

TIBCO® MDM Studio Repository Designer Tutorial

*Software Release 5.1
August 2017*

Important Information

SOME TIBCO SOFTWARE EMBEDS OR BUNDLES OTHER TIBCO SOFTWARE. USE OF SUCH EMBEDDED OR BUNDLED TIBCO SOFTWARE IS SOLELY TO ENABLE THE FUNCTIONALITY (OR PROVIDE LIMITED ADD-ON FUNCTIONALITY) OF THE LICENSED TIBCO SOFTWARE. THE EMBEDDED OR BUNDLED SOFTWARE IS NOT LICENSED TO BE USED OR ACCESSED BY ANY OTHER TIBCO SOFTWARE OR FOR ANY OTHER PURPOSE.

USE OF TIBCO SOFTWARE AND THIS DOCUMENT IS SUBJECT TO THE TERMS AND CONDITIONS OF A LICENSE AGREEMENT FOUND IN EITHER A SEPARATELY EXECUTED SOFTWARE LICENSE AGREEMENT, OR, IF THERE IS NO SUCH SEPARATE AGREEMENT, THE CLICKWRAP END USER LICENSE AGREEMENT WHICH IS DISPLAYED DURING DOWNLOAD OR INSTALLATION OF THE SOFTWARE (AND WHICH IS DUPLICATED IN THE LICENSE FILE) OR IF THERE IS NO SUCH SOFTWARE LICENSE AGREEMENT OR CLICKWRAP END USER LICENSE AGREEMENT, THE LICENSE(S) LOCATED IN THE "LICENSE" FILE(S) OF THE SOFTWARE. USE OF THIS DOCUMENT IS SUBJECT TO THOSE TERMS AND CONDITIONS, AND YOUR USE HEREOF SHALL CONSTITUTE ACCEPTANCE OF AND AN AGREEMENT TO BE BOUND BY THE SAME.

This document contains confidential information that is subject to U.S. and international copyright laws and treaties. No part of this document may be reproduced in any form without the written authorization of TIBCO Software Inc.

TIBCO and Two-Second Advantage TIB, TIBCO Adapter, Predictive Business, Information Bus, TIBCO BusinessConnect, TIBCO ActiveMatrix BusinessWorks, TIBCO Enterprise Message Service, TIBCO MDM, TIBCO MDM Studio, TIBCO MDM Studio Process Designer, TIBCO MDM Studio Rulebase Designer, TIBCO MDM Studio Repository Designer are either registered trademarks or trademarks of TIBCO Software Inc. in the United States and/or other countries.

Enterprise Java Beans (EJB), Java Platform Enterprise Edition (Java EE), Java 2 Platform Enterprise Edition (J2EE), and all Java-based trademarks and logos are trademarks or registered trademarks of Oracle Corporation in the U.S. and other countries.

All other product and company names and marks mentioned in this document are the property of their respective owners and are mentioned for identification purposes only.

THIS SOFTWARE MAY BE AVAILABLE ON MULTIPLE OPERATING SYSTEMS. HOWEVER, NOT ALL OPERATING SYSTEM PLATFORMS FOR A SPECIFIC SOFTWARE VERSION ARE RELEASED AT THE SAME TIME. SEE THE README FILE FOR THE AVAILABILITY OF THIS SOFTWARE VERSION ON A SPECIFIC OPERATING SYSTEM PLATFORM.

THIS DOCUMENT IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT.

THIS DOCUMENT COULD INCLUDE TECHNICAL INACCURACIES OR TYPOGRAPHICAL ERRORS. CHANGES ARE PERIODICALLY ADDED TO THE INFORMATION HEREIN; THESE CHANGES WILL BE INCORPORATED IN NEW EDITIONS OF THIS DOCUMENT. TIBCO SOFTWARE INC. MAY MAKE IMPROVEMENTS AND/OR CHANGES IN THE PRODUCT(S) AND/OR THE PROGRAM(S) DESCRIBED IN THIS DOCUMENT AT ANY TIME.

THE CONTENTS OF THIS DOCUMENT MAY BE MODIFIED AND/OR QUALIFIED, DIRECTLY OR INDIRECTLY, BY OTHER DOCUMENTATION WHICH ACCOMPANIES THIS SOFTWARE, INCLUDING BUT NOT LIMITED TO ANY RELEASE NOTES AND "READ ME" FILES.

Copyright © 2007-2017 TIBCO Software Inc. ALL RIGHTS RESERVED.

TIBCO Software Inc. Confidential Information

Contents

TIBCO Documentation and Support Services	4
Tutorial Overview	5
Creating a Project	5
Creating New Repository Model in the Repository Models Folder	7
Creating Repositories	8
Create Attribute Groups and Attributes	9
Creating Customer Repository	9
Setting EmailAddress as Multivalue attribute	10
Creating Account Repository	10
Creating Address Repository	11
Create Relationships	11
Setting Relationship between Customer and Account	11
Setting Relationship between Customer and Address	12
Define Relationship Attributes	13
Creating Relationship Attributes for CustomerToAccount	13
Creating Relationship Attributes for CustomerToAddress	13
Connecting the Relationship attribute groups to the relationships	13
Create a Perspective	13
Creating Perspective for Subset of Relationship	14
Validate the Repository Model	14
Exporting the Repository Model	15
Importing the Repository Model into MDM	16
Generating the WSDL	17

TIBCO Documentation and Support Services

Documentation for this and other TIBCO products is available on the TIBCO Documentation site. This site is updated more frequently than any documentation that might be included with the product. To ensure that you are accessing the latest available help topics, visit:

<https://docs.tibco.com>

Product-Specific Documentation

Documentation for TIBCO products is not bundled with the software. Instead, it is available on the TIBCO Documentation site. To directly access documentation for this product, double-click the following file:

`TIBCO_HOME/release_notes/TIB_bstudio-mdm_5.1.0_docinfo.html`

where *TIBCO_HOME* is the top-level directory in which TIBCO products are installed. On Windows, the default *TIBCO_HOME* is `C:\tibco`. On UNIX systems, the default *TIBCO_HOME* is `/opt/tibco`.

