



Hewlett Packard
Enterprise

HPE Enterprise Maps

Software Version: 3.10
Windows and Linux Operating System

Customization Editor User Guide

Document Release Date: April 2016
Software Release Date: April 2016

Legal Notices

Warranty

The only warranties for Hewlett Packard Enterprise products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HPE shall not be liable for technical or editorial errors or omissions contained herein.

The information contained herein is subject to change without notice.

Restricted Rights Legend

Confidential computer software. Valid license from HPE required for possession, use or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

Copyright Notice

© Copyright 2015 Hewlett Packard Enterprise Development LP

Trademark Notices

Adobe™ is a trademark of Adobe Systems Incorporated.

Microsoft® and Windows® are U.S. registered trademarks of Microsoft Corporation.

UNIX® is a registered trademark of The Open Group.

This product includes an interface of the 'zlib' general purpose compression library, which is Copyright © 1995-2002 Jean-loup Gailly and Mark Adler.

Documentation Updates

The title page of this document contains the following identifying information:

- Software Version number, which indicates the software version.
- Document Release Date, which changes each time the document is updated.
- Software Release Date, which indicates the release date of this version of the software.

To check for recent updates or to verify that you are using the most recent edition of a document, go to:

<https://softwaresupport.hp.com>

This site requires that you register for an HPE Passport and sign in. To register for an HPE Passport ID, go to: **<https://hpp12.passport.hpe.com/hppcf/createuser.do>**

Or click the **Register** link at the top of the HPE Software Support page.

You will also receive updated or new editions if you subscribe to the appropriate product support service. Contact your HPE sales representative for details.

Support

Visit the HPE Software Support Online web site at: **<https://softwaresupport.hp.com>**

This website provides contact information and details about the products, services, and support that HPE Software offers.

HPE Software online support provides customer self-solve capabilities. It provides a fast and efficient way to access interactive technical support tools needed to manage your business. As a valued support customer, you can benefit by using the support website to:

- Search for knowledge documents of interest
- Submit and track support cases and enhancement requests
- Download software patches
- Manage support contracts
- Look up HPE support contacts
- Review information about available services
- Enter into discussions with other software customers
- Research and register for software training

Most of the support areas require that you register as an HPE Passport user and sign in. Many also require a support contract. To register for an HPE Passport ID, go to:

<https://hpp12.passport.hpe.com/hppcf/createuser.do>

To find more information about access levels, go to:

<https://softwaresupport.hp.com/web/softwaresupport/access-levels>

HPE Software accesses the HPE Software to explore Enterprise Solutions that meet your business needs, and a full list of Enterprise Software Products and Services. The URL for this website is <https://www.hpe.com/us/en/software.html>.

About this PDF Version of Online Help

This document is a PDF version of the online help. This PDF file is provided so you can easily print multiple topics from the help information or read the online help in PDF format. Because this content was originally created to be viewed as online help in a web browser, some topics may not be formatted properly. Some interactive topics may not be present in this PDF version. Those topics can be successfully printed from within the online help.

Contents

Chapter 1: Customization Editor Guide	7
Chapter 2: Customization Editor	8
HPE EM Workbench Suite	8
Overview	8
User Interface	9
Extension Explorer	9
Extension Name	10
Artifact Types	10
SDM Details	11
Property Descriptors	11
Property Groups	11
Menu Options	12
Server Explorer	13
SDM Elements	13
Artifacts	14
Properties	14
Property Groups	15
Taxonomies	15
Chapter 3: Getting Started	16
Installing HPE EM Workbench	16
SSL Configuration	18
Creating an Extension Project	19
Sharing an Extension Project	20
Referencing Other HPE EM Workbench Projects	21
Saving Modifications	21
Searching the Extension	21
Chapter 4: Manipulating Artifact Types	22
Creating an Artifact Type or Package	22
Modifying the Attributes of an Artifact Type	23
Modifying the Properties of an Artifact Type	23
Mapping an Artifact Type to a Registry	24
Adding a Registry Mapping for an Artifact Type	25
Adding a Registry Mapping for a Property	25

