid="1" sourceattachpoint="22" destattachpoint="23" segmenteditmode="0"
bendpointeditmode="0" bendpointvisibility="0" relatedid="0" virtual="0">
        <point x="13981" y="2500" />
        <point x="12490" y="2500" />
        <point x="12490" y="10842" />
        <point x="10751" y="10842" />
    </connector>
</ddscontrol>
    <ddscontrol controlprogid="MSDDS.Polyline" left="15765" top="4700"
logicalid="29" controlid="14" masterid="0" hint1="0" hint2="0" width="799" height="3200"
noresize="0" nomove="0" nodefaultattachpoints="1" autodrag="0" usedefaultiddshape="0"
selectable="1" showselectionhandles="0" allownudging="1" isannotation="0" dontauto layout="0"
groupcollapsed="0" tabstop="1" visible="1" snapto grid="0">
    <control>
        <ddsxmlobj>
            <polyline endtypedst="6" endtypesrc="3" usercolor="0"
linestyle="0" linerender="1" customendtypedstid="0" customendtypesrcid="0" adornsvisible="1"
/>
        </ddsxmlobj>
    </control>
    <layoutobj>
        <ddsxmlobj>
            <property name="LogicalObject"
value="dataSet.Relations[FK_DimProduct_Subcategory]" vartype="8" />
            <property name="Virtual" value="0" vartype="11" />
            <property name="VisibleAP" value="0" vartype="3" />
        </ddsxmlobj>
    </layoutobj>

```

```

        </layoutobject>
        <connector lineroutestyle="MSDDS.Rectilinear" sourceid="7"
destid="2" sourceattachpoint="8" destattachpoint="7" segmenteditmode="0"
bendpointeditmode="0" bendpointvisibility="0" relatedid="0" virtual="0">
        <point x="16164" y="7400" />
        <point x="16164" y="5000" />
        </connector>
    </ddscontrol>
    <ddscontrol controlprogid="MSDDS.Polyline" left="15765" top="10672"
logicalid="30" controlid="15" masterid="0" hint1="0" hint2="0" width="799" height="3200"
noresize="0" nomove="0" nodefaultattachpoints="1" autodrag="0" usedefaultiddshape="0"
selectable="1" showselectionhandles="0" allownudging="1" isannotation="0" dontautolayout="0"
groupcollapsed="0" tabstop="1" visible="1" snaptogrid="0">
        <control>
            <ddsxmlobj>
                <polyline endtypedst="6" endtypesrc="3" usercolor="0"
linestyle="0" linerender="1" customendtypedstid="0" customendtypesrcid="0" adornsvisible="1"
/>
            </ddsxmlobj>
        </control>
    </layoutobject>
    <ddsxmlobj>
        <property name="LogicalObject"
value="dataSet.Relations[FK_DimProductSubcategory_DimProductCategory]" vartype="8" />
        <property name="Virtual" value="0" vartype="11" />
        <property name="VisibleAP" value="0" vartype="3" />
    </ddsxmlobj>
</layoutobject>
    <connector lineroutestyle="MSDDS.Rectilinear" sourceid="6"
destid="7" sourceattachpoint="8" destattachpoint="9" segmenteditmode="0"
bendpointeditmode="0" bendpointvisibility="0" relatedid="0" virtual="0">
        <point x="16164" y="13372" />
        <point x="16164" y="10972" />
    </connector>
</ddscontrol>
</dds>
</DiagramLayout>
<ShowRelationshipNames>False</ShowRelationshipNames>
<UseDiagramDefaultLayout>True</UseDiagramDefaultLayout>
<DiagramViewPortLeft>4450</DiagramViewPortLeft>
<DiagramViewPortTop>7616</DiagramViewPortTop>
<DiagramBoundingLeft>0</DiagramBoundingLeft>
<DiagramBoundingTop>0</DiagramBoundingTop>
<DiagramZoom>75</DiagramZoom>
</Diagram>
</Layouts>
</Value>
</Annotation>
</Annotations>
<DataSourceID>dsAdventureWorksDW2008</DataSourceID>
<Schema>
    <xs:schema id="dsvAdventureWorksDW2008" xmlns=""
xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:msdata="urn:schemas-microsoft-com:xml-
msdata" xmlns:msprop="urn:schemas-microsoft-com:xml-msprop">
        <xs:element name="dsvAdventureWorksDW2008" msdata:IsDataSet="true"
msdata:UseCurrentLocale="true">
            <xs:complexType>
                <xs:choice minOccurs="0" maxOccurs="unbounded">

```

```

        <xs:element name="dbo_FactInternetSales"
msprop:FriendlyName="FactInternetSales" msprop:DbSchemaName="dbo"
msprop:DbTableName="vwFactInternetSales" msprop:TableType="View">
    <xs:complexType>
        <xs:sequence>
            <xs:element name="ProductKey" msprop:FriendlyName="ProductKey"
msprop:DbColumnName="ProductKey" type="xs:int" />
            <xs:element name="OrderDateKey" msprop:FriendlyName="OrderDateKey"
msprop:DbColumnName="OrderDateKey" type="xs:int" />
            <xs:element name="DueDateKey" msprop:FriendlyName="DueDateKey"
msprop:DbColumnName="DueDateKey" type="xs:int" />
            <xs:element name="ShipDateKey" msprop:FriendlyName="ShipDateKey"
msprop:DbColumnName="ShipDateKey" type="xs:int" />
            <xs:element name="CustomerKey" msprop:FriendlyName="CustomerKey"
msprop:DbColumnName="CustomerKey" type="xs:int" />
            <xs:element name="SalesTerritoryKey"
msprop:FriendlyName="SalesTerritoryKey" msprop:DbColumnName="SalesTerritoryKey" type="xs:int"
/>
            <xs:element name="OrderQuantity"
msprop:FriendlyName="OrderQuantity" msprop:DbColumnName="OrderQuantity" type="xs:short" />
            <xs:element name="SalesAmount" msprop:FriendlyName="SalesAmount"
msprop:DbColumnName="SalesAmount" type="xs:decimal" />
            <xs:element name="TaxAmt" msprop:FriendlyName="TaxAmt"
msprop:DbColumnName="TaxAmt" type="xs:decimal" />
            <xs:element name="Total_x0020_Amount" msdata:ReadOnly="true"
msprop:DbColumnName="Total Amount" msprop:ComputedColumnExpression="([SalesAmount]+[TaxAmt])"
msprop:Description="" msprop:IsLogical="True" type="xs:decimal" minOccurs="0" />
        </xs:sequence>
    </xs:complexType>
</xs:element>
    <xs:element name="dbo_DimProduct" msprop:FriendlyName="DimProduct"
msprop:DbSchemaName="dbo" msprop:DbTableName="DimProduct" msprop:TableType="Table">
    <xs:complexType>
        <xs:sequence>
            <xs:element name="ProductKey" msdata:ReadOnly="true"
msdata:AutoIncrement="true" msprop:FriendlyName="ProductKey" msprop:DbColumnName="ProductKey"
type="xs:int" />
            <xs:element name="ProductAlternateKey"
msprop:FriendlyName="ProductAlternateKey" msprop:DbColumnName="ProductAlternateKey"
minOccurs="0">
                <xs:simpleType>
                    <xs:restriction base="xs:string">
                        <xs:maxLength value="25" />
                    </xs:restriction>
                </xs:simpleType>
            </xs:element>
            <xs:element name="ProductSubcategoryKey"
msprop:FriendlyName="ProductSubcategoryKey" msprop:DbColumnName="ProductSubcategoryKey"
type="xs:int" minOccurs="0" />
            <xs:element name="WeightUnitMeasureCode"
msprop:FriendlyName="WeightUnitMeasureCode" msprop:DbColumnName="WeightUnitMeasureCode"
minOccurs="0">
                <xs:simpleType>
                    <xs:restriction base="xs:string">
                        <xs:maxLength value="3" />
                    </xs:restriction>
                </xs:simpleType>
            </xs:element>
            <xs:element name="SizeUnitMeasureCode"
msprop:FriendlyName="SizeUnitMeasureCode" msprop:DbColumnName="SizeUnitMeasureCode"
minOccurs="0">

```

```

        <xs:simpleType>
          <xs:restriction base="xs:string">
            <xs:maxLength value="3" />
          </xs:restriction>
        </xs:simpleType>
      </xs:element>
      <xs:element name="EnglishProductName"
msprop:FriendlyName="EnglishProductName" msprop:DbColumnName="EnglishProductName">
        <xs:simpleType>
          <xs:restriction base="xs:string">
            <xs:maxLength value="50" />
          </xs:restriction>
        </xs:simpleType>
      </xs:element>
      <xs:element name="SpanishProductName"
msprop:FriendlyName="SpanishProductName" msprop:DbColumnName="SpanishProductName">
        <xs:simpleType>
          <xs:restriction base="xs:string">
            <xs:maxLength value="50" />
          </xs:restriction>
        </xs:simpleType>
      </xs:element>
      <xs:element name="FrenchProductName"
msprop:FriendlyName="FrenchProductName" msprop:DbColumnName="FrenchProductName">
        <xs:simpleType>
          <xs:restriction base="xs:string">
            <xs:maxLength value="50" />
          </xs:restriction>
        </xs:simpleType>
      </xs:element>
      <xs:element name="StandardCost" msprop:FriendlyName="StandardCost"
msprop:DbColumnName="StandardCost" type="xs:decimal" minOccurs="0" />
      <xs:element name="FinishedGoodsFlag"
msprop:FriendlyName="FinishedGoodsFlag" msprop:DbColumnName="FinishedGoodsFlag"
type="xs:boolean" />
      <xs:element name="Color" msprop:FriendlyName="Color"
msprop:DbColumnName="Color">
        <xs:simpleType>
          <xs:restriction base="xs:string">
            <xs:maxLength value="15" />
          </xs:restriction>
        </xs:simpleType>
      </xs:element>
      <xs:element name="SafetyStockLevel"
msprop:FriendlyName="SafetyStockLevel" msprop:DbColumnName="SafetyStockLevel" type="xs:short"
minOccurs="0" />
      <xs:element name="ReorderPoint" msprop:FriendlyName="ReorderPoint"
msprop:DbColumnName="ReorderPoint" type="xs:short" minOccurs="0" />
      <xs:element name="ListPrice" msprop:FriendlyName="ListPrice"
msprop:DbColumnName="ListPrice" type="xs:decimal" minOccurs="0" />
      <xs:element name="Size" msprop:FriendlyName="Size"
msprop:DbColumnName="Size" minOccurs="0">
        <xs:simpleType>
          <xs:restriction base="xs:string">
            <xs:maxLength value="50" />
          </xs:restriction>
        </xs:simpleType>
      </xs:element>
      <xs:element name="SizeRange" msprop:FriendlyName="SizeRange"
msprop:DbColumnName="SizeRange" minOccurs="0">

```