The following documents for this product can be found on the TIBCO Documentation site:

- TIBCO MDM Studio Release Notes
- TIBCO MDM Studio Installation Guide
- TIBCO MDM Studio Process Designer Tutorial
- TIBCO MDM Studio Process Designer User's Guide
- TIBCO MDM Studio Repository Designer Tutorial
- TIBCO MDM Studio Repository Designer User's Guide
- TIBCO MDM Studio Rulebase Designer Tutorial
- TIBCO MDM Studio Rulebase Designer User's Guide
- TIBCO MDM Studio UI Builder Tutorial
- TIBCO MDM Studio UI Builder User's Guide

How to Contact TIBCO Support

For comments or problems with this manual or the software it addresses, contact TIBCO Support:

- For an overview of TIBCO Support, and information about getting started with TIBCO Support, visit this site:

<http://www.tibco.com/services/support>

- If you already have a valid maintenance or support contract, visit this site:

<https://support.tibco.com>

Entry to this site requires a user name and password. If you do not have a user name, you can request one.

How to Join TIBCO Community

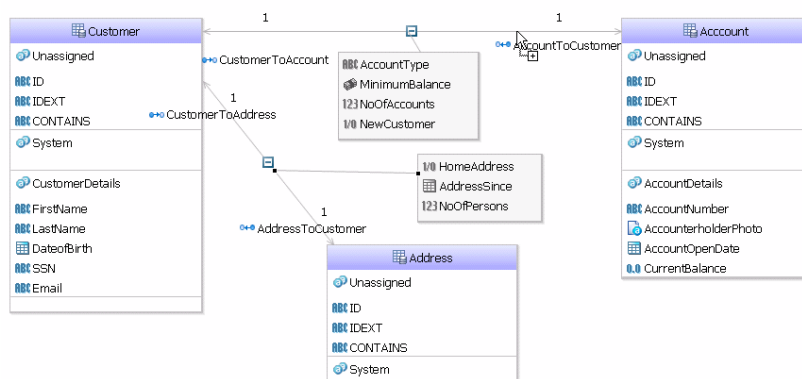
TIBCO Community is an online destination for TIBCO customers, partners, and resident experts. It is a place to share and access the collective experience of the TIBCO community. TIBCO Community offers forums, blogs, and access to a variety of resources including product wikis that provide in-depth information, white papers, and video tutorials. In addition, users can submit and vote on feature requests via the Ideas portal. For a free registration, go to <https://community.tibco.com>.

Tutorial Overview

This tutorial walks you through the process of:

Procedure

1. Creating a repository model that contains the following:
 - Three Repositories: **Customer**, **Account**, and **Address**.
 - A **CustomerDetails** Attribute Group within the **Customer** Repository containing FirstName, LastName, DateOfBirth, SSN, and EmailAddress as attributes.
 - An **AddressDetails** Attribute Group within the **Address** Repository containing Street, City, Country, as attributes.
 - An **AccountDetails** Attribute Group within the **Account** Repository containing AccountNumber, AccountHolderPhoto, AccountOpenDate, and CurrentBalance as attributes.
 - A **Relationship** between **Customer** and **Address** with HomeAddress (Boolean), AddressSince(Date), and NoOfPersons(Integer) as Relationship Attributes.
 - A **Relationship** between **Customer** and **Account** with AccountType (String), MinimumBalance (Amount), NoOfAccounts (Integer), and NewCustomer (Boolean) as Relationship Attributes.



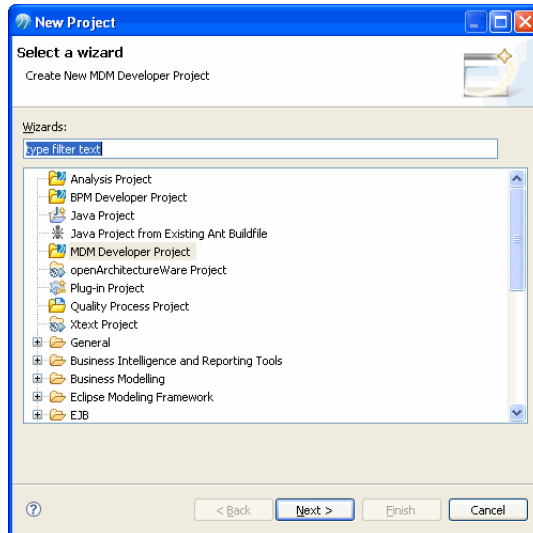
2. Validating your repository model.
3. Exporting your repository model.
4. Importing the repository model into MDM.

Creating a Project

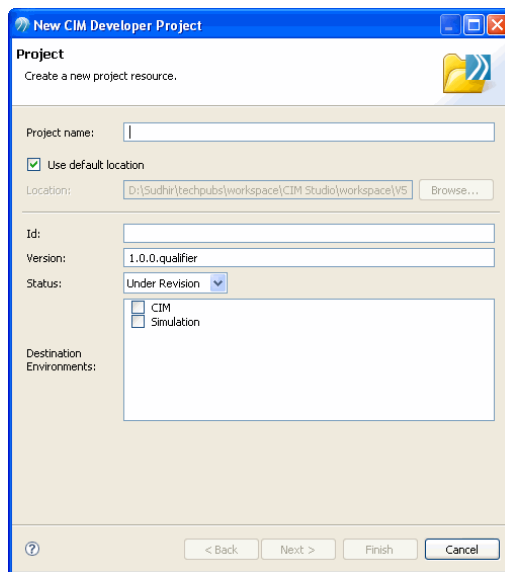
First, create a new Project to hold the Repository Model.

Procedure

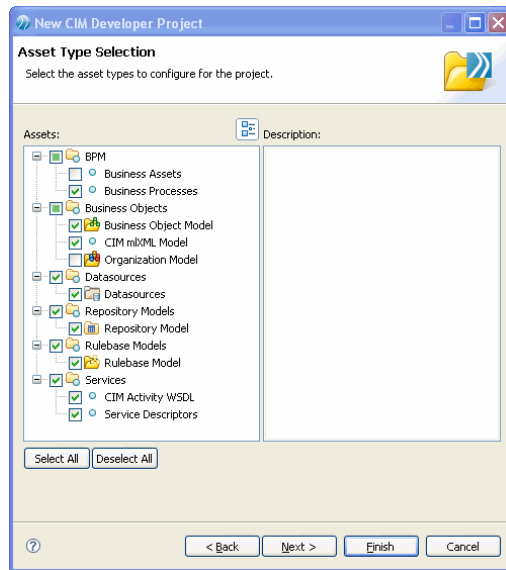
1. Go to **File > New > Project**. The **Create New MDM Developer Project** wizard is displayed.



