[MS-DPEDMX]:

Entity Data Model for Data Services Packaging Format Data Portability Overview

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Revision Summary

Date	Revision History	Revision Class	Comments
6/4/2010	0.1	Major	First release.
9/3/2010	0.1	None	No changes to the meaning, language, or formatting of the technical content.
2/9/2011	0.1	None	No changes to the meaning, language, or formatting of the technical content.
7/7/2011	0.1.1	Minor	Clarified the meaning of the technical content.
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1 Introduction

The Entity Data Model for Data Services Packaging Format Data Portability Overview document provides an overview of data portability for an **Entity Data Model Extensions (EDMX)** for Data Services Packaging Format document. EDMX is an **XML**-based file format that serves as the packaging format for the service **schema** of a **data service**.

As specified in [MS-ODATA], clients can obtain the service schema for a data service from the $metadata URI that has the following signature:

http://<host>/<prefix>/<service path>/$metadata

The data service returns the schema packaged in an EDMX document.

The root of an EDMX document is an <edmx:Edmx> element, which contains exactly one <edmx:DataServices> subelement. The <edmx:DataServices> subelement contains zero or more <Schema> subelements, which specify **Entity Data Model (EDM)** conceptual schemas. These EDM conceptual schemas are annotated as specified in [MS-ODATA].

Conceptually, the structure of an EDMX document is similar to the following example.

```
<edmx:Edmx>
  <edmx:DataServices>
    <!-- Entity Data Model conceptual schemas, as specified in
         [MC-CSDL] and annotated as specified in [MS-ODATA]-->
    <Schema>
    </Schema>
    <!--
       Additional Entity Data Model conceptual schemas as
       specified in [MC-CSDL] and annotated as specified in [MS-ODATA]
    -->
  </edmx:DataServices>
</edmx:Edmx>
```

The contents of an EDMX document are determined by the data service in question and vary depending on the data service, as specified in [MS-ODATA].

1.1 Glossary

This document uses the following terms:

data service: A server-side application that implements the OData protocol for the purpose of enabling clients to publish and edit resources. The resources exposed by **data services** are described by using the **EDM**, as specified in [MC-CSDL].

EDMX: Entity Data Model for Data Services Packaging Format [MC-EDMX]

entity: An instance of an EntityType element that has a unique identity and an independent existence. An entity is an operational unit of consistency.

Entity Data Model (EDM): A set of concepts that describes the structure of data, regardless of its stored form.

Entity Data Model Extensions (EDMX): An XML-based file format that serves as the packaging format for the service metadata of a **data service**, as specified in [MC-EDMX].

link: A link is similar to an association, as specified in [MC-CSDL], but describes a unidirectional relationship between entity types instead of a bidirectional one. A link can be either a unidirectional relationship that occurs when two entity types are related via an association and

only one of the entity types defines a NavigationProperty that is bound to the association or a reference to one direction of a bidirectional association between two entity types, as specified in [MC-CSDL].

schema: A container that defines a namespace that describes the scope of EDM types. All EDM types are contained within some namespace.

service operation: An operation that is exposed by the **data service**. A service operation is represented as a FunctionImport, as specified in [MC-CSDL]. A service operation accepts only input parameters.

XML: The Extensible Markup Language, as described in [XML1.0].

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.

[MC-EDMX] Microsoft Corporation, "Entity Data Model for Data Services Packaging Format".

[MS-ODATA] Microsoft Corporation, "Open Data Protocol (OData)".

2 Data Portability Scenarios

2.1 Exporting the Schema for Vendor Consumption

The schema export scenario describes exporting the data service schema from a data service to an .xml file to be consumed by a vendor's application. This section provides a step-by-step description and references for exporting a schema to an .edmx file.

2.1.1 Data Description

The **EDMX** document contains the schema of a data service as an .xml file. The EDMX document includes information about **entities** that are exposed by the data service, constraints on those entities, and **links** between those types. The document also includes descriptions of any **service operation** that is exposed by the data service.

The EDMX document is used to describe the metadata; the EDMX document is used by a data service client application to perform code generation and query generation. The metadata is always generated automatically by the data service.

2.1.2 Format and Protocol Summary

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

Protocol or format name	Description	Reference
Entity Data Model for Data Services Packaging Format	The Entity Data Model for Data Services Packing Format document contains the schema of a data service as an .xml file.	[MC-EDMX]

2.1.3 Data Portability Methodology

For this scenario, the EDMX document is extracted from the data service and stored in an .xml file. This is done by using any HTTP-capable application to query the $metadata endpoint that is exposed by the data service. The $metadata endpoint always returns the entire EDMX document for the data service.

To extract the EDMX document from the data service

1. Create an .edmx file on the client machine to store the document in.
2. Using any HTTP-enabled client application (such as a web browser or Fiddler2) or an HTTP request generation API (such as HTTPWebRequest), execute an HTTP GET request to the $metadata endpoint at the root of the data service.

   For example, if the root of the data service is "http://myhost/myservice.svc", execute an HTTP GET request to the following URI:

   http://myhost/myservice.svc/$metadata

   Note If using a browser, the view window for the browser may add additional HTML markup that is not in the original EDMX document. In this case, use the **View Source** feature to get the original .edmx data file.
3. Copy the response to the HTTP GET request. For example, copy the text in the viewing pane from a browser, or copy the response stream from an HTTPWebRequest.

4. Write the response to the .edmx file that was created in step 1.

2.1.3.1 Preconditions

The data service must be running and reachable from the client.

2.1.3.2 Versioning

This version of export data scenario is applicable to ADO.NET Data Services in the Microsoft .NET Framework 3.5 Service Pack 1 (SP1).

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 Using the Data for Client Code Generation

This scenario describes using the vendor's data that is contained in the .edmx file to generate client proxy classes that can interact with a data service. The vendor can produce an .edmx file that conforms to the format that is defined in [MC-EDMX], and can use the data for generating client proxy classes.

2.2.1 Data Description

The EDMX document contains the schema of a data service as an .xml file. The document includes information about entities that are exposed by the data service, constraints on those entities, and links between those types. The document also includes descriptions of any service operation that is exposed by the data service.

The EDMX data is used to describe the data and is used by a data service client application to perform code generation and query generation. The EDMX data is always generated automatically by the data service.

2.2.2 Format and Protocol Summary

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

Protocol or format name	Description	Reference
Entity Data Model for Data Services Packaging Format	The EDMX document contains the schema of a data service as an .xml file.	[MC-EDMX]

2.2.3 Data Portability Methodology

The approach in this section is to use the DataSvcUtil.exe utility that is provided with Microsoft Visual Studio 2008 Service Pack 1 (SP1) to generate C# or Microsoft Visual Basic classes based on the .edmx file (stored as an .edmx file).

To perform client proxy code generation

1. Open a Visual Studio 2008 SP1 command prompt on the machine.
2. Change to the directory that contains the .edmx file.
3. Use the DataSvcUtil.exe command-line utility to generate client classes from the .edmx file. To do this, follow these steps:
    1. Type datasvcutil /in:filename.edmx /out:outputfilename.cs
    2. Press ENTER.

The .cs file that is created contains the proxy classes.

2.2.3.1 Preconditions

Visual Studio 2008 SP1 must be installed.

2.2.3.2 Versioning

This version of import data scenario is applicable to Visual Studio 2008 SP1 and .NET Framework 3.5 SP1.

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.

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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