```

        <xs:simpleType>
            <xs:restriction base="xs:string">
                <xs:maxLength value="50" />
            </xs:restriction>
        </xs:simpleType>
    </xs:element>
    <xs:element name="Weight" msprop:FriendlyName="Weight"
msprop:DbColumnName="Weight" type="xs:double" minOccurs="0" />
    <xs:element name="DaysToManufacture"
msprop:FriendlyName="DaysToManufacture" msprop:DbColumnName="DaysToManufacture" type="xs:int"
minOccurs="0" />
    <xs:element name="ProductLine" msprop:FriendlyName="ProductLine"
msprop:DbColumnName="ProductLine" minOccurs="0">
        <xs:simpleType>
            <xs:restriction base="xs:string">
                <xs:maxLength value="2" />
            </xs:restriction>
        </xs:simpleType>
    </xs:element>
    <xs:element name="DealerPrice" msprop:FriendlyName="DealerPrice"
msprop:DbColumnName="DealerPrice" type="xs:decimal" minOccurs="0" />
    <xs:element name="Class" msprop:FriendlyName="Class"
msprop:DbColumnName="Class" minOccurs="0">
        <xs:simpleType>
            <xs:restriction base="xs:string">
                <xs:maxLength value="2" />
            </xs:restriction>
        </xs:simpleType>
    </xs:element>
    <xs:element name="Style" msprop:FriendlyName="Style"
msprop:DbColumnName="Style" minOccurs="0">
        <xs:simpleType>
            <xs:restriction base="xs:string">
                <xs:maxLength value="2" />
            </xs:restriction>
        </xs:simpleType>
    </xs:element>
    <xs:element name="ModelName" msprop:FriendlyName="ModelName"
msprop:DbColumnName="ModelName" minOccurs="0">
        <xs:simpleType>
            <xs:restriction base="xs:string">
                <xs:maxLength value="50" />
            </xs:restriction>
        </xs:simpleType>
    </xs:element>
    <xs:element name="LargePhoto" msprop:FriendlyName="LargePhoto"
msprop:DbColumnName="LargePhoto" msprop:DataSize="0" type="xs:base64Binary" minOccurs="0" />
    <xs:element name="EnglishDescription"
msprop:FriendlyName="EnglishDescription" msprop:DbColumnName="EnglishDescription"
minOccurs="0">
        <xs:simpleType>
            <xs:restriction base="xs:string">
                <xs:maxLength value="400" />
            </xs:restriction>
        </xs:simpleType>
    </xs:element>
    <xs:element name="FrenchDescription"
msprop:FriendlyName="FrenchDescription" msprop:DbColumnName="FrenchDescription"
minOccurs="0">
        <xs:simpleType>

```

```

        <xs:restriction base="xs:string">
            <xs:maxLength value="400" />
        </xs:restriction>
    </xs:simpleType>
</xs:element>
<xs:element name="ChineseDescription"
msprop:FriendlyName="ChineseDescription" msprop:DbColumnName="ChineseDescription"
minOccurs="0">
    <xs:simpleType>
        <xs:restriction base="xs:string">
            <xs:maxLength value="400" />
        </xs:restriction>
    </xs:simpleType>
</xs:element>
<xs:element name="ArabicDescription"
msprop:FriendlyName="ArabicDescription" msprop:DbColumnName="ArabicDescription"
minOccurs="0">
    <xs:simpleType>
        <xs:restriction base="xs:string">
            <xs:maxLength value="400" />
        </xs:restriction>
    </xs:simpleType>
</xs:element>
<xs:element name="HebrewDescription"
msprop:FriendlyName="HebrewDescription" msprop:DbColumnName="HebrewDescription"
minOccurs="0">
    <xs:simpleType>
        <xs:restriction base="xs:string">
            <xs:maxLength value="400" />
        </xs:restriction>
    </xs:simpleType>
</xs:element>
<xs:element name="ThaiDescription"
msprop:FriendlyName="ThaiDescription" msprop:DbColumnName="ThaiDescription" minOccurs="0">
    <xs:simpleType>
        <xs:restriction base="xs:string">
            <xs:maxLength value="400" />
        </xs:restriction>
    </xs:simpleType>
</xs:element>
<xs:element name="GermanDescription"
msprop:FriendlyName="GermanDescription" msprop:DbColumnName="GermanDescription"
minOccurs="0">
    <xs:simpleType>
        <xs:restriction base="xs:string">
            <xs:maxLength value="400" />
        </xs:restriction>
    </xs:simpleType>
</xs:element>
<xs:element name="JapaneseDescription"
msprop:FriendlyName="JapaneseDescription" msprop:DbColumnName="JapaneseDescription"
minOccurs="0">
    <xs:simpleType>
        <xs:restriction base="xs:string">
            <xs:maxLength value="400" />
        </xs:restriction>
    </xs:simpleType>
</xs:element>

```

```

        <xs:element name="TurkishDescription"
msprop:FriendlyName="TurkishDescription" msprop:DbColumnName="TurkishDescription"
minOccurs="0">
            <xs:simpleType>
                <xs:restriction base="xs:string">
                    <xs:maxLength value="400" />
                </xs:restriction>
            </xs:simpleType>
        </xs:element>
        <xs:element name="StartDate" msprop:FriendlyName="StartDate"
msprop:DbColumnName="StartDate" type="xs:dateTime" minOccurs="0" />
        <xs:element name="EndDate" msprop:FriendlyName="EndDate"
msprop:DbColumnName="EndDate" type="xs:dateTime" minOccurs="0" />
        <xs:element name="Status" msprop:FriendlyName="Status"
msprop:DbColumnName="Status" minOccurs="0">
            <xs:simpleType>
                <xs:restriction base="xs:string">
                    <xs:maxLength value="7" />
                </xs:restriction>
            </xs:simpleType>
        </xs:element>
    </xs:sequence>
</xs:complexType>
</xs:element>
    <xs:element name="dbo_DimSalesTerritory"
msprop:FriendlyName="DimSalesTerritory" msprop:DbSchemaName="dbo"
msprop:DbTableName="DimSalesTerritory" msprop:TableType="Table">
        <xs:complexType>
            <xs:sequence>
                <xs:element name="SalesTerritoryKey" msdata:ReadOnly="true"
msdata:AutoIncrement="true" msprop:FriendlyName="SalesTerritoryKey"
msprop:DbColumnName="SalesTerritoryKey" type="xs:int" />
                <xs:element name="SalesTerritoryAlternateKey"
msprop:FriendlyName="SalesTerritoryAlternateKey"
msprop:DbColumnName="SalesTerritoryAlternateKey" type="xs:int" minOccurs="0" />
                <xs:element name="SalesTerritoryRegion"
msprop:FriendlyName="SalesTerritoryRegion" msprop:DbColumnName="SalesTerritoryRegion">
                    <xs:simpleType>
                        <xs:restriction base="xs:string">
                            <xs:maxLength value="50" />
                        </xs:restriction>
                    </xs:simpleType>
                </xs:element>
                <xs:element name="SalesTerritoryCountry"
msprop:FriendlyName="SalesTerritoryCountry" msprop:DbColumnName="SalesTerritoryCountry">
                    <xs:simpleType>
                        <xs:restriction base="xs:string">
                            <xs:maxLength value="50" />
                        </xs:restriction>
                    </xs:simpleType>
                </xs:element>
                <xs:element name="SalesTerritoryGroup"
msprop:FriendlyName="SalesTerritoryGroup" msprop:DbColumnName="SalesTerritoryGroup"
minOccurs="0">
                    <xs:simpleType>
                        <xs:restriction base="xs:string">
                            <xs:maxLength value="50" />
                        </xs:restriction>
                    </xs:simpleType>
                </xs:element>
            </xs:sequence>
        </xs:complexType>
    </xs:element>

```

```

        </xs:sequence>
    </xs:complexType>
</xs:element>
    <xs:element name="dbo_DimDate" msprop:FriendlyName="DimDate"
msprop:DbSchemaName="dbo" msprop:DbTableName="DimDate" msprop:TableType="Table">
    <xs:complexType>
        <xs:sequence>
            <xs:element name="DateKey" msprop:FriendlyName="DateKey"
msprop:DbColumnName="DateKey" type="xs:int" />
            <xs:element name="FullDateAlternateKey"
msprop:FriendlyName="FullDateAlternateKey" msprop:DbColumnName="FullDateAlternateKey"
type="xs:dateTime" />
            <xs:element name="DayNumberOfWeek"
msprop:FriendlyName="DayNumberOfWeek" msprop:DbColumnName="DayNumberOfWeek"
type="xs:unsignedByte" />
            <xs:element name="EnglishDayNameOfWeek"
msprop:FriendlyName="EnglishDayNameOfWeek" msprop:DbColumnName="EnglishDayNameOfWeek">
                <xs:simpleType>
                    <xs:restriction base="xs:string">
                        <xs:maxLength value="10" />
                    </xs:restriction>
                </xs:simpleType>
            </xs:element>
            <xs:element name="SpanishDayNameOfWeek"
msprop:FriendlyName="SpanishDayNameOfWeek" msprop:DbColumnName="SpanishDayNameOfWeek">
                <xs:simpleType>
                    <xs:restriction base="xs:string">
                        <xs:maxLength value="10" />
                    </xs:restriction>
                </xs:simpleType>
            </xs:element>
            <xs:element name="FrenchDayNameOfWeek"
msprop:FriendlyName="FrenchDayNameOfWeek" msprop:DbColumnName="FrenchDayNameOfWeek">
                <xs:simpleType>
                    <xs:restriction base="xs:string">
                        <xs:maxLength value="10" />
                    </xs:restriction>
                </xs:simpleType>
            </xs:element>
            <xs:element name="DayNumberOfMonth"
msprop:FriendlyName="DayNumberOfMonth" msprop:DbColumnName="DayNumberOfMonth"
type="xs:unsignedByte" />
            <xs:element name="DayNumberOfYear"
msprop:FriendlyName="DayNumberOfYear" msprop:DbColumnName="DayNumberOfYear" type="xs:short"
/>
            <xs:element name="WeekNumberOfYear"
msprop:FriendlyName="WeekNumberOfYear" msprop:DbColumnName="WeekNumberOfYear"
type="xs:unsignedByte" />
            <xs:element name="EnglishMonthName"
msprop:FriendlyName="EnglishMonthName" msprop:DbColumnName="EnglishMonthName">
                <xs:simpleType>
                    <xs:restriction base="xs:string">
                        <xs:maxLength value="10" />
                    </xs:restriction>
                </xs:simpleType>
            </xs:element>
            <xs:element name="SpanishMonthName"
msprop:FriendlyName="SpanishMonthName" msprop:DbColumnName="SpanishMonthName">
                <xs:simpleType>
                    <xs:restriction base="xs:string">

```