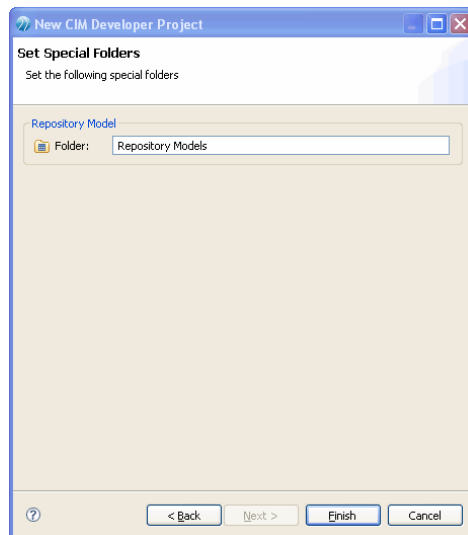
2. Select **MDM Developer Project** and click **Next**.
3. Provide a name for the Project: **RepositoryTutorial**. Clear the **Use default location** checkbox if you want to provide a different location for the project (by default, the current workspace). Select **Destination Environment** as **MDM**. Click **Next**.



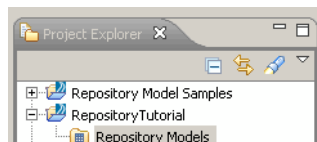
4. The Asset Type Selection dialog is displayed - select **Repository Models** and click **Next**.



5. The folder for the Repository Model is displayed. Click **Finish**.



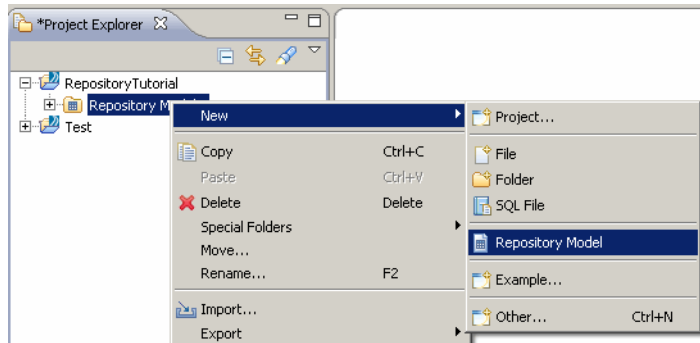
This creates a new special folder **Repository Models**. Expand the project in the Project Explorer to see it.



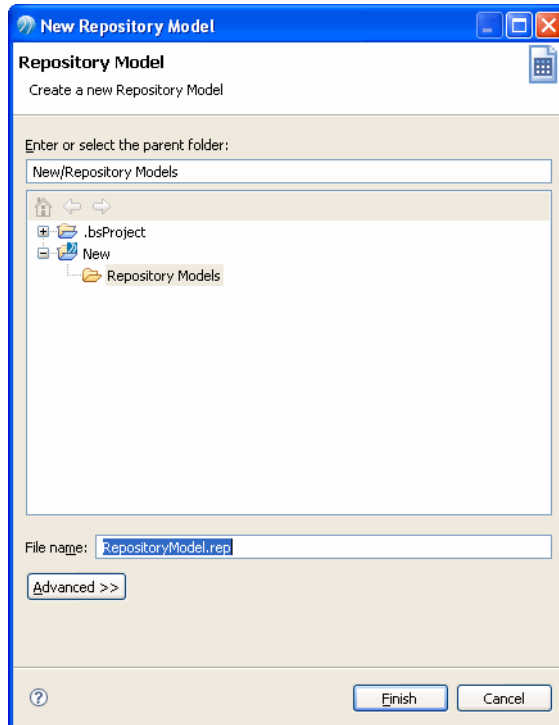
Creating New Repository Model in the Repository Models Folder

Procedure

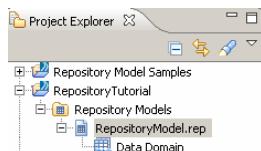
1. Right click the Repository Models folder in the Project Explorer and select **New > Repository Model**.



2. Accept the name and location for the repository model (.rep extension) and click **Finish**.




In the Project Explorer, double click `RepositoryModel.rep` (under the newly created Repository Tutorial project) to open up the drawing pane in the Process Editor.



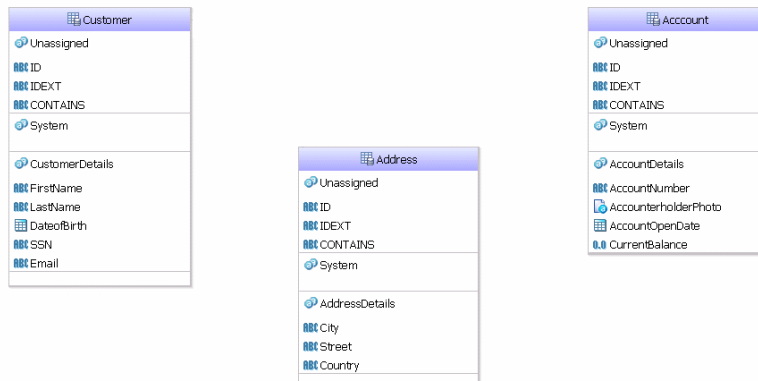
Creating Repositories

First, create 3 repositories.

Procedure

1. Click the  **Repository** icon in the Palette and then click in the main drawing pane to insert the Repository. Call the Repository **Customer**.
2. Create a second repository **Account** and place it to the right of the Customer Repository.

3. Create a third repository **Address** and place it below the Customer and Account Repositories.



Create Attribute Groups and Attributes

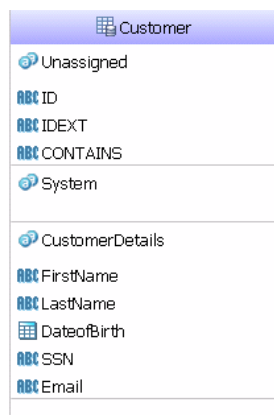
Next, create attribute groups for each repository and add some attributes.

