

## [MS-DPSMDL]:

# Semantic Model Definition Language Data Portability Overview

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## Revision Summary

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# 1 Introduction

The Semantic Model Definition Language Data Portability Overview document provides an overview of the data portability for the SQL Server Reporting Services Semantic Model Definition Language (SMDL) system. This system includes a repository for SMDL documents, such as the Reporting Services report server catalog, SharePoint products and technologies, or the file system and SMDL documents.

SMDL documents [\[MS-SMDL\]](#) represent the definition of a data **model**. These documents are set or retrieved in the report server catalog by using the **SOAP** endpoints—ReportService2005 [\[MS-RSWSRMNM2005\]](#), ReportService2006 [\[MS-RSWSRMSM2006\]](#), or ReportService2010 [\[MS-RSWSRM2010\]](#)—or they are opened or saved in a SharePoint library or in the file system.

## 1.1 Glossary

This document uses the following terms:

**data source:** A physical data source.

**field:** An attribute or role of an entity.

**model:** A semantic model.

**report:** An object that is a combination of three kinds of information: data or other kinds of information about how to obtain the data (queries) as well as the structure of the data; layout or formatting information that describes how the data is presented; and properties of the report, such as author of the report, report parameters, and images included in the report.

**SOAP:** A lightweight protocol for exchanging structured information in a decentralized, distributed environment. **SOAP** uses XML technologies to define an extensible messaging framework, which provides a message construct that can be exchanged over a variety of underlying protocols. The framework has been designed to be independent of any particular programming model and other implementation-specific semantics. SOAP 1.2 supersedes SOAP 1.1. See [\[SOAP1.2-1/2003\]](#).

**table:** A two-dimensional object in a relational database that stores data in rows and columns.

## 1.2 References

Links to a document in the Microsoft Open Specifications library point to the correct section in the most recently published version of the referenced document. However, because individual documents in the library are not updated at the same time, the section numbers in the documents may not match. You can confirm the correct section numbering by checking the [Errata](#).

[MS-RSWSRM2010] Microsoft Corporation, "[Report Server Web Service for Report Management: ReportService2010](#)".

[MS-RSWSRMNM2005] Microsoft Corporation, "[Report Server Web Service for Report Management Native Mode: ReportService2005](#)".

[MS-RSWSRMSM2006] Microsoft Corporation, "[Report Server Web Service for Report Management SharePoint Mode: ReportService2006](#)".

[MS-SMDL] Microsoft Corporation, "[Semantic Model Definition Language File Format](#)".

## 2 Data Portability Scenarios

### 2.1 Third-Party Reporting Platform Consuming SMDL Documents in the Report Server Catalog

#### 2.1.1 Data Description

The SMDL [\[MS-SMDL\]](#) document contains the definition of a data model, which contains the metadata description of a **data source** and its relationships. It includes business names for database **fields** and **tables**, relationships between items in the data source, and logical groupings of model items.

This SMDL data is used to generate the queries for retrieving data to be rendered in a **report**. The SMDL data is stored in the report server catalog when Reporting Services is running in native mode.

This SMDL data is created by Reporting Services Report Manager, by Business Intelligence Development Studio, by a third-party SMDL authoring tool, or by using a text editor.

#### 2.1.2 Format and Protocol Summary

The following table provides a comprehensive list of the formats and protocols that are used in this data portability scenario.

Protocol or format name	Description	Reference
ReportService2005 web service protocol	This protocol is used to communicate with the report server to execute report server catalog operations. The ReportService2005 web service protocol is available in Microsoft SQL Server 2005, Microsoft SQL Server 2008, and Microsoft SQL Server 2008 R2.	<a href="#">[MS-RSWSRMNM2005]</a>
ReportService2010 web service protocol	This protocol is used to communicate with the report server to execute report server catalog operations. The ReportService2010 web service protocol is available in SQL Server 2008 R2.	<a href="#">[MS-RSWSRM2010]</a>
Semantic Model Definition Language	This file format is used to represent the metadata description of a data source and its relationships.	<a href="#">[MS-SMDL]</a>

#### 2.1.3 Data Portability Methodology

For this scenario, the documents containing the SMDL data are extracted from the report server catalog one by one and stored in a file on the file system. This is done by using the SOAP endpoints that are provided by the report server. In this scenario, the ReportService2005 [\[MS-RSWSRMNM2005\]](#) and the ReportService2010 [\[MS-RSWSRM2010\]](#) SOAP endpoints enable implementers to programmatically extract the data from the report server catalog.

To extract the data from the report server catalog by using Report Server web services:

1. Create a folder on the client machine for storing the retrieved SMDL documents.
2. Using a SOAP proxy to access the ReportService2005 web service or the ReportService2010 web service, get the list of SMDL documents in the report server catalog by using the **ListChildren()** SOAP web method.
  1. For the first call to **ListChildren()**, use "/" as the value for the *Item* parameter. This returns each **CatalogItem** that is at the root level.

2. For each **CatalogItem** that is returned, follow these steps:
  1. If the **CatalogItem** is of type **Model**, store the **CatalogItem.Path**.
  2. If the **CatalogItem** is of type **Folder**, repeat steps 2.1 and 2.2.
3. Retrieve each SMDL definition from the report server catalog. For each item path stored in step 2, follow these steps:
  1. Call the **GetModelDefinition()** SOAP web method, passing in the item path as the value for the *Model* parameter.
  2. Create a file in the folder that was created in step 1. Use the returned byte array as the contents of the file.
4. Use the SMDL documentation [\[MS-SMDL\]](#) to interpret the SMDL data that was retrieved in the previous step for use in the third-party reporting platform.