```

        <xs:maxLength value="10" />
    </xs:restriction>
</xs:simpleType>
</xs:element>
<xs:element name="FrenchMonthName"
msprop:FriendlyName="FrenchMonthName" msprop:DbColumnName="FrenchMonthName">
    <xs:simpleType>
        <xs:restriction base="xs:string">
            <xs:maxLength value="10" />
        </xs:restriction>
    </xs:simpleType>
</xs:element>
<xs:element name="MonthNumberOfYear"
msprop:FriendlyName="MonthNumberOfYear" msprop:DbColumnName="MonthNumberOfYear"
type="xs:unsignedByte" />
<xs:element name="CalendarQuarter"
msprop:FriendlyName="CalendarQuarter" msprop:DbColumnName="CalendarQuarter"
type="xs:unsignedByte" />
<xs:element name="CalendarYear" msprop:FriendlyName="CalendarYear"
msprop:DbColumnName="CalendarYear" type="xs:short" />
<xs:element name="CalendarSemester"
msprop:FriendlyName="CalendarSemester" msprop:DbColumnName="CalendarSemester"
type="xs:unsignedByte" />
<xs:element name="FiscalQuarter"
msprop:FriendlyName="FiscalQuarter" msprop:DbColumnName="FiscalQuarter"
type="xs:unsignedByte" />
<xs:element name="FiscalYear" msprop:FriendlyName="FiscalYear"
msprop:DbColumnName="FiscalYear" type="xs:short" />
<xs:element name="FiscalSemester"
msprop:FriendlyName="FiscalSemester" msprop:DbColumnName="FiscalSemester"
type="xs:unsignedByte" />
</xs:sequence>
</xs:complexType>
</xs:element>
<xs:element name="dbo_DimCustomer" msprop:FriendlyName="DimCustomer"
msprop:DbSchemaName="dbo" msprop:DbTableName="DimCustomer" msprop:TableType="Table">
    <xs:complexType>
        <xs:sequence>
            <xs:element name="CustomerKey" msdata:ReadOnly="true"
msprop:AutoIncrement="true" msprop:FriendlyName="CustomerKey"
msprop:DbColumnName="CustomerKey" type="xs:int" />
            <xs:element name="GeographyKey" msprop:FriendlyName="GeographyKey"
msprop:DbColumnName="GeographyKey" type="xs:int" minOccurs="0" />
            <xs:element name="CustomerAlternateKey"
msprop:FriendlyName="CustomerAlternateKey" msprop:DbColumnName="CustomerAlternateKey">
                <xs:simpleType>
                    <xs:restriction base="xs:string">
                        <xs:maxLength value="15" />
                    </xs:restriction>
                </xs:simpleType>
            </xs:element>
            <xs:element name="Title" msprop:FriendlyName="Title"
msprop:DbColumnName="Title" minOccurs="0">
                <xs:simpleType>
                    <xs:restriction base="xs:string">
                        <xs:maxLength value="8" />
                    </xs:restriction>
                </xs:simpleType>
            </xs:element>
            <xs:element name="FirstName" msprop:FriendlyName="FirstName"
msprop:DbColumnName="FirstName" minOccurs="0">

```

```

        <xs:simpleType>
          <xs:restriction base="xs:string">
            <xs:maxLength value="50" />
          </xs:restriction>
        </xs:simpleType>
      </xs:element>
      <xs:element name="MiddleName" msprop:FriendlyName="MiddleName"
msprop:DbColumnName="MiddleName" minOccurs="0">
        <xs:simpleType>
          <xs:restriction base="xs:string">
            <xs:maxLength value="50" />
          </xs:restriction>
        </xs:simpleType>
      </xs:element>
      <xs:element name="LastName" msprop:FriendlyName="LastName"
msprop:DbColumnName="LastName" minOccurs="0">
        <xs:simpleType>
          <xs:restriction base="xs:string">
            <xs:maxLength value="50" />
          </xs:restriction>
        </xs:simpleType>
      </xs:element>
      <xs:element name="NameStyle" msprop:FriendlyName="NameStyle"
msprop:DbColumnName="NameStyle" type="xs:boolean" minOccurs="0" />
      <xs:element name="BirthDate" msprop:FriendlyName="BirthDate"
msprop:DbColumnName="BirthDate" type="xs:dateTime" minOccurs="0" />
      <xs:element name="MaritalStatus"
msprop:FriendlyName="MaritalStatus" msprop:DbColumnName="MaritalStatus" minOccurs="0">
        <xs:simpleType>
          <xs:restriction base="xs:string">
            <xs:maxLength value="1" />
          </xs:restriction>
        </xs:simpleType>
      </xs:element>
      <xs:element name="Suffix" msprop:FriendlyName="Suffix"
msprop:DbColumnName="Suffix" minOccurs="0">
        <xs:simpleType>
          <xs:restriction base="xs:string">
            <xs:maxLength value="10" />
          </xs:restriction>
        </xs:simpleType>
      </xs:element>
      <xs:element name="Gender" msprop:FriendlyName="Gender"
msprop:DbColumnName="Gender" minOccurs="0">
        <xs:simpleType>
          <xs:restriction base="xs:string">
            <xs:maxLength value="1" />
          </xs:restriction>
        </xs:simpleType>
      </xs:element>
      <xs:element name="EmailAddress" msprop:FriendlyName="EmailAddress"
msprop:DbColumnName="EmailAddress" minOccurs="0">
        <xs:simpleType>
          <xs:restriction base="xs:string">
            <xs:maxLength value="50" />
          </xs:restriction>
        </xs:simpleType>
      </xs:element>
      <xs:element name="YearlyIncome" msprop:FriendlyName="YearlyIncome"
msprop:DbColumnName="YearlyIncome" type="xs:decimal" minOccurs="0" />

```

```

        <xs:element name="TotalChildren"
msprop:FriendlyName="TotalChildren" msprop:DbColumnName="TotalChildren"
type="xs:unsignedByte" minOccurs="0" />
        <xs:element name="NumberChildrenAtHome"
msprop:FriendlyName="NumberChildrenAtHome" msprop:DbColumnName="NumberChildrenAtHome"
type="xs:unsignedByte" minOccurs="0" />
        <xs:element name="EnglishEducation"
msprop:FriendlyName="EnglishEducation" msprop:DbColumnName="EnglishEducation" minOccurs="0">
        <xs:simpleType>
        <xs:restriction base="xs:string">
        <xs:maxLength value="40" />
        </xs:restriction>
        </xs:simpleType>
        </xs:element>
        <xs:element name="SpanishEducation"
msprop:FriendlyName="SpanishEducation" msprop:DbColumnName="SpanishEducation" minOccurs="0">
        <xs:simpleType>
        <xs:restriction base="xs:string">
        <xs:maxLength value="40" />
        </xs:restriction>
        </xs:simpleType>
        </xs:element>
        <xs:element name="FrenchEducation"
msprop:FriendlyName="FrenchEducation" msprop:DbColumnName="FrenchEducation" minOccurs="0">
        <xs:simpleType>
        <xs:restriction base="xs:string">
        <xs:maxLength value="40" />
        </xs:restriction>
        </xs:simpleType>
        </xs:element>
        <xs:element name="EnglishOccupation"
msprop:FriendlyName="EnglishOccupation" msprop:DbColumnName="EnglishOccupation"
minOccurs="0">
        <xs:simpleType>
        <xs:restriction base="xs:string">
        <xs:maxLength value="100" />
        </xs:restriction>
        </xs:simpleType>
        </xs:element>
        <xs:element name="SpanishOccupation"
msprop:FriendlyName="SpanishOccupation" msprop:DbColumnName="SpanishOccupation"
minOccurs="0">
        <xs:simpleType>
        <xs:restriction base="xs:string">
        <xs:maxLength value="100" />
        </xs:restriction>
        </xs:simpleType>
        </xs:element>
        <xs:element name="FrenchOccupation"
msprop:FriendlyName="FrenchOccupation" msprop:DbColumnName="FrenchOccupation" minOccurs="0">
        <xs:simpleType>
        <xs:restriction base="xs:string">
        <xs:maxLength value="100" />
        </xs:restriction>
        </xs:simpleType>
        </xs:element>
        <xs:element name="HouseOwnerFlag"
msprop:FriendlyName="HouseOwnerFlag" msprop:DbColumnName="HouseOwnerFlag" minOccurs="0">
        <xs:simpleType>
        <xs:restriction base="xs:string">

```

```

        <xs:maxLength value="1" />
    </xs:restriction>
</xs:simpleType>
</xs:element>
    <xs:element name="NumberCarsOwned"
msprop:FriendlyName="NumberCarsOwned" msprop:DbColumnName="NumberCarsOwned"
type="xs:unsignedByte" minOccurs="0" />
    <xs:element name="AddressLine1" msprop:FriendlyName="AddressLine1"
msprop:DbColumnName="AddressLine1" minOccurs="0">
        <xs:simpleType>
            <xs:restriction base="xs:string">
                <xs:maxLength value="120" />
            </xs:restriction>
        </xs:simpleType>
    </xs:element>
    <xs:element name="AddressLine2" msprop:FriendlyName="AddressLine2"
msprop:DbColumnName="AddressLine2" minOccurs="0">
        <xs:simpleType>
            <xs:restriction base="xs:string">
                <xs:maxLength value="120" />
            </xs:restriction>
        </xs:simpleType>
    </xs:element>
    <xs:element name="Phone" msprop:FriendlyName="Phone"
msprop:DbColumnName="Phone" minOccurs="0">
        <xs:simpleType>
            <xs:restriction base="xs:string">
                <xs:maxLength value="20" />
            </xs:restriction>
        </xs:simpleType>
    </xs:element>
    <xs:element name="DateFirstPurchase"
msprop:FriendlyName="DateFirstPurchase" msprop:DbColumnName="DateFirstPurchase"
type="xs:dateTime" minOccurs="0" />
    <xs:element name="CommuteDistance"
msprop:FriendlyName="CommuteDistance" msprop:DbColumnName="CommuteDistance" minOccurs="0">
        <xs:simpleType>
            <xs:restriction base="xs:string">
                <xs:maxLength value="15" />
            </xs:restriction>
        </xs:simpleType>
    </xs:element>
</xs:sequence>
</xs:complexType>
</xs:element>
    <xs:element name="dbo_DimProductCategory"
msprop:FriendlyName="DimProductCategory" msprop:DbSchemaName="dbo"
msprop:DbTableName="DimProductCategory" msprop:TableType="Table">
        <xs:complexType>
            <xs:sequence>
                <xs:element name="ProductCategoryKey" msdata:ReadOnly="true"
msdata:AutoIncrement="true" msprop:FriendlyName="ProductCategoryKey"
msprop:DbColumnName="ProductCategoryKey" type="xs:int" />
                <xs:element name="ProductCategoryAlternateKey"
msprop:FriendlyName="ProductCategoryAlternateKey"
msprop:DbColumnName="ProductCategoryAlternateKey" type="xs:int" minOccurs="0" />
                <xs:element name="EnglishProductCategoryName"
msprop:FriendlyName="EnglishProductCategoryName"
msprop:DbColumnName="EnglishProductCategoryName">
                    <xs:simpleType>

```



```

        <xs:restriction base="xs:string">
            <xs:maxLength value="50" />
        </xs:restriction>
    </xs:simpleType>
</xs:element>
    <xs:element name="SpanishProductCategoryName"
msprop:FriendlyName="SpanishProductCategoryName"
msprop:DbColumnName="SpanishProductCategoryName">
        <xs:simpleType>
            <xs:restriction base="xs:string">
                <xs:maxLength value="50" />
            </xs:restriction>
        </xs:simpleType>
    </xs:element>
    <xs:element name="FrenchProductCategoryName"
msprop:FriendlyName="FrenchProductCategoryName"
msprop:DbColumnName="FrenchProductCategoryName">
        <xs:simpleType>
            <xs:restriction base="xs:string">
                <xs:maxLength value="50" />
            </xs:restriction>
        </xs:simpleType>
    </xs:element>
</xs:sequence>
</xs:complexType>
</xs:element>
    <xs:element name="dbo_DimProductSubcategory"
msprop:FriendlyName="DimProductSubcategory" msprop:DbSchemaName="dbo"
msprop:DbTableName="DimProductSubcategory" msprop:TableType="Table">
        <xs:complexType>
            <xs:sequence>
                <xs:element name="ProductSubcategoryKey" msdata:ReadOnly="true"
msdata:AutoIncrement="true" msprop:FriendlyName="ProductSubcategoryKey"
msprop:DbColumnName="ProductSubcategoryKey" type="xs:int" />
                <xs:element name="ProductSubcategoryAlternateKey"
msprop:FriendlyName="ProductSubcategoryAlternateKey"
msprop:DbColumnName="ProductSubcategoryAlternateKey" type="xs:int" minOccurs="0" />
                <xs:element name="EnglishProductSubcategoryName"
msprop:FriendlyName="EnglishProductSubcategoryName"
msprop:DbColumnName="EnglishProductSubcategoryName">
                    <xs:simpleType>
                        <xs:restriction base="xs:string">
                            <xs:maxLength value="50" />
                        </xs:restriction>
                    </xs:simpleType>
                </xs:element>
                <xs:element name="SpanishProductSubcategoryName"
msprop:FriendlyName="SpanishProductSubcategoryName"
msprop:DbColumnName="SpanishProductSubcategoryName">
                    <xs:simpleType>
                        <xs:restriction base="xs:string">
                            <xs:maxLength value="50" />
                        </xs:restriction>
                    </xs:simpleType>
                </xs:element>
                <xs:element name="FrenchProductSubcategoryName"
msprop:FriendlyName="FrenchProductSubcategoryName"
msprop:DbColumnName="FrenchProductSubcategoryName">
                    <xs:simpleType>
                        <xs:restriction base="xs:string">

```