Creating Customer Repository

Procedure

1. Select the Attribute Group icon from the Palette and click in the Customer repository (either at the top or bottom of the Repository) to add an Attribute Group. Call the group **CustomerDetails**.
2. Select the Attribute icon in the Palette and click within the newly created CustomerDetails attribute group. Call the attribute **FirstName** and keep the default string attribute type.
3. Similarly, create the following additional attributes within the CustomerDetails attribute group:
 - **FirstName**, type String
 - **LastName**, type String
 - **DateofBirth**, type Date
 - **SSN**, type String
 - **EmailAddress**, type String

Your Customer repository should look as follows:





Setting EmailAddress as Multivalue attribute

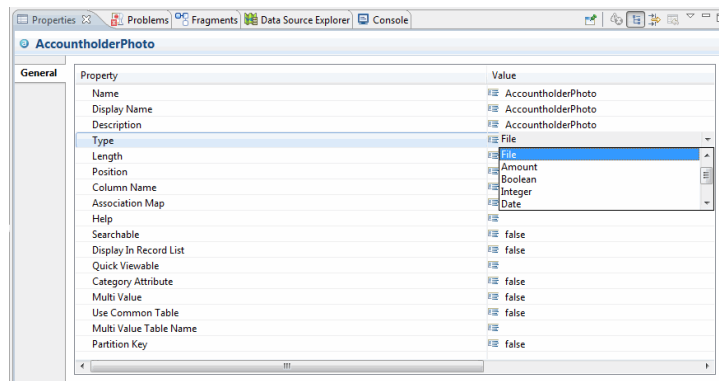
Procedure

1. Click the EmailAddress attribute in the repository.
2. In the **Properties** window, set Multi Value to true. This indicates that this attribute can hold more than one value.

Creating Account Repository

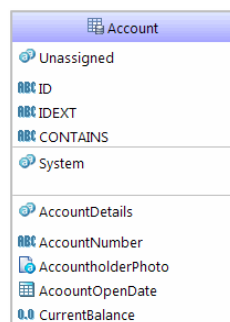
Procedure

1. Select the  Attribute Group icon from the Palette and click in the Account repository to add an attribute group called **AccountDetails**.
2. Select the  Attribute icon in the Palette and click within the newly created AccountDetails attribute group. Call the attribute **AccountNumber** and keep the default string attribute type.
3. Create a second attribute **AccountHolderPhoto**. Change the attribute type to image by selecting the attribute in the drawing pane, and changing the **Type** to **File** in the **Properties** window, **General** tab.





4. Create a third attribute **AccountOpenDate** and change **Type** to **Date**.
5. Create a fourth attribute **CurrentBalance** and change **Type** to **Decimal**.

Your Account repository should look as follows:



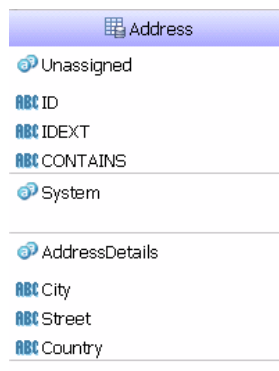
Creating Address Repository

Procedure

1. Select the  Attribute Group icon from the Palette and click in the Address repository to add an attribute group called **AddressDetails**.
2. Select the  Attribute icon in the Palette and click within the newly created AddressDetails attribute group. Call the attribute **Street** and keep the default String attribute type.
3. Similarly, create the following additional attributes within the AddressDetails attribute group:

Attribute Name	Type
City	String (default)
Country	String (default)

Your Address repository should look as follows:



Create Relationships

Next, create relationships between the Customer and Account repositories and the Customer and Address repositories.

Setting Relationship between Customer and Account

Procedure

1. Select the  Relationship icon from the Palette; click on the outer edge of the Customer repository and drag to the outer end of the Account repository to define a relationship.

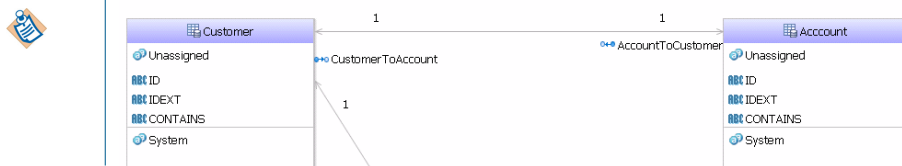
When attempting to draw a relationship from a source repository, ensure that you see an arrow as indicated below.



Once you correctly touch the edge of a repository, you will see the arrow icon. When dragging to define the relationship, the cursor changes to a hand icon; release the cursor only when you touch the outer edge of the target repository and once you see the cursor change to an arrow again.

2. Provide a forward and reverse relationship name. By default, the focus is on the forward relationship (indicated by a forward arrow icon).
 - a) Enter **CustomerToAccount** as forward relationship name.
 - b) Click on the reverse arrow icon and provide **AccountToCustomer** as the reverse relationship name.

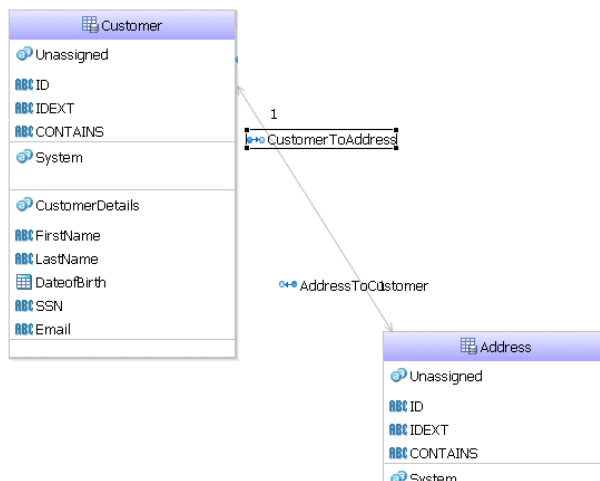
The multiplicity icons on the relationships (*) do not influence the model since MDM does not support it, they are simply indicative of multiplicity on the main model diagram.



Setting Relationship between Customer and Address

Procedure

1. Select the Relationship icon from the Palette; click on the outer edge of the Customer repository and drag to the outer end of the Address repository to define a relationship.
2. Provide **CustomerToAddress** as forward relationship name and **AddressToCustomer** as reverse relationship name.





Define Relationship Attributes

Next, define some relationship attributes for the defined relationships.

You first need to create Relationship Attribute Groups to hold the attributes and then add the actual attributes.

Creating Relationship Attributes for CustomerToAccount

Procedure

1. Select the  icon from the Palette and click in the canvas above or close to the CustomerToAccount relationship to place the attribute group.
2. Select the  icon from the Palette and click in the relationship attribute group.
3. Call the new attribute **AccountType** and keep the default String type.
4. Create a second relationship attribute **MinimumBalance**. Double click the attribute and change the Type to **Amount** in the **Properties** window.
5. Create a third relationship attribute **NoOfAccounts** of type Integer.
6. Create a fourth relationship attribute **NewCustomer** of type Boolean.