#### **2.1.3.1 Preconditions**

Ensure that the Reporting Services service is started on the server and that the appropriate permissions are granted to the user who is using the ReportService2005 or ReportService2010 SOAP endpoint to access the report server catalog.

#### **2.1.3.2 Versioning**

None.

#### **2.1.3.3 Error Handling**

None.

#### **2.1.3.4 Coherency Requirements**

There are no special coherency requirements.

#### **2.1.3.5 Additional Considerations**

There are no additional considerations.

## **2.2 Third-Party Reporting Platform Consuming SMDL Documents in SharePoint**

### **2.2.1 Data Description**

The SMDL [\[MS-SMDL\]](#) document contains the metadata description of a data source, including business names for database fields and tables, defined relationships between items in the data source, and logical groupings of model items.

This SMDL data is used to generate the queries for retrieving data to be rendered in a report. The SMDL data is stored in both the report catalog and the SharePoint library when running Reporting Services in SharePoint integrated mode.

This data is created by Reporting Services Report Manager, by Business Intelligence Development Studio, by a third-party SMDL authoring tool, or by using a text editor.

## 2.2.2 Format and Protocol Summary

The following table provides a comprehensive list of the formats and protocols used in this data portability scenario.

Protocol or format name	Description	Reference
Simple Object Access Protocol	This protocol is used to communicate with the report server to execute report server catalog operations.	SOAP
Semantic Model Definition Language	This file format is used to represent the metadata description of a data source and its relationships.	<a href="#">[MS-SMDL]</a>

## 2.2.3 Data Portability Methodology

Because the data is stored in both the SharePoint repository and the report server catalog, the approach for this scenario is to extract the data by accessing the report server catalog using the steps outlined in section 2.1.3. However, instead of using the ReportService2005 [\[MS-RSWSRMNM2005\]](#) and the ReportService2010 [\[MS-RSWSRM2010\]](#) SOAP endpoints, the ReportService2006 [\[MS-RSWSRMSM2006\]](#) SOAP endpoint is used in this scenario.

The ReportService2006 SOAP endpoint enables implementers to programmatically manage objects on a report server that is configured for SharePoint integrated mode.

To extract the data from the report server catalog by using the ReportService2006 web services:

1. Create a folder on the client machine for storing the retrieved SMDL documents.
2. Using a SOAP proxy to access the ReportService2006 web service, get the list of SMDL documents in the report server catalog by using the **ListChildren()** SOAP web method.
  1. For the first call to **ListChildren()**, use "/" as the value for the *Item* parameter. This returns each **CatalogItem** that is at the root level.
  2. For each **CatalogItem** that is returned, follow these steps:
    1. If the **CatalogItem** is of type **Model**, store the **CatalogItem.Path**.
    2. If the **CatalogItem** is of type **Folder**, repeat steps 2.1 and 2.2.
3. Retrieve each SMDL definition from the report server catalog. For each item path stored in step 2, follow these steps:
  1. Call the **GetModelDefinition()** SOAP web method, passing in the item path as the value for the *Model* parameter.
  2. Create a file in the folder that was created in step 1. Use the returned byte array as the contents of the file.
4. Use the SMDL documentation [\[MS-SMDL\]](#) to interpret the SMDL data that was retrieved in the previous step for use in the third-party reporting platform.

### 2.2.3.1 Preconditions

Ensure that the Reporting Services service is started on the server, the SharePoint service is running, and that the appropriate permissions are granted to the user who is using the ReportService2006 SOAP endpoint to access the report server catalog.

### 2.2.3.2 Versioning

None.

### 2.2.3.3 Error Handling

None.

### 2.2.3.4 Coherency Requirements

There are no special coherency requirements.

### 2.2.3.5 Additional Considerations

There are no additional considerations.

## 2.3 Third-Party Reporting Platform Consuming SMDL Documents in the File System

### 2.3.1 Data Description

The SMDL [\[MS-SMDL\]](#) document contains the metadata description of a data source, including business names for database fields and tables, defined relationships between items in the data source, and logical groupings of model items.

This SMDL data is used to generate the queries for retrieving data to be rendered in a report. The SMDL data is stored in the file system on the local computer.

This data is created by Reporting Services Report Manager, by Business Intelligence Development Studio, by a third-party SMDL authoring tool, or by using a text editor.

### 2.3.2 Format and Protocol Summary

The following table provides a comprehensive list of the formats and protocols that are used in this data portability scenario.

Protocol or format name	Description	Reference
Semantic Model Definition Language	This file format is used to represent the metadata description of a data source and its relationships.	<a href="#">[MS-SMDL]</a>

### 2.3.3 Data Portability Methodology

In this scenario, the SMDL data is stored in the file system as models (\*.smdl files). By default, models are saved in the Documents folder for a user on the local machine (in Windows Vista, this folder is C:\Users\username\Documents\). Use the SMDL documentation [\[MS-SMDL\]](#) to interpret the SMDL data in these files.

#### 2.3.3.1 Preconditions

None.



### **2.3.3.2 Versioning**

None.

### **2.3.3.3 Error Handling**

None.

### **2.3.3.4 Coherency Requirements**

There are no special coherency requirements.

### **2.3.3.5 Additional Considerations**

There are no additional considerations.

### 3 Change Tracking

No table of changes is available. The document is either new or has had no changes since its last release.

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