```

        <xs:maxLength value="50" />
    </xs:restriction>
</xs:simpleType>
</xs:element>
    <xs:element name="ProductCategoryKey"
msprop:FriendlyName="ProductCategoryKey" msprop:DbColumnName="ProductCategoryKey"
type="xs:int" minOccurs="0" />
    </xs:sequence>
</xs:complexType>
</xs:element>
    </xs:choice>
</xs:complexType>
<xs:unique name="Constraint1" msdata:PrimaryKey="true">
    <xs:selector xpath="//dbo_DimProduct" />
    <xs:field xpath="ProductKey" />
</xs:unique>
<xs:unique name="dbo_DimSalesTerritory_Constraint1"
msdata:ConstraintName="Constraint1" msdata:PrimaryKey="true">
    <xs:selector xpath="//dbo_DimSalesTerritory" />
    <xs:field xpath="SalesTerritoryKey" />
</xs:unique>
<xs:unique name="dbo_DimDate_Constraint1" msdata:ConstraintName="Constraint1"
msdata:PrimaryKey="true">
    <xs:selector xpath="//dbo_DimDate" />
    <xs:field xpath="DateKey" />
</xs:unique>
<xs:unique name="dbo_DimCustomer_Constraint1"
msdata:ConstraintName="Constraint1" msdata:PrimaryKey="true">
    <xs:selector xpath="//dbo_DimCustomer" />
    <xs:field xpath="CustomerKey" />
</xs:unique>
<xs:unique name="dbo_DimProductCategory_Constraint1"
msdata:ConstraintName="Constraint1" msdata:PrimaryKey="true">
    <xs:selector xpath="//dbo_DimProductCategory" />
    <xs:field xpath="ProductCategoryKey" />
</xs:unique>
<xs:unique name="dbo_DimProductSubcategory_Constraint1"
msdata:ConstraintName="Constraint1" msdata:PrimaryKey="true">
    <xs:selector xpath="//dbo_DimProductSubcategory" />
    <xs:field xpath="ProductSubcategoryKey" />
</xs:unique>
<xs:keyref name="FK_DimProductSubcategory_DimProductCategory"
refer="dbo_DimProductCategory_Constraint1">
    <xs:selector xpath="//dbo_DimProductSubcategory" />
    <xs:field xpath="ProductCategoryKey" />
</xs:keyref>
<xs:keyref name="FK_DimProduct_DimProductSubcategory"
refer="dbo_DimProductSubcategory_Constraint1">
    <xs:selector xpath="//dbo_DimProduct" />
    <xs:field xpath="ProductSubcategoryKey" />
</xs:keyref>
<xs:keyref name="FK_FactInternetSales_DimDate"
refer="dbo_DimDate_Constraint1">
    <xs:selector xpath="//dbo_FactInternetSales" />
    <xs:field xpath="OrderDateKey" />
</xs:keyref>
<xs:keyref name="FK_FactInternetSales_DimDate2"
refer="dbo_DimDate_Constraint1">
    <xs:selector xpath="//dbo_FactInternetSales" />
    <xs:field xpath="ShipDateKey" />

```

```

        </xs:keyref>
        <xs:keyref name="FK_FactInternetSales_DimDate1"
refer="dbo_DimDate_Constraint1">
          <xs:selector xpath="//dbo_FactInternetSales" />
          <xs:field xpath="DueDateKey" />
        </xs:keyref>
        <xs:keyref name="FK_FactInternetSales_DimCustomer"
refer="dbo_DimCustomer_Constraint1">
          <xs:selector xpath="//dbo_FactInternetSales" />
          <xs:field xpath="CustomerKey" />
        </xs:keyref>
        <xs:keyref name="FK_FactInternetSales_DimSalesTerritory"
refer="dbo_DimSalesTerritory_Constraint1">
          <xs:selector xpath="//dbo_FactInternetSales" />
          <xs:field xpath="SalesTerritoryKey" />
        </xs:keyref>
        <xs:keyref name="FK_FactInternetSales_DimProduct" refer="Constraint1">
          <xs:selector xpath="//dbo_FactInternetSales" />
          <xs:field xpath="ProductKey" />
        </xs:keyref>
      </xs:element>
    </xs:schema>
    <diffgr:diffgram xmlns:msdata="urn:schemas-microsoft-com:xml-msdata"
xmlns:diffgr="urn:schemas-microsoft-com:xml-diffgram-v1" />
  </Schema>
</DataSourceView>
</DataSourceViews>
<Roles>
  <Role>
    <ID>Role</ID>
    <Name>StudentAdmin</Name>
    <Members>
      <Member>
        <Name>NY-SQL-02\Student</Name>
        <Sid>S-1-5-21-170207-3540798901-1547344715-1000</Sid>
      </Member>
    </Members>
  </Role>
</Roles>
<DatabasePermissions>
  <DatabasePermission>
    <ID>DatabasePermission</ID>
    <Name>DatabasePermission</Name>
    <RoleID>Role</RoleID>
    <Process>true</Process>
    <ReadDefinition>Allowed</ReadDefinition>
    <Read>Allowed</Read>
    <Administer>true</Administer>
  </DatabasePermission>
</DatabasePermissions>
</Database>
</ObjectDefinition>
</Create>

```

4.14.2 Server Response

The server responds with the results of the create command:

```

<return xmlns="urn:schemas-microsoft-com:xml-analysis">
  <root xmlns="urn:schemas-microsoft-com:xml-analysis:empty" />
</return>

```

4.15 Alter

In this example, the client sends an XMLA Alter command to the server.

4.15.1 Client Sends Request

The client sends the following request:

```

<Alter xmlns="http://schemas.microsoft.com/analysiservices/2003/engine">
  <Object>
    <DatabaseID>AdventureWorks_SSAS_Alter</DatabaseID>
    <DimensionID>Dim Customer</DimensionID>
  </Object>
  <ObjectDefinition>
    <Dimension xmlns:xsd="http://www.w3.org/2001/XMLSchema"
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
      xmlns:ddl2="http://schemas.microsoft.com/analysiservices/2003/engine/2"
      xmlns:ddl2_2="http://schemas.microsoft.com/analysiservices/2003/engine/2/2"
      xmlns:ddl100_100="http://schemas.microsoft.com/analysiservices/2008/engine/100/100">
      <ID>Dim Customer</ID>
      <Name>Customer</Name>
      <Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramLayout</Name>
      <Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:ShowFriendlyNames</Name>
      <Value>true</Value>
      <Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:ShowRelationshipNames</Name>
      <Value>false</Value>
      <Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:UseDiagramDefaultLayout</Name>
      <Value>true</Value>
      <Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramViewPortLeft</Name>
      <Value>0</Value>
      <Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramViewPortTop</Name>
      <Value>0</Value>
      <Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramBoundingLeft</Name>
      <Value>0</Value>
      <Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramBoundingTop</Name>
      <Value>0</Value>
      <Name>http://schemas.microsoft.com/DataWarehouse/Designer/1.0:DiagramZoom</Name>
      <Value>100</Value>
      <Source xsi:type="DataSourceViewBinding">
        <DataSourceViewID>dsvAdventureWorksDW2008</DataSourceViewID>
      </Source>
      <ErrorConfiguration>
        <KeyNotFound>ReportAndStop</KeyNotFound>
        <KeyDuplicate>ReportAndStop</KeyDuplicate>
        <NullKeyNotAllowed>ReportAndStop</NullKeyNotAllowed>
    </Dimension>
  </ObjectDefinition>
</Alter>

```

```

</ErrorConfiguration>
<Language>1033</Language>
<Collation>Latin1_General_CI_AS</Collation>
<UnknownMemberName>Unknown</UnknownMemberName>
<Attributes>
  <Attribute>
    <ID>Customer Key</ID>
    <Name>Customer Key</Name>
    <Usage>Key</Usage>
    <EstimatedCount>18484</EstimatedCount>
    <KeyColumns>
      <KeyColumn>
        <DataType>Integer</DataType>
        <Source xsi:type="ColumnBinding">
          <TableID>dbo_DimCustomer</TableID>
          <ColumnID>CustomerKey</ColumnID>
        </Source>
      </KeyColumn>
    </KeyColumns>
    <NameColumn>
      <DataType>WChar</DataType>
      <Source xsi:type="ColumnBinding">
        <TableID>dbo_DimCustomer</TableID>
        <ColumnID>CustomerKey</ColumnID>
      </Source>
    </NameColumn>
    <OrderBy>Key</OrderBy>
  </Attribute>
</Attributes>
<ProactiveCaching>
  <SilenceInterval>-PT1S</SilenceInterval>
  <Latency>-PT1S</Latency>
  <SilenceOverrideInterval>-PT1S</SilenceOverrideInterval>
  <ForceRebuildInterval>-PT1S</ForceRebuildInterval>
  <Source xsi:type="ProactiveCachingInheritedBinding"/>
</ProactiveCaching>
</Dimension>
</ObjectDefinition>
</Alter>
Customer

```

4.15.2 Server Response

The server responds with the results of the Alter command:

```

<return xmlns="urn:schemas-microsoft-com:xml-analysis">
  <root xmlns="urn:schemas-microsoft-com:xml-analysis:empty" />
</return>

```

4.16 Delete

In this example, the client sends an XMLA Delete command to the server.

4.16.1 Client Sends Request

The client sends the following request:

```
<Delete xmlns="http://schemas.microsoft.com/analysiservices/2003/engine">
  <Object>
    <DatabaseID>AdventureWorksDW2008_Create</DatabaseID>
  </Object>
</Delete>
```

4.16.2 Server Response

The server responds with the results of the Delete command:

```
<return xmlns="urn:schemas-microsoft-com:xml-analysis">
  <root xmlns="urn:schemas-microsoft-com:xml-analysis:empty" />
</return>
```

4.17 Process

In this example, the client sends an XMLA Process command to the server.

4.17.1 Client Sends Request

The client sends the following request:

```
<Process xmlns="http://schemas.microsoft.com/analysiservices/2003/engine">
  <Object>
    <DatabaseID>AdventureWorks_SSAS</DatabaseID>
  </Object>
  <Type>ProcessFull</Type>
  <WriteBackTableCreation>UseExisting</WriteBackTableCreation>
</Process>
```

4.17.2 Server Response

The server responds with the results of the Process command:

```
<return xmlns="urn:schemas-microsoft-com:xml-analysis">
  <root xmlns="urn:schemas-microsoft-com:xml-analysis:empty">
    <Messages xmlns="urn:schemas-microsoft-com:xml-analysis:exception">
      <Warning WarningCode="1091960948" Description="Informational (Data mining): Decision
Trees found no splits for model, Dim Product." Source="Microsoft SQL Server 2008 Analysis
Services" HelpFile="" />
    </Messages>
  </root>
</return>
```

4.18 Backup

In this example, the client sends an XMLA Backup command to the server.

4.18.1 Client Sends Request

The client sends the following request:

```
<Backup xmlns="http://schemas.microsoft.com/analysiservices/2003/engine">
  <Object>
    <DatabaseID>AdventureWorks_SSAS</DatabaseID>
  </Object>
  <File>C:\Program Files\Microsoft SQL
Server\MSAS10.MSSQLSERVER\OLAP\Backup\AdventureWorks_SSAS.abf</File>
  <Password>pw</Password>
</Backup>
```

4.18.2 Server Response

The server responds with the results of the Backup command:

```
<return xmlns="urn:schemas-microsoft-com:xml-analysis">
  <root xmlns="urn:schemas-microsoft-com:xml-analysis:empty" />
</return>
```

4.19 Restore

In this example, the client sends an XMLA Restore command to the server.

4.19.1 Client Sends Request

The client sends the following request:

```
<Restore xmlns="http://schemas.microsoft.com/analysiservices/2003/engine">
  <File>C:\Program Files\Microsoft SQL
Server\MSAS10.MSSQLSERVER\OLAP\Backup\AdventureWorks_SSAS.abf</File>
  <DatabaseName>AdventureWorksDW2008_Create</DatabaseName>
  <AllowOverwrite>true</AllowOverwrite>
  <Password>pw</Password>
</Restore>
```

4.19.2 Server Response

The server responds with the results of the Restore command:

```
<return xmlns="urn:schemas-microsoft-com:xml-analysis">
  <root xmlns="urn:schemas-microsoft-com:xml-analysis:empty" />
</return>
```

4.20 Begin Transaction

In this example, the client sends an XMLA BeginTransaction command to the server.

4.20.1 Client Sends Request

The client sends the following request:

```
<Envelope xmlns="http://schemas.xmlsoap.org/soap/envelope/">
  <Header>
    <BeginSession xmlns="urn:schemas-microsoft-com:xml-analysis"/>
  </Header>
  <Body>
    <Execute xmlns="urn:schemas-microsoft-com:xml-analysis">
      <Command>
        <BeginTransaction xmlns="http://schemas.microsoft.com/analysis/services/2003/engine">
        </BeginTransaction>
      </Command>
      <Properties>
        <PropertyList>
          <LocaleIdentifier>1033</LocaleIdentifier>
        </PropertyList>
      </Properties>
    </Execute>
  </Body>
</Envelope>
```

4.20.2 Server Response

The server responds with the results of the Begin Transaction command:

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Header>
    <Session xmlns="urn:schemas-microsoft-com:xml-analysis" SessionId="DB0399CD-5B61-40C9-89E1-8C673280F885" />
  </soap:Header>
  <soap:Body>
    <ExecuteResponse xmlns="urn:schemas-microsoft-com:xml-analysis">
      <return>
        <root xmlns="urn:schemas-microsoft-com:xml-analysis:empty" />
      </return>
    </ExecuteResponse>
  </soap:Body>
</soap:Envelope>
```

4.21 Commit Transaction

In this example, the client sends an XMLA CommitTransaction command to the server.

4.21.1 Client Sends Request

The client sends the following request:


```

<Envelope xmlns="http://schemas.xmlsoap.org/soap/envelope/">
  <Header>
    <Session xmlns="urn:schemas-microsoft-com:xml-analysis"
      SessionId="34B67555-85B9-46CE-8803-4BEC7D6AEE13" />
  </Header>
  <Body>
    <Execute xmlns="urn:schemas-microsoft-com:xml-analysis">
      <Command>
        <CommitTransaction xmlns="http://schemas.microsoft.com/analysiservices/2003/engine"
        />
      </Command>
      <Properties>
        <PropertyList>
          <LocaleIdentifier>1033</LocaleIdentifier>
        </PropertyList>
      </Properties>
    </Execute>
  </Body>
</Envelope>

```

4.21.2 Server Response

The server responds with the results of the Commit Transaction command:

```

<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <ExecuteResponse xmlns="urn:schemas-microsoft-com:xml-analysis">
      <return>
        <root xmlns="urn:schemas-microsoft-com:xml-analysis:empty" />
      </return>
    </ExecuteResponse>
  </soap:Body>
</soap:Envelope>

```

4.22 Rollback Transaction

In this example, the client sends an XMLA RollbackTransaction command to the server.

4.22.1 Client Sends Request

The client sends the following request:

```

<Envelope xmlns="http://schemas.xmlsoap.org/soap/envelope/">
  <Header>
    <Session xmlns="urn:schemas-microsoft-com:xml-analysis"
      SessionId="34B67555-85B9-46CE-8803-4BEC7D6AEE13" />
  </Header>
  <Body>
    <Execute xmlns="urn:schemas-microsoft-com:xml-analysis">
      <Command>
        <RollbackTransaction
          xmlns="http://schemas.microsoft.com/analysiservices/2003/engine" />
      </Command>
    </Execute>
  </Body>
</Envelope>

```

```
</Command>
<Properties>
  <PropertyList>
    <LocaleIdentifier>1033</LocaleIdentifier>
  </PropertyList>
</Properties>
</Execute>
</Body>
</Envelope>
```

4.22.2 Server Response

The server responds with the results of the Rollback Transaction command:

```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <ExecuteResponse xmlns="urn:schemas-microsoft-com:xml-analysis">
      <return>
        <root xmlns="urn:schemas-microsoft-com:xml-analysis:empty" />
      </return>
    </ExecuteResponse>
  </soap:Body>
</soap:Envelope>
```

5 Security

5.1 Security Considerations for Implementers

The server could be returning potentially sensitive data in its responses. Therefore, it is strongly recommended that the server be configured to use GSS-API based encryption over TCP or Secure Sockets Layer (SSL) over HTTPS to ensure the integrity of the data and to prevent tampering and unauthorized access.

There are two strategies for reducing the impact of denial-of-service (DOS) attacks against the server:

- Turn on authentication and deny access to unauthenticated clients. This will allow a user to quickly disable access to rogue client machines.
- Make sure no single request takes too much processing time on the server. That will ensure that any attacker must keep up a steady stream of requests to deny access to the server. Therefore, a simple network trace will allow one to identify the offending machine and shut it down. This applies to requests sent by "spoof clients" (for example, a virus emulating a client that might try to pass an unbounded request or a long-running MDX query).

5.2 Index of Security Parameters

None.

6 Appendix A: Full WSDL

None.

Preliminary

7 Appendix B: Product Behavior

The information in this specification is applicable to the following Microsoft products:

- Microsoft® SQL Server® 2005 Analysis Services
- Microsoft® SQL Server® 2008 Analysis Services
- Microsoft® SQL Server® 2008 R2 Analysis Services

Exceptions, if any, are noted below. Unless otherwise specified, any statement of optional behavior in this specification prescribed using the terms SHOULD or SHOULD NOT implies that the aforementioned Microsoft products' behavior is in accordance with the SHOULD or SHOULD NOT prescription. Unless otherwise specified, the term MAY implies that these Microsoft products do not follow the prescription.

<1> [Section 2.2.4.1.1.2.1.1](#): SQL Server Analysis Services supports only the **Tuples** set type. It does not support **Members**, **CrossProduct**, and **Union** set types.

<2> [Section 2.2.4.2.1.1](#): The following rules also apply to names and IDs:

- The maximum number of characters is 100.
- There are no special requirements for the first character of an identifier. Same rules as for other valid characters apply.
- The following reserved names must not be used:
 - AUX
 - CLOCK\$
 - COM1 through COM9 (COM1, COM2, COM3, and so on)
 - CON
 - LPT1 through LPT9 (LPT1, LPT2, LPT3, and so on)
 - NUL
 - PRN
- NULL MUST NOT be used as a character in any string within the XML.

The following table lists invalid characters for each type of object:

Object	Invalid Characters
Server	The name must follow the rules for Microsoft Windows NT 4.0 and Windows 2000 computer names. (IP addresses are not valid.)
Data Source	: / \ * ? " () [] { } < >
Level & Attribute	. , ; ' ` : / \ * ? " & % \$! + = [] { } < >
Dimension & Hierarchy	.,, ; ' ` : / \ * ? " & % \$! + = () [] { } < , >

Object	Invalid Characters
All other objects	. , ; ' ` : / \ * ? " & % \$! + = () [] { } < >

A DataSource reference that consists of a single period means the current database of the current analysis server.

So, for instance, DataSourceID./DataSourceID points to the current database of the current analysis server instance.

<3> [Section 2.2.4.2.1.2](#): The following cases are handled by the server when encountered, when they are the values of String elements:

Control characters will be stripped out.

Leading and trailing white space will be trimmed.

Internal white space will be preserved.

<4> [Section 2.2.4.2.2.2](#): Obtained from sqlboot.dll Zero for local cubes.

<5> [Section 2.2.4.2.2.2](#): Obtained from sqlver.h.

<6> [Section 2.2.4.2.2.1](#):

Property	Default Value	Description
AdminTimeout	0	A signed 32-bit integer property that defines the administrator timeout in seconds.
AllowedBrowsingFolders	"%ProgramFiles%\Microsoft SQL Server\MSAS10.MSSQLSERVER\OLAP\Backup\ %ProgramFiles%\Microsoft SQL Server\MSAS10.MSSQLSERVER\OLAP\Log\"	A string property that defines the names of the folders where logs, backups, and other objects are allowed to be created on the server, in the form of a comma-separated list.
BackupDir	"%ProgramFiles%\Microsoft SQL Server\MSAS10.MSSQLSERVER\OLAP\Backup\"	A string property that identifies the name of the directory where backup files are created by default, in the event a path is not specified as part of the Backup command.
CollationName	"Latin1_General_CI_AS"	A string property that identifies the server collation. For more information,

Property	Default Value	Description
		see [MSDN-LCASMD] .
CommitTimeout	0	A signed 32-bit integer property that defines the number of milliseconds before pending commit operations time out. Zero indicates that the server will not time out commit operations.
CoordinatorBuildMaxThreads	4	A signed 32-bit integer property that defines the maximum number of threads allocated to building partition indexes. Increase this value in order to speed-up partition indexing, at the cost of memory usage.
CoordinatorCancelCount	1000	A signed 32-bit integer property that defines how frequently the server should check whether a Cancel event occurred (based on internal iteration count). Decrease this number in order to check for Cancel more frequently, at the expense of general performance.
CoordinatorExecutionMode	-4	A signed 32-bit integer property that defines the maximum number of parallel operations the server will attempt, including processing and querying operations. Zero (0) indicates that the server will decide, based on an internal algorithm. A positive number indicates the

Property	Default Value	Description
		maximum number of operations in total. A negative number, with the sign reversed, indicates the maximum number of operations per processor.
DataDir	"%ProgramFiles%\Microsoft SQL Server\MSAS10.MSSQLSERVER\OLAP\Data"	A string property that identifies the name of the directory where data is stored.
ExternalCommandTimeout	3600	A signed 32-bit integer property that defines the timeout, in seconds, for commands issued to external servers, including relational data sources and external Analysis Services servers.
ExternalConnectionTimeout	60	A signed 32-bit integer property that defines the timeout, in seconds, for creating connections to external servers, including relational data sources and external Analysis Services servers.
ForceCommitTimeout	30000	A signed 32-bit integer property that defines the timeout, in milliseconds, before a commit should cancel other commands that preceded the current command, including queries in process.
IdleConnectionTimeout	0	A signed 32-bit integer property that defines the idle connection timeout, in seconds. The value zero (0) indicates that idle connections will not be timed out.