Creating Relationship Attributes for CustomerToAddress

Procedure

1. Select the Relationship Attribute Group icon from the Palette and click in the canvas close to the CustomerToAddress Relationship to place the relationship attribute group.
2. Add the following relationship attributes:
 - **HomeAddress**, type Boolean.
 - **AddressSince**, type Date.
 - **NoOfPersons**, type Integer.

Connecting the Relationship attribute groups to the relationships

Procedure

1. Click the  icon in the Palette. Click the outer border of the Relationship Attribute Group (for the CustomerToAccount relationship) and drag to connect the relationship. This connects the relationship attribute group to the relationship.
2. Repeat the same process to connect the relationship attribute group created for CustomerToAddress.

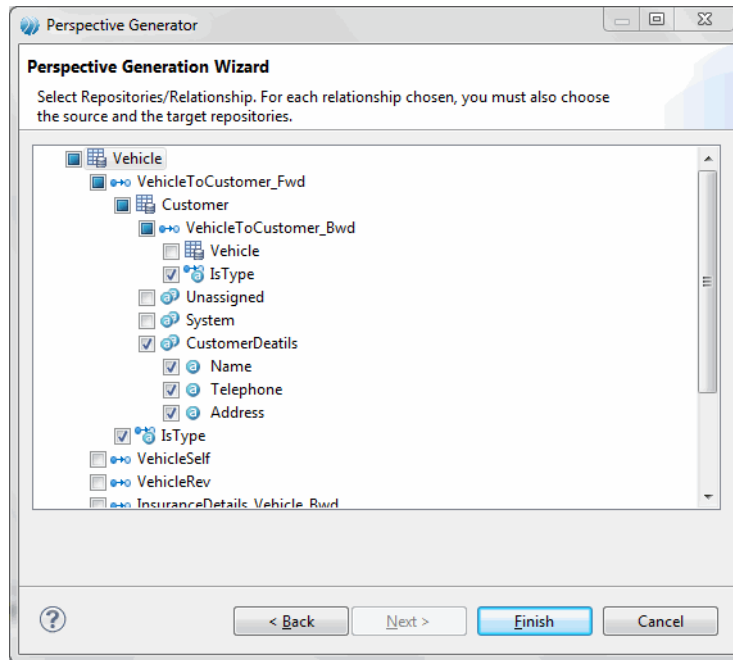
Create a Perspective

Next, create a perspective to define the subset of the relationships of the root repository.

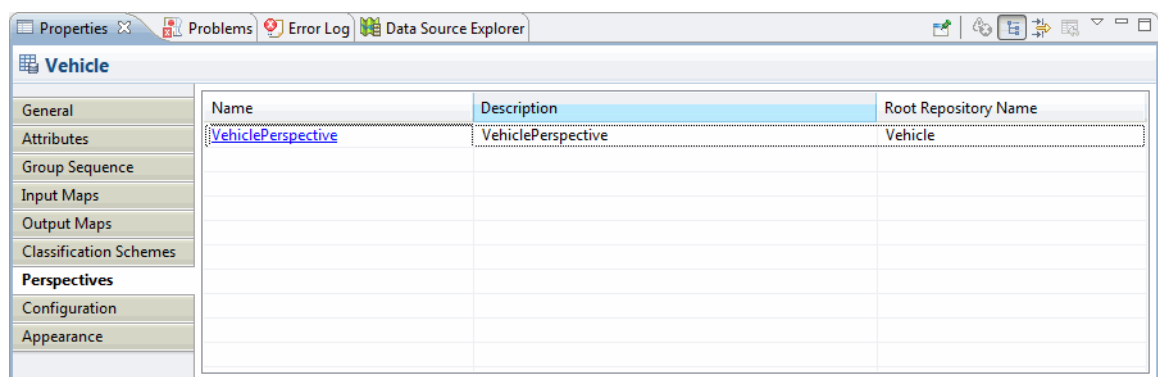
Creating Perspective for Subset of Relationship

Procedure

1. Right click on Customer Repository and select **New > Perspective Creation**.
2. The Perspective Generator Wizard is displayed. Enter the Perspective name in the **Name** field and enter the description in the **Description** field and click **Next**.



3. Select the relationships which you want to view in the perspective and click **Finish**. The Perspective Editor with the newly defined perspective is displayed.
4. You can also view the perspective editor by clicking on the perspective link in the Properties section of the Repository model.



Validate the Repository Model

At this point, if you have followed all the steps in the tutorial so far, there should be no validation errors.

If you omitted to perform any of the steps, it may result in a validation error. For instance, if you create a relationship attribute group but leave it empty (without adding any relationship attributes). Or if you fail to connect a relationship attribute group to a relationship. Or if you forget to provide a reverse relationship name for a relationship.

Check the **Problems** tab for any errors.

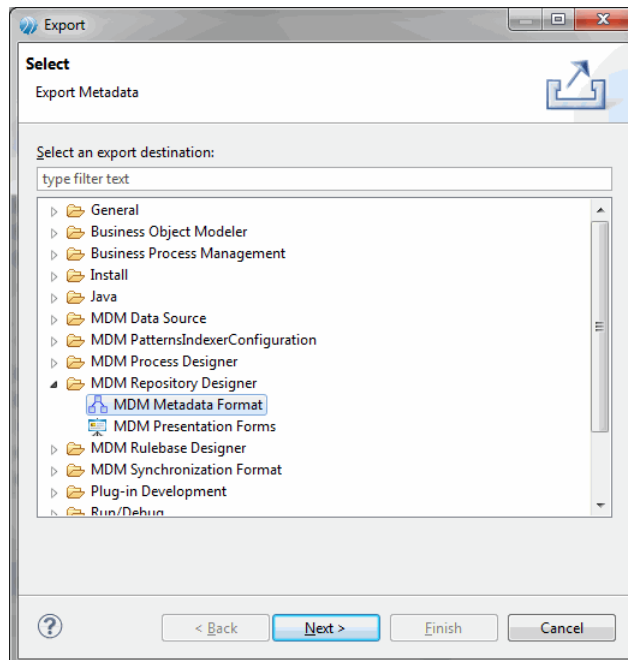
Exporting the Repository Model

Next, export your repository model.

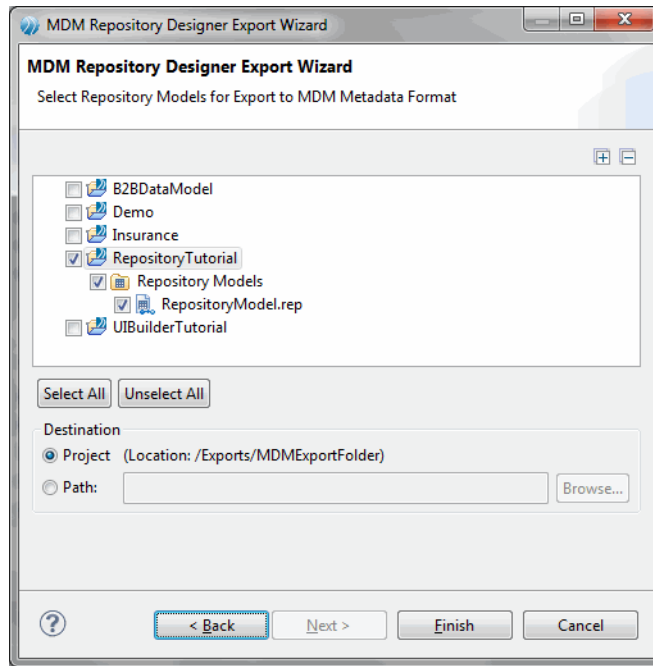
The Export Wizard is used to export the graphically designed repository to MDM metadata format (.xml file).

Procedure

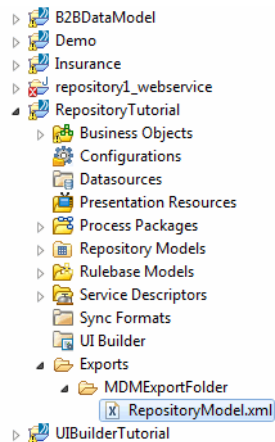
1. Select the **RepositoryTutorial** Project in the Project Explorer and click **File > Export** or right click the project and select **Export**.
2. Select **MDM Metadata Format** under **MDM Repository Designer**. Click **Next**.



3. Select the `RepositoryModel.rep` file for export by selecting the checkbox. The default location to which the file will get exported is displayed in the **Destination** section under Project (/Exports/MDMExportFolder). You can change the path if required. Click **Finish**.



In the Project Explorer, you will see a new folder **Exports** created which contains the XML file generated.



Importing the Repository Model into MDM

You can now import the repository meta data into MDM.

Procedure

1. Start the MDM application
2. Go to **System Operations > Import Meta Data**.
3. Browse to select the `RepositoryModel.xml` file, exported from the Repository Designer.


- You will see details of the file you selected for upload. You can click the **Check Progress** link to see the status.

Import Metadata Request Status

File Name	RepositoryModel.xml
File Size	11.74KB / 12025bytes

Meta data management request accepted and submitted to workflow. Monitor the progress by clicking here: [Check Progress](#)

[OK](#)

- You can check the status of the process from the Event Log. If the Event shows as complete without any error, it means the repository model was successfully imported in MDM.
-  If you have already have repositories with same name, the metadata import will overwrite the existing metadata.
- Go to the **Repositories** page to check if your repositories have got added. You should see the Customer, Account, and Address repositories here along with the custom attributes, relationships, and relationship attributes defined in the Repository Designer.

Result

You can now continue refining your repository, adding records and attributes, and so on.

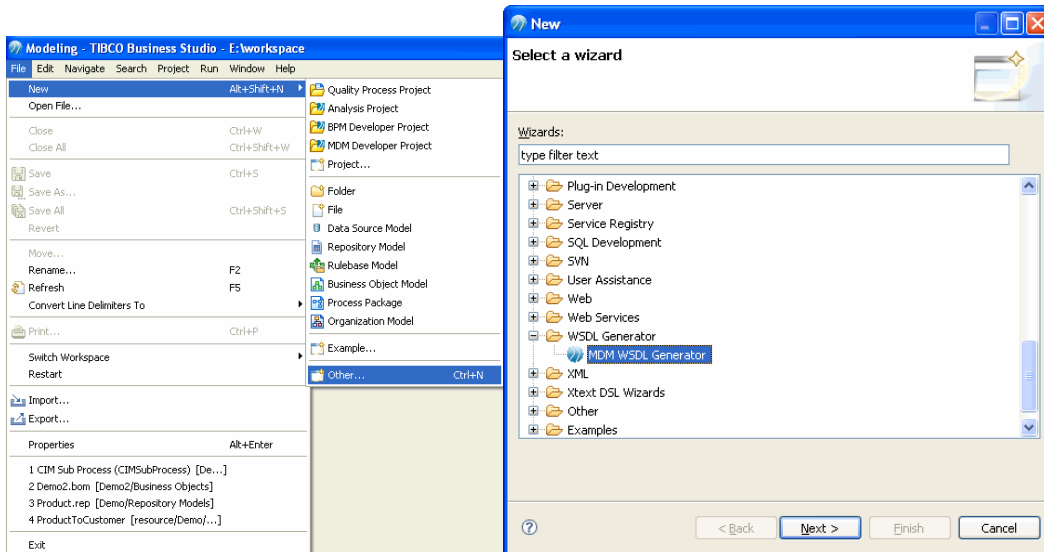
Generating the WSDL

You can now Generate WSDL for Person Account.

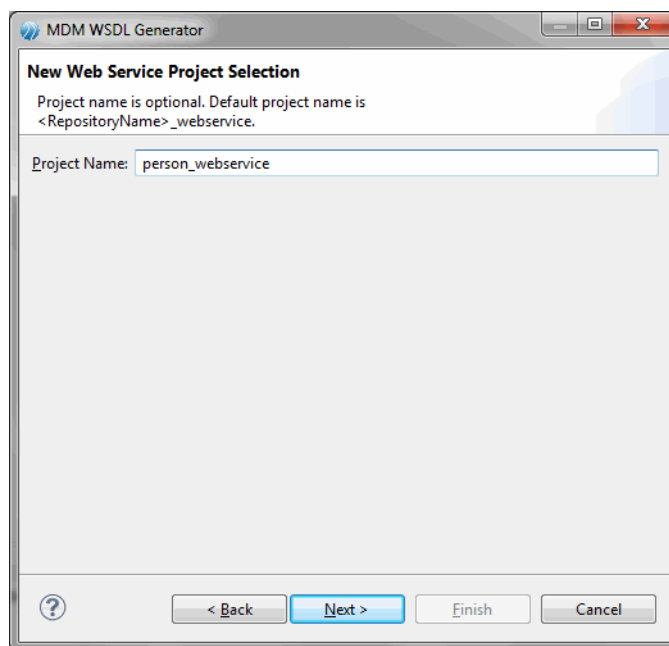
Procedure

- Import repository designer sample into your current workspace. Select **Help-Welcome**. Click the samples icon.
- From **Solution Designer**-Available sample project, click the Repository Model sample.
- Follow the wizard to import the Person-Account-Email-Phone-Address repository structure. Switch to workbench.