Property	Default Value	Description
IdleOrphanSessionTimeout	120	A signed 32-bit integer property that defines how long orphaned sessions will be retained in server memory in seconds.
InstanceVisible	1	A Boolean property that indicates whether the server instance is visible to discover instance requests.
Language	1033	A string property that defines the language, including error messages and number formatting. This property overrides the CollationName property. Blank indicates that the CollationName property defines the language.
LogDir	"%ProgramFiles%\Microsoft SQL Server\MSAS10.MSSQLSERVER\OLAP\Log"	A string property that identifies the name of the directory that contains server logs. This property only applies when disk files are used for logging, as opposed to database tables (the default behavior).
MaxIdleSessionTimeout	0	A signed 32-bit integer property that defines the maximum idle session timeout, in seconds.
MinIdleSessionTimeout	2700	A signed 32-bit integer property that defines the minimum time, in seconds, that idle sessions will timeout. After this time expires, the server is permitted

Property	Default Value	Description
		to end the idle session, but will only do so as memory is needed.
Port	0	A signed 32-bit integer property that defines the port number on which server will listen for client connections. If not set, server dynamically finds first unused port. Zero (0) means that port 2383 will be used.
ServerTimeout	3600	A signed 32-bit integer property that defines the timeout in seconds for queries.
TempDir	"%ProgramFiles%\Microsoft SQL Server\MSAS10.MSSQLSERVER\OLAP\Temp"	A string property that identifies the name of the directory for defining temporary files used for processing, restoring, and other operations. If not specified, the default is the Data directory.
DataMining\Algorithms\Microsoft_Association_Rules\Enabled	1	A Boolean property that indicates whether the Microsoft_Association_Rules algorithm is enabled.
DataMining\Algorithms\Microsoft_Clustering\Enabled	1	A Boolean property that indicates whether the Microsoft_Clustering algorithm is enabled.
DataMining\Algorithms\Microsoft_Decision_Trees\Enabled	1	A Boolean property that indicates whether the Microsoft_DecisionTrees algorithm is enabled.
DataMining\Algorithms\Microsoft_Linear_Regression\Enabled	1	A Boolean property that indicates whether the

Property	Default Value	Description
		Microsoft_Linear_Regression algorithm is enabled.
DataMining\Algorithms\Microsoft_Logistic_Regression\Enabled	1	A Boolean property that indicates whether the Microsoft_Logistic_Regression algorithm is enabled.
DataMining\Algorithms\Microsoft_Naive_Bayes\Enabled	1	A Boolean property that indicates whether the Microsoft_Naive_Bayes algorithm is enabled.
DataMining\Algorithms\Microsoft_Neural_Network\Enabled	1	A Boolean property that indicates whether the Microsoft_Neural_Network algorithm is enabled.
DataMining\Algorithms\Microsoft_Sequence_Clustering\Enabled	1	A Boolean property that indicates whether the Microsoft_Sequence_Clustering algorithm is enabled.
DataMining\Algorithms\Microsoft_Time_Series\Enabled	1	A Boolean property that indicates whether the Microsoft_Time_Series algorithm is enabled.
DataMining\AllowAdHocOpenRowsetQueries	0	A Boolean property that indicates whether ad hoc open rowset queries are allowed.
DataMining\AllowedProvidersInOpenRowset	Empty	A string property that identifies which providers are allowed in an open rowset, consisting of a comma/semi-colon separated list of provider ProgIDs, or else [All].
DataMining\AllowSessionMiningModels	0	A Boolean property that indicates whether session

Property	Default Value	Description
		mining models can be created.
DataMining\MaxConcurrentPrediction Queries	0	A signed 32-bit integer property that defines the maximum number of concurrent prediction queries.
DSO\LocksDirectory	Empty	LocksDirectory is a folder where DSO keeps locking information. Locking information is created and deleted in this folder without any user intervention. Complete access to create, modify, and delete files is required in this folder for all DSO applications. LocksDirectory contains the path of the folder.
DSO\RemoteLocksDirectory	Empty	RemoteLocksDirectory contains the path of a shared folder where locks are kept for DSO applications.
DSO\RemoteRepositoryConnectionString	Empty	RemoteRepositoryConnectionString is a standard OLEDB SQL Server connection string that points to the SQL Server Analysis Services repository. If repository is a Microsoft Access database (an .mdb file), then the path of the file is a path of a shared folder. RemoteRepositoryConnectionString is used by DSO when the repository is located on a remote server. DSO checks the name of the server. If the name of the server is

Property	Default Value	Description
		localhost or it is the name of the computer, then DSO uses RepositoryConnectionString, otherwise DSO uses RemoteRepositoryConnectionString.
DSO\RepositoryConnectionString	Empty	RepositoryConnectionString is a standard OLEDB connection string that points to the SQL Server repository. If the repository is a Microsoft Access database (an .mdb file), then the path of the file is a local path. RepositoryConnectionString is used by DSO when repository is locally available on the server. DSO checks the name of the server. If the name of the server is localhost or it is the name of the computer, then DSO uses RepositoryConnectionString, otherwise DSO uses RemoteRepositoryConnectionString.
Feature\ComUdfEnabled	0	A Boolean property that indicates whether user-defined functions defined as com objects are enabled.
Feature\LinkFromOtherInstanceEnabled	0	A Boolean property that indicates whether objects can be linked to from other server instances.
Feature\LinkInsideInstanceEnabled	1	A Boolean property that indicates whether a linked object can be created

Property	Default Value	Description
		inside the same server instance.
Feature\LinkToOtherInstanceEnabled	0	A Boolean property that indicates whether objects on remote servers can be linked to.
Log\ErrorLog\ErrorLogFileName	Empty	A property used as a default during processing operation performed by the server.
Log\ErrorLog\ErrorLogFileSize	4	A property used as a default during processing operation performed by the server.
Log\ErrorLog\KeyErrorAction	0	A property used as a default during processing operation performed by the server.
Log\ErrorLog\KeyErrorLimit	0	A property used as a default during processing operation performed by the server.
Log\ErrorLog\KeyErrorLimitAction	0	A property used as a default during processing operation performed by the server.
Log\ErrorLog\KeyErrorLogFile	Empty	A property used as a default during processing operation performed by the server.
Log\ErrorLog\LogErrorTypes\KeyDuplicate	0	A property used as a default during processing operation performed by the server.
Log\ErrorLog\LogErrorTypes\KeyNotFound	1	A property used as a default during processing operation performed by the server.
Log\ErrorLog\LogErrorTypes\NullKeyC	0	A property used as a

Property	Default Value	Description
onvertedToUnknown		default during processing operation performed by the server.
Log\ErrorLog\LogErrorTypes\NullKey NotAllowed	1	A property used as a default during processing operation performed by the server.
Log\File	"msmdsrv.log"	A string property that identifies the name of the server log file. This property only applies when a disk file is used for logging, as opposed to a database table (the default behavior).
Log\FlightRecorder\Enabled	1	A Boolean property that indicates whether the flight recorder feature is enabled.
Log\FlightRecorder\FileSizeMB	10	A signed 32-bit integer property that defines the size of the flight recorder disk file, in megabytes.
Log\FlightRecorder\LogDurationSec	3600	A signed 32-bit integer property that defines the frequency that the flight recorder is rolled over, in seconds.
Log\FlightRecorder\SnapshotDefinitionFile	Empty	A string property that defines the name of the snapshot definition file, containing discover commands that are issued to the server when a snapshot is taken. Blank signifies file name FlightRecorderSnapshotDef.xml.
Log\FlightRecorder\SnapshotFrequency	120	A signed 32-bit

Property	Default Value	Description
cySec		integer property that defines the snapshot frequency, in seconds.
Log\FlightRecorder\TraceDefinitionFile	Empty	A string property that specifies the name of the flight recorder trace definition file. Blank indicates FlightRecorderTraceDef.xml.
Log\MessageLogs	"File;Console;System"	An advanced property that should not be changed, except under the guidance of Microsoft support.
Log\QueryLog\CreateQueryLogTable	0	A Boolean property that specifies whether to create the query log table.
Log\QueryLog\QueryLogConnectionString	Empty	A string property that specifies the connection to the query log database.
Log\QueryLog\QueryLogFileName	Empty	A string property that specifies the name of the query log file. This property only applies when a disk file is used for logging, as opposed to a database table (the default behavior).
Log\QueryLog\QueryLogSampling	10	A signed 32-bit integer property that specifies the query log sampling rate. 10, for example, means that 1 out of every 10 server queries is logged.
Log\QueryLog\QueryLogTableName	"OlapQueryLog"	A string property that specifies the name of the query log table.
Log\Trace\TraceReportFQDN	0	An advanced property that should

Property	Default Value	Description
		not be changed, except under the guidance of Microsoft support.
Memory\HardMemoryLimit	0	The target maximum memory use for the server. If memory use exceeds this value, the server will free all shrinkable memory, and if memory use still exceeds the limit after freeing all shrinkable memory, the server will kill all running commands. Default is $(TotalMemoryLimit + \min(\text{system physical memory, system total available virtual memory}))/2$.
Memory\HeapTypeForObjects	1	An advanced property that should not be changed, except under the guidance of Microsoft support.
Memory\LowMemoryLimit	65	A signed 64-bit double-precision floating-point number property that defines the point at which the server is low on memory, expressed as percentage of total physical memory. When this threshold is reached, the server aggressively looks for opportunities to free up memory.
Memory\MemoryHeapType	1	An advanced property that should not be changed, except under the guidance of Microsoft support.
Memory\TotalMemoryLimit	80	A property that defines the

Property	Default Value	Description
		maximum physical memory the server will use, expressed as percentage of total physical memory.
Network\Listener\IPV4Support	1	A signed 32-bit integer property that defines support for IPv4 protocol. This property can have one of the following values: <ul style="list-style-type: none"> ▪ 0 – IPv4 disabled ▪ 1 – IPv4 required ▪ 2 – IPv4 optional
Network\Listener\IPV6Support	2	A signed 32-bit integer property that defines support for IPv6 protocol. This property can have one of the following values: <ul style="list-style-type: none"> ▪ 0 – IPv6 disabled ▪ 1 – IPv6 required ▪ 2 – IPv6 optional
Network\Listener\MaxAllowedRequestSize	0	An advanced property that should not be changed, except under the guidance of Microsoft support.
Network\ListenOnlyOnLocalConnections	0	A Boolean property that identifies whether to listen only on local connections, for example localhost.
Network\Requests\EnableBinaryXML	0	A Boolean property that specifies whether the server will recognize requests binary xml format.
Network\Requests\EnableCompression	0	A Boolean property

Property	Default Value	Description
n		that specifies whether compression is enabled for requests.
Network\Responses\EnableBinaryXML	1	A Boolean property that specifies whether the server is enabled for binary xml responses.
Network\Responses\EnableCompression	1	A Boolean property that specifies whether compression is enabled for responses to client requests.
OLAP\LazyProcessing\Enabled	1	A Boolean property that specifies whether lazy aggregation processing is enabled.
OLAP\LazyProcessing\MaxCPUUsage	0.5	A signed 64-bit double-precision floating-point number property that defines maximum CPU usage for lazy processing, expressed as a percentage. The server monitors average CPU use based on snapshots. It is normal behavior for the CPU to spike above this threshold.
OLAP\LazyProcessing\MaxObjectsInParallel	2	A signed 32-bit integer property that specifies the maximum number of partitions that can be lazily processed in parallel.
OLAP\LazyProcessing\MaxRetries	3	A signed 32-bit integer property that defines the number of retries in the event that lazy processing fails before an error is raised.

Property	Default Value	Description
OLAP\LazyProcessing\SleepIntervalSeconds	5	A signed 32-bit integer property that defines the interval, in seconds, that the server checks whether there are lazy processing jobs pending.
OLAP\Process\AggregationMemoryLimitMax	80	A signed 64-bit double-precision floating-point number property that defines the maximum amount of memory that can be devoted to aggregation processing, expressed as a percentage of physical memory.
OLAP\Process\AggregationMemoryLimitMin	10	A signed 64-bit double-precision floating-point number property that defines the minimum amount of memory that can be devoted to aggregation processing, expressed as a percentage of physical memory. A larger value may speed up aggregation processing at the cost of memory usage.
OLAP\Process\BufferMemoryLimit	60	A signed 64-bit double-precision floating-point number property that defines the processing buffer memory limit, expressed as a percent of physical memory.
OLAP\Process\CheckDistinctRecordSortOrder	1	A Boolean property that defines if the sort order for the

Property	Default Value	Description
		results of a distinct count query are meaningful when processing partitions. True indicates the sort order is not meaningful and must be checked by the server. When processing partitions with distinct count measure, query sent to SQL with order-by. Set to false to speed up processing.
OLAP\Process\DatabaseConnectionPoolConnectTimeout	60	A signed 32-bit integer property that specifies timeout when opening a new connection in seconds.
OLAP\Process\DatabaseConnectionPoolGeneralTimeout	60	A signed 32-bit integer property that specifies database connection timeout for use with external OLEDB connections in seconds.
OLAP\Process\DatabaseConnectionPoolMax	50	A signed 32-bit integer property that specifies the maximum number of pooled database connections.
OLAP\Process\DatabaseConnectionPoolTimeout	120000	An advanced property that should not be changed, except under the guidance of Microsoft support.
OLAP\Process\DeepCompressValue	1	A Boolean property applying to measures with Double data type that specifies whether numbers can be compressed, causing a loss in numeric precision. A value of False indicates no compression and no precision loss.

Property	Default Value	Description
OLAP\Process\IndexBuildThreshold	4096	A signed 32-bit integer property that specifies a row count threshold below which indexes will not be built for partitions.
OLAP\Process\RecordsReportGranularity	10000	A signed 32-bit integer property that specifies how often the server records Trace events during processing, in rows.
OLAP\Process\ROLAPDimensionProcessingEffort	300000	An advanced property that should not be changed, except under the guidance of Microsoft support.
OLAP\ProcessPlan\EnableRolapDimQueryTableGrouping	1	A Boolean property that specifies whether table grouping is enabled for ROLAP dimensions. If true, when querying ROLAP dimensions at runtime, entire ROLAP dimension tables are queried at once, as opposed to separate queries for each attribute.
OLAP\ProcessPlan\MemoryLimitErrorEnabled	1	An advanced property that should not be changed, except under the guidance of Microsoft support.
OLAP\Query\DefaultDrillthroughMaxRows	10000	A signed 32-bit integer property that specifies the maximum number of rows that will return from a drill-through query.
OLAP\Query\NonEmptyBehaviorMode	1	Defines default for Non_Empty_behavior MDX property.
Security\BuiltinAdminsAreServerAdmins	1	A Boolean property that indicates

Property	Default Value	Description
ns		whether members of the local machine administrators group are Analysis Services administrators.
Security\DataProtection\RequiredProtectionLevel	1	A signed 32-bit integer property that defines the required protection level for all client requests. This property can have one of the following values: <ul style="list-style-type: none"> ▪ 0 – None disabled ▪ 1 – Encryption required ▪ 2 –Clear-text requests allowed but only with signatures
Security\DisableClientImpersonation	0	A Boolean property that indicates whether client impersonation (for example, from stored procedures) is disabled.
Security\RequireClientAuthentication	1	A Boolean property that indicates whether client authentication is required.
Security\SecurityPackageList	Empty	A string property that contains a comma-separated list of SSPI packages used by server for client authentication.
Security\ServiceAccountIsServerAdmin	1	A Boolean property that indicates whether the service account is a server administrator.
ThreadPool\Process\MaxThreads	64	The target maximum number of threads for the thread pool used by processing operations. Default is 64. If a value less

Property	Default Value	Description
		than 64 is specified, the server will use the default value.
ThreadPool\Process\MinThreads	1	The minimum number of threads for the thread pool used by processing operations. Default is 1.
ThreadPool\Query\MaxThreads	10	A signed 32-bit integer property that defines the maximum number of threads.
ThreadPool\Query\MinThreads	1	A signed 32-bit integer property that defines the minimum number of threads for queries.

<7> [Section 2.2.4.2.2.4](#): The **Filter** element is only supported in SQL Server 2008 Analysis Services and later versions.

<8> [Section 2.2.4.2.2.8.1](#): The **ProcessingState** element is only supported in SQL Server 2008 R2 Analysis Services and later versions.

<9> [Section 2.2.4.2.2.8.2](#): The **MemberKeysUnique** element is only supported in SQL Server 2005 Analysis Services SP2 and later versions.

<10> [Section 2.2.4.2.2.9](#): Follows SQL Server Analysis Services form of LCID & "_" & compare flag.

<11> [Section 2.2.4.2.2.9.2](#): SQL Server Analysis Services implicitly includes any attributes not specified in the collection with their default values.

<12> [Section 2.2.4.2.2.9.3](#): SQL Server Analysis Services implicitly includes hierarchies not specified in the collection with their default values.

<13> [Section 2.2.4.2.2.9.4](#): SQL Server Analysis Services provides list of known graphics such as arrow, chart, and so on; however, other values are possible.

<14> [Section 2.2.4.2.2.9.4](#): SQL Server Analysis Services provides a list of known values; however, other values are possible.

<15> [Section 2.2.4.2.2.11.1.2](#): SQL Server Analysis Services populates attributes that are not specified in the collection with default element values.

<16> [Section 2.2.4.2.2.14.1.1](#): DefaultMember is not used in SQL Server Analysis Services. It is ignored and is therefore a no-op.

<17> [Section 2.2.4.2.2.16](#): SQL Server Analysis Services supports the following values for the Algorithm element:

Microsoft_Decision_Trees

Microsoft_Naive_Bayes

Microsoft_Clustering

Microsoft_Neural_Network

Microsoft_Logistic_Regression

Microsoft_Linear_Regression

Microsoft_Association_Rules

Microsoft_Time_Series

Microsoft_Sequence_Clustering]

[<18> Section 2.2.4.2.2.16:](#) The FoldingParameters element is only supported in SQL Server 2008 Analysis Services and later versions.

[<19> Section 2.2.4.2.2.16:](#) The Filter element is only supported in SQL Server 2008 Analysis Services and later versions.

[<20> Section 2.2.4.2.2.16.1:](#) SQL Server Analysis Services supports certain ModelingFlag values as built-in to algorithms included in the server, such as MODEL_EXISTENCE_ONLY and REGRESSOR.

[<21> Section 2.2.4.2.2.16.2:](#) The Filter element is only supported in SQL Server 2008 Analysis Services and later versions.

[<22> Section 2.2.4.2.2.16.4:](#) The FoldingParameters element is only supported in SQL Server 2008 Analysis Services and later versions.

[<23> Section 2.2.4.2.2.16.4:](#) The FoldIndex element is only supported in SQL Server 2008 Analysis Services and later versions.

[<24> Section 2.2.4.2.2.16.4:](#) The FoldCount element is only supported in SQL Server 2008 Analysis Services and later versions.

[<25> Section 2.2.4.2.2.16.4:](#) The MaxFoldCases element is only supported in SQL Server 2008 Analysis Services and later versions.

[<26> Section 2.2.4.2.2.16.4:](#) The FoldTargetAttribute element is only supported in SQL Server 2008 Analysis Services and later versions.

[<27> Section 2.2.4.2.2.17:](#) Microsoft does not guarantee that the Annotation\Name element produced by Microsoft products is in a style that references the vendor's XML Namespace, although in many cases, it may be so.

[<28> Section 2.2.4.2.2.19:](#) For the Automatic value of NullProcessing, the server will use ZeroOrBlank (for OLAP) and "UnknownMember" (for DM).

[<29> Section 2.2.4.2.2.20.25:](#) The RowNumberBinding type may be used only if the Database, Cube, or MeasureGroup uses memory storage mode.

[<30> Section 2.2.4.2.2.31:](#) The behavior of the value "Default" is dependent upon the context in which impersonation is used.

[<31> Section 2.3.1:](#) SQL Server Analysis Services does break down DIME messages into multiple records.

<32> [Section 2.3.1:](#) SQL Server Analysis Services sets the RESERVED field in the DIME OPTIONS field to 0.

<33> [Section 2.3.1:](#) By default, SQL Server Analysis Services uses the content type **application/sx+express**. However, it can be configured to use the other content types (**text/xml**, **application/sx**, or **application/xml+express**).

<34> [Section 3.1.3:](#) SQL Server Analysis Services supports sessions.

<35> [Section 3.1.3:](#) SQL Server Analysis Services ends sessions automatically after a period of inactivity that can be configured.

<36> [Section 3.1.4.2.3.1.1:](#) SQL Server Analysis Services includes an asterisk (*) in the ROLES column if the current user is a server administrator or database administrator. SQL Server Analysis Services includes the system user name as a role if one of the roles uses dynamic security.

<37> [Section 3.1.4.2.3.3.1:](#) SQL Server Analysis Services always returns the value "FALSE" for IS_NULLABLE]

<38> [Section 3.1.4.2.3.4.1:](#) SQL Server Analysis Services will return one of the following values:

- SHORT
- LONG
- FLOAT
- DOUBLE
- CURRENCY
- DATE
- BSTR
- USHORT
- ULONG
- CHAR
- WCHAR
- VARIANT

<39> [Section 3.1.4.2.3.4.1:](#) SQL Server Analysis Services always returns the value "TRUE" for IS_NULLABLE.

<40> [Section 3.1.4.2.3.4.1:](#) SQL Server Analysis Services always returns the value "3" for SEARCHABLE.

<41> [Section 3.1.4.2.3.4.1:](#) SQL Server Analysis Services always returns the value "FALSE" for FIXED_PREC_SCALE.

<42> [Section 3.1.4.2.3.4.1:](#) SQL Server Analysis Services always returns the value "FALSE" for AUTO_UNIQUE_VALUE.

<43> [Section 3.1.4.2.3.4.1:](#) SQL Server Analysis Services always returns the value "TRUE" for BEST_MATCH.

<44> [Section 3.1.4.2.3.4.1:](#) SQL Server Analysis Services always returns the value "TRUE" for IS_FIXEDLENGTH.

<45> [Section 3.1.4.2.3.5.1:](#) SQL Server Analysis Services does not support the concept of schemas and always returns NULL for SCHEMA_NAME in all Discover responses containing this column.

<46> [Section 3.1.4.2.3.5.1:](#) SQL Server Analysis Services always returns TRUE for the IS_DRILLTHROUGH_ENABLED column.

<47> [Section 3.1.4.2.3.6.1:](#) SQL Server Analysis Services does not support the concept of schemas and always returns NULL for SCHEMA_NAME in all Discover responses containing this column.