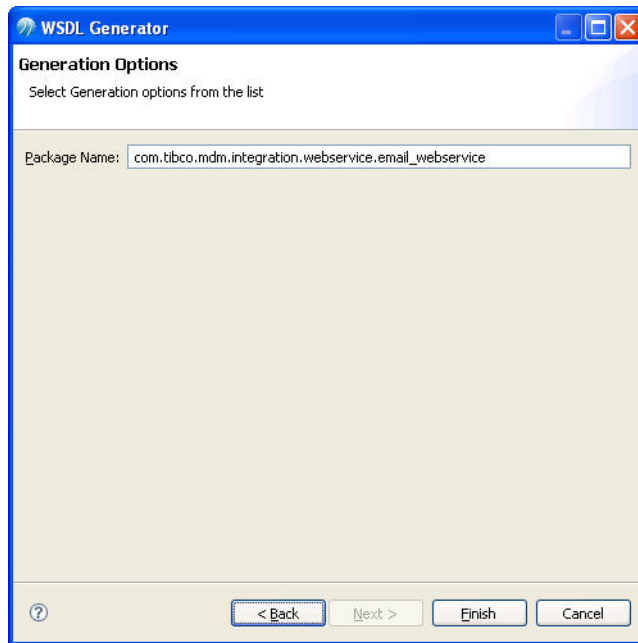
4. Using the WSDL Generator Wizard, generate wsdl for Customer repository. Follow the wizard to complete the webservice project creation.
5. Go to **File > New > Other**.



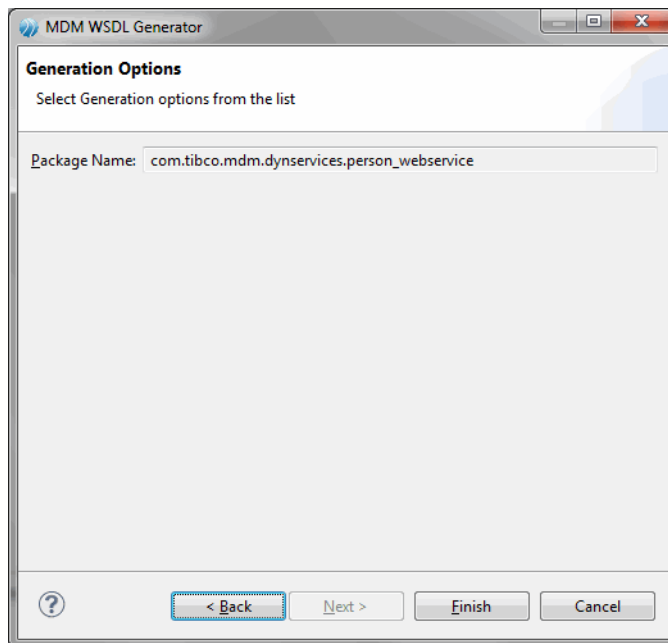
6. Select **WSDL Generator** from the **WSDL Generator** tree node and click **Next**. The **New Project** screen is displayed



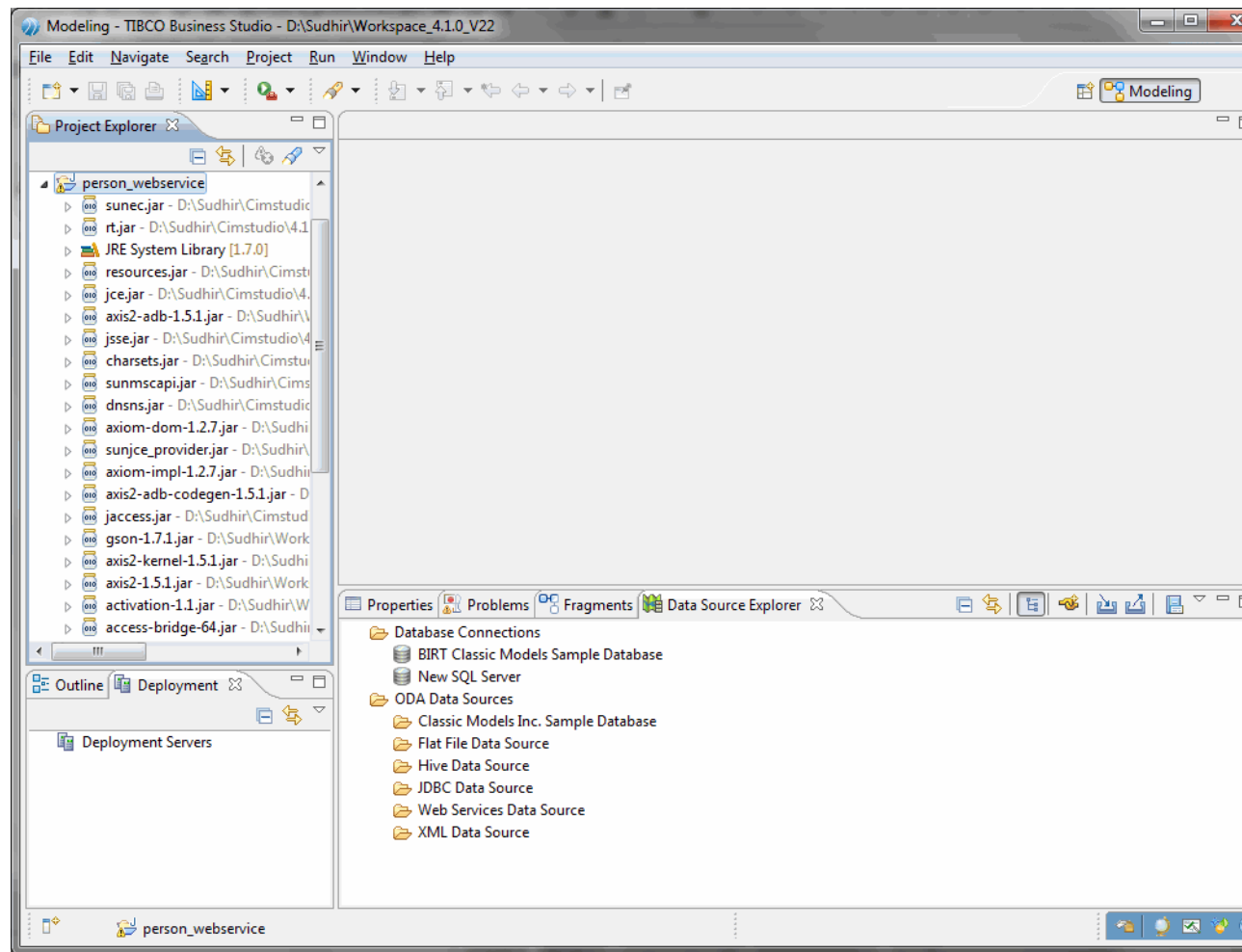
7. Enter the appropriate project name in the **Project Name** field. By default, the project name is <repository name>_webservice.
8. Click **Next**. The **New Project** screen is displayed.