<48> [Section 3.1.4.2.3.6.1:](#) SQL Server Analysis Services always returns FALSE for the IS_VIRTUAL column.

<49> [Section 3.1.4.2.3.7.1:](#) For SQL Server Analysis Services providers that generate unique names by qualification, each component of this unique dimension name is delimited.

<50> [Section 3.1.4.2.3.7.1:](#) SQL Server Analysis Services always returns a value for the HIERARCHY_NAME column.

<51> [Section 3.1.4.2.3.7.1:](#) SQL Server Analysis Services always returns FALSE for the IS_VIRTUAL column.

<52> [Section 3.1.4.2.3.7.1:](#) SQL Server Analysis Services returns TRUE if the WritebackToDimension column that represents this column is enabled.

<53> [Section 3.1.4.2.3.7.1:](#) SQL Server Analysis Services always returns 0x01 for the DIMENSION_UNIQUE_SETTINGS column.

<54> [Section 3.1.4.2.3.7.1:](#) SQL Server Analysis Services always misses the DIMENSION_MASTER_UNIQUE_NAME column.

<55> [Section 3.1.4.2.3.7.1:](#) SQL Server Analysis Services always returns TRUE for the DIMENSION_IS_VISIBLE column. If the dimension is not visible, it will not appear in the schema rowset.

<56> [Section 3.1.4.2.3.7.1:](#) SQL Server Analysis Services always returns TRUE for the DIMENSION_IS_SHARED column.

<57> [Section 3.1.4.2.3.8.1:](#) For SQL Server Analysis Services providers that generate unique names by qualification, each component of the unique dimension name is delimited.

<58> [Section 3.1.4.2.3.8.1:](#) In SQL Server Analysis Services, if a caption does not exist, LEVEL_NAME is returned.

<59> [Section 3.1.4.2.3.9.1:](#) SQL Server Analysis Services will always return NULL for LEVELS_LIST.

<60> [Section 3.1.4.2.3.9.1:](#) SQL Server Analysis Services folder names are separated by a semicolon. Nested folders are indicated by a backslash (\).

<61> [Section 3.1.4.2.3.10.1:](#) In SQL Server Analysis Services, if the key for the property is the same as the name for the property, the PROPERTY_NAME column will be blank.

<62> [Section 3.1.4.2.3.10.1:](#) SQL Server Analysis Services returns the PROPERTY_NAME column if a caption does not exist.

[<63> Section 3.1.4.2.3.11.1:](#) In SQL Server Analysis Services, the member type value 4 (formula) takes precedence over the member type value 3 (measure). For example, if there is a formula (calculated) member on the Measures dimension, it is listed as 4.

[<64> Section 3.1.4.2.3.19.1:](#) SQL Server Analysis Services populates this column with one of the following values:

- DM_SERVICETYPE_CLASSIFICATION (1)
- DM_SERVICETYPE_CLUSTERING (2)]

[<65> Section 3.1.4.2.3.33.1:](#) SQL Server Analysis Services always returns the values MDP, TDP, and DMP for ProviderType.

[<66> Section 3.1.4.2.3.33.1:](#) SQL Server Analysis Services always returns the value.

[<67> Section 3.1.4.3.2.1.1.15:](#) Locks are held in the context of the current transaction. When the transaction commits or rolls back, the locks are automatically released.

[<68> Section 3.1.4.3.2.1.1.27:](#) SQL Server Analysis Services does not support the Statement command within a Batch.

[<69> Section 3.1.4.4:](#) SQL Server Analysis Services ignores this value, and it is always treated as if "TupleFormat" were specified.

[<70> Section 3.1.4.4:](#) SQL Server Analysis Services always returns the value 6 for ProviderType. This is a product defect, and the expected value is 3.

[<71> Section 3.1.4.4:](#) SQL Server Analysis Services returns the value "512".

[<72> Section 3.1.4.4:](#) SQL Server Analysis Services always returns 1.

[<73> Section 3.1.4.4:](#) SQL Server Analysis Services returns the value "Database" for DbpropCatalogTerm.

[<74> Section 3.1.4.4:](#) SQL Server Analysis Services always returns "0" for DbpropCatalogUsage.

[<75> Section 3.1.4.4:](#) SQL Server Analysis Services always returns "0" for DbpropColumnDefinition.

[<76> Section 3.1.4.4:](#) SQL Server Analysis Services always returns the value "1" for DbpropConcatNullBehavior.

[<77> Section 3.1.4.4:](#) SQL Server Analysis Services returns the value "FALSE" for DbpropDataSourceReadOnly.

[<78> Section 3.1.4.4:](#) SQL Server Analysis Services always returns the value "2" for DbpropGroupBy.

[<79> Section 3.1.4.4:](#) SQL Server Analysis Services always returns the value "0" for DbpropHeterogeneousTables.

[<80> Section 3.1.4.4:](#) SQL Server Analysis Services always returns the value "8" for DbpropIdentifierCase.

[<81> Section 3.1.4.4:](#) SQL Server Analysis Services always returns the value "0" for DbpropMaxIndexSize.

<82> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "0" for DbpropMaxOpenChapters.

<83> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "0" for DbpropMaxRowSize.

<84> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "TRUE" for DbpropMaxRowSizeIncludeBlob.

<85> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "0" for DbpropMaxtablesInSelect.

<86> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "FALSE" for DbpropMultiTableUpdate.

<87> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "4" for DbpropNullCollation.

<88> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "FALSE" for DbpropOrderByColumnsInSelect.

<89> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "1" for DbpropOutputParameterAvailable.

<90> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "4" for DbpropPersistentIdType.

<91> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "1" for DbpropPrepareAbortBehavior.

<92> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "1" for DbpropPrepareCommitBehavior.

<93> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "Calculated member" for DbpropProcedureTerm.

<94> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "8" for DbpropQuotedIdentifierCase.

<95> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "0" for DbpropSchemausage.

<96> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "512" for DbpropSqlSupport.

<97> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "0" for DbpropSubqueries.

<98> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "0" for DbpropSupportedTxnDdl.

<99> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "4096" for DbpropSupportedTxnIsoLevels.

<100> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "292" for DbpropSupportedTxnIsoRetain.

<101> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "Cube" for DbpropTableTerm.

<102> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "4" for MdpropAggregateCellUpdate.

<103> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "2147483647" for MdpropAxes.

<104> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "1" for MdpropFlatteningSupport.

<105> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "3" for MdpropMdxCaseSupport.

<106> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "7" for MdpropMdxDescFlags.

<107> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "3" for MdpropMdxDrillFunctions.

<108> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "63" for MdpropMdxFormulas.

<109> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "1" for MdpropMdxJoinCubes.

<110> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "15" for MdpropMdxMemberFunctions.

<111> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "0" for MdpropMdxNonMeasureExpressions.

<112> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "2047" for MdpropMdxNumericFunctions.

<113> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "496" for MdpropMdxObjQualification.

<114> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "0" for MdpropMdxOuterReference.

<115> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "TRUE" for MdpropMdxQueryByProperty.

<116> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "4" for MdpropMdxRangeRowset.

<117> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "524287" for MdpropMdxSetFunctions.

<118> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "2" for MdpropMdxSlicer.

<119> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "15" for MdpropMdxStringCompop.

<120> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "3" for MdpropNamedLevels.

<121> [Section 3.1.4.4](#): SQL Server Analysis Services always returns the value "Core" for MDXSupport.

<122> [Section 3.1.4.4](#): SQL Server Analysis Services ignores the value for DbpropInitMode.

<123> [Section 3.1.4.4](#): SQL Server Analysis Services attempts to deduce the dialect from the content of the command statement, but will use the value provided in the Dialect property if the command contains a value for this property.

<124> [Section 3.1.4.4](#): SQL Server 2008 R2 Analysis Services always returns the value "31" for MdpropMdxSubqueries. SQL Server 2008 Analysis Services always returns the value "15". SQL Server 2005 Analysis Services always returns the value "3".

<125> [Section 3.1.4.4](#): In SQL Server Analysis Services, the value 0 for DbpropMsmdAutoExists can have the same meaning as 1 or 3, depending on the setting of the server property ConfigurationSettings\OLAP\Query\AxisSetShallow.

<126> [Section 3.1.4.4](#): In SQL Server Analysis Services, the value 31 is returned for MOLAP servers and the value 23 is returned for in-memory servers.

<127> [Section 3.2.1](#): SQL Server 2005 Analysis Services supports one default instance and multiple named instances of the server on a single computer. The default TCP port number for the default instance is 2383. In order to connect to a named instance, the client MUST first connect to the SQL Browser service on port 2382, get the list of named instances on the computer by sending a DISCOVER_INSTANCES request, and then examine the response to determine the TCP port number corresponding to the desired named instance.

8 Change Tracking

This section will report content and/or editorial changes, beginning with the next release.

Preliminary

9 Index

A

[Abstract data model](#) 189
[Applicability statement](#) 19
[Attribute groups](#) 184
[Attributes](#) 184
[Authenticate](#) 191

B

[Binary XML](#) 187

C

[Capability negotiation](#) 19
[Common message syntax](#) 20
[Complex type - PropertyList](#) 322
Complex types
 [object definition](#) 34
 [return value](#) 21
 [trace definition](#) 180
[Compression](#) 187

D

[Data model - abstract](#) 189
[Discover](#) 193

E

[Elements](#) 21
[Encryption](#) 187
[Execute](#) 291

G

[Glossary](#) 13
[Groups](#) 184
[Groups - attribute](#) 184

H

[HTTP/HTTPS](#) 186

I

[Informative references](#) 16
[Initialization](#) 189

M

[Message details - transport-specific](#) 184
[Message processing events](#) 191
[Message syntax - common](#) 20
[Messages](#) 21

N

[Namespaces](#) 20

[Normative references](#) 15

O

[Object definition complex types](#) 34
[Other protocols - relationship to](#) 18
[Overview](#) 17

P

[Preconditions](#) 18
[Prerequisites](#) 18
[PropertyList complex type](#) 322
Protocol examples
 [Alter command](#) 628
 [Backup command](#) 631
 [BeginTransaction command](#) 632
 [client obtains a list of commands from the server](#) 414
 [client obtains a list of connections from the server](#) 406
 [client obtains a list of cubes from the server over HTTP](#) 382
 [client obtains a list of databases from the server over TCP](#) 369
 [client obtains a list of locks from the server](#) 409
 [client obtains a list of measures from the server](#) 386
 [client obtains a list of mining models from the server](#) 404
 [client obtains a list of properties from the server](#) 388
 [client obtains a list of traces from the server](#) 405
 [client obtains list of trace column definitions](#) 418
 [client obtains list of trace event categories](#) 427
 [client obtains trace provider information](#) 416
 [client sends MDX query and receives back mddataset result](#) 498
 [CommitTransaction command](#) 632
 [Create command](#) 565
 [Delete command](#) 629
 [Process command](#) 630
 [Restore command](#) 631
 [RollbackTransaction command](#) 633
[Protocol overview](#) 17

R

References
 [informative](#) 16
 [normative](#) 15
[Relationship to other protocols](#) 18
[Return value complex types](#) 21

S

[Security considerations for implementers](#) 635
[Sequencing rules](#) 191
[Simple types](#) 184

[Synopsis](#) 17
[Syntax - common message](#) 20

T

[TCP](#) 184
[Timer events](#) 365
[Timers](#) 189
[Trace definition complex types](#) 180
[Transport](#) 20
[Transport-specific message details](#) 184
[Types - simple](#) 184

V

[Versioning](#) 19

X

[XML -binary](#) 187