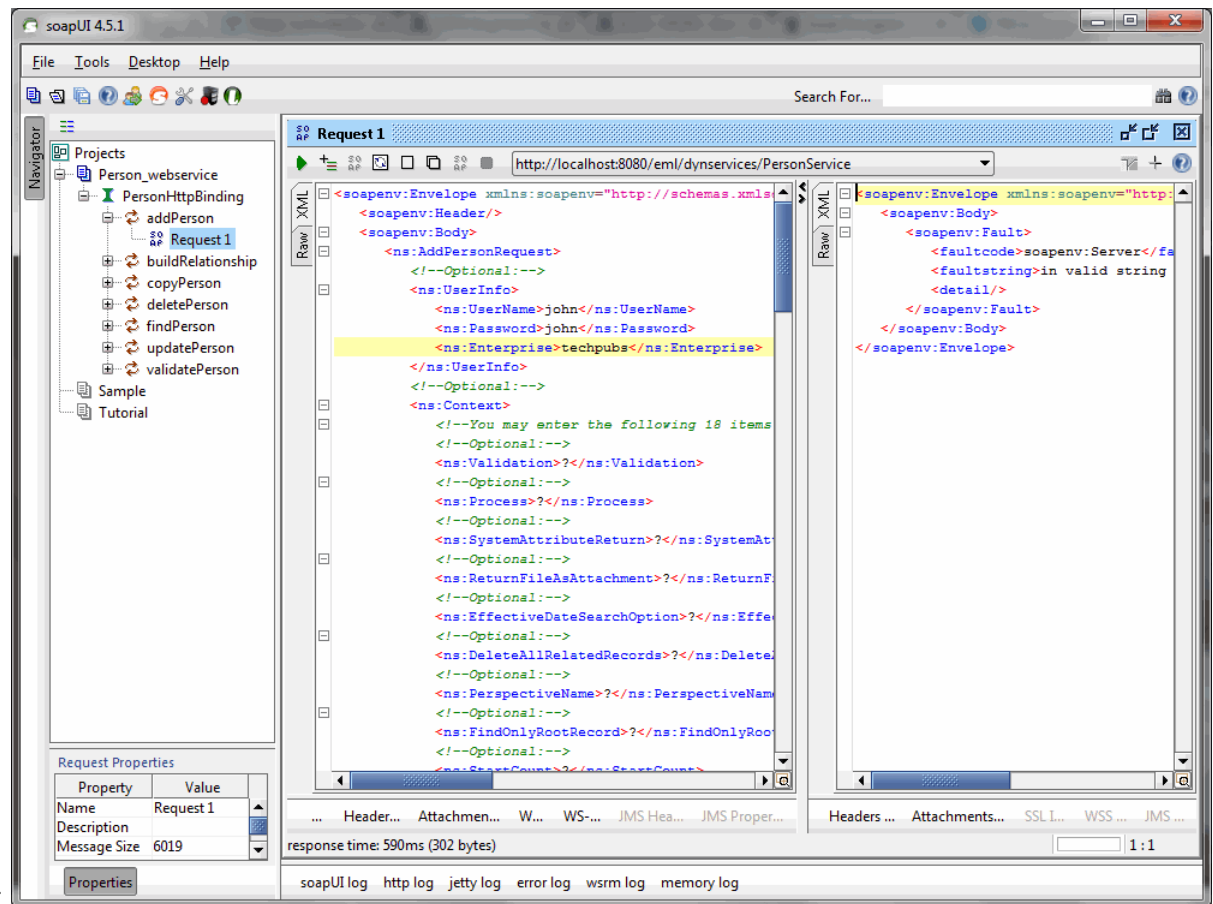
9. Select the relationship depth, multilevel relationship is supported.
10. Click **Next**. The **Generation Options** screen is displayed.



11. Enter the appropriate package name in **Package Name** field. By default, a package name is provided. The package name convention is `com.tibco.mdm.integration.webservice.<repository name>_webservice`. You can modify the package name.
12. Click **Finish**. The `person_webservice` project is created in MDM Studio.



13. Using network deployment, deploy the whole repository and relationship structure from the Repository Model Samples project onto your MDM Server.
14. In SOAP UI, create a new project and import < your workspace name>\person_webservice\services\PersonService.wsdl as the initial wsdl.



- 15.
16. You will see PersonHttpBinding with addPerson, buildRelationship, copyPerson, deletePerson, findPerson, updatePerson, and validatePerson services along with their sample request skeletons in your project.
17. Change the endpoint URL to point to your MDM Server instance.
18. Change the enterprise credentials inside each request before execution through SOAP UI.

The optional <context> section can be used as follows in case of Record Add request:

```
<ns:Context>
  <!--Optional: Set this to true if you want to validate each
  attribute value against schema. -->
  <ns:Validation>false</ns:Validation>
  <!--Optional: Set this to true if you want to process the record as
  soon as it is added. If this value is false, the record remains in
  "unconfirmed" state and the record add event remains in progress-->
  <ns:Process>true</ns:Process>
  <!--Optional: Set this to true if you want to see the system
  attribute values in response. -->
  <ns:SystemAttributeReturn>true</ns:SystemAttributeReturn>
  <!--Optional: The following is used when File type attribute values
  have to be sent as a part of the request.-->
  <ns:ReturnFileAsAttachment>false</ns:ReturnFileAsAttachment>
</ns:Context>
```