Example: Adding the Department Property to Services	25
Chapter 5: Manipulating Properties	27
Creating a Property	27
Modifying a Property	28
Creating a Property Group	28
Modifying a Property Group	28
Chapter 6: Creating and Using Components	29
Creating a Component	29
Creating a Task	29
Developing a Component	30
Chapter 7: Modifying Taxonomies	31
Chapter 8: Deploying Extensions	32
Exporting the Extension Project	32
Applying Extensions	32
Single-Step Scenario	33
Decoupled DB Scenario	34
Redeploying the EAR File	35
Deploying Components to HPE EM	35
Deploying Extensions Remotely	35
Chapter 9: Views	37
Artifact Editor	37
Artifact Editor: Overview Tab	37
Artifact Editor: Properties Tab	38
Artifact Editor: Registry Mapping Tab	39
Messages View	40
Project Editor	40
Project Editor: Overview Tab	40
Project Editor: Environment Tab	41
Project Editor: Dependencies Tab	41
Property Editor	42
Property Editor: Overview Tab	42
Property Editor: Advanced Tab	43
Property Group Editor	44
Search View	44

Tasks Editor	45
Taxonomies Editor	45
Appendix A: Dialog Boxes	46
New Artifact	46
New Artifact: Create	46
New Artifact: Database Settings	47
New Component	47
New Extension Project	47
New Extension Project: Specify HPE EM Server Installation	48
New Extension Project: New Server	48
New Project: Select Working Extensions	49
New Project: Create a New Extension	49
New Project: Create Dependencies	49
New Property	50
New Property: Primitive	50
New Property: Relationship	50
New Property: Taxonomy	51
New Property Group	51
New Task	52
New Taxonomy	52
Registry Mapping	52
Registry Mapping: New Artifact Mapping	52
Registry Mapping: New Property Mapping	53
Search	53
Share Project	54
Appendix B: Localname Naming Rules	55

Chapter 1: Customization Editor Guide

Welcome to the *Customization Editor User Guide*. This guide explains how to use Customization Editor as part of HPE Enterprise Maps (HPE EM).

This guide contains the following chapters:

- ["Overview " on page 8](#)
Provides an overview of the main features of Customization Editor.
- ["Getting Started " on page 16](#)
Describes the installation of the main features, and shows you how to create an extension in Customization Editor.
- ["Manipulating Artifact Types " on page 22](#)
Explains how to create, modify and delete artifacts and packages using Customization Editor.
- ["Creating and Using Components " on page 29](#)
Shows how to create and use custom components in Customization Editor .
- ["Modifying Taxonomies " on page 31](#)
Shows how to build and modify taxonomies for an extension project in Customization Editor.
- ["Deploying Extensions " on page 32](#)
Instructions on how to deploy extensions created in Customization Editor.
- ["Views " on page 37](#)
Explanation of each view in Customization Editor.
- ["Dialog Boxes " on page 46](#)
Dialog boxes reference.
- ["Localname Naming Rules " on page 55](#)
Naming strategies for database tables and columns.

Chapter 2: Customization Editor

HPE EM Customization Editor is a set of HPE EM Workbench features that enable you to edit the underlying System Data Model (SDM) configuration of an installation of HPE EM.

With the introduction of HPE EM 1.00, Web GUI customization was decoupled from SDM customization. Having applied an SDM extension, HPE EM administrators must configure the UI visibility of artifacts/properties in the web GUI using the **Administration > Customize** menu. This is no longer part of the HPE EM Workbench tool set.

This chapter introduces Customization Editor in the following sections:

- ["HPE EM Workbench Suite " below](#)
- ["Overview " below](#)
- ["User Interface " on the next page](#)
- ["SDM Elements " on page 13](#)

HPE EM Workbench Suite

HPE EM Workbench is a suite of editor tools enabling you to customize your deployment of HPE EM.

HPE EM Workbench consists of the following editor tools, distributed as a single Eclipse development platform:

- **Customization Editor**
Customizes the underlying System Data Model (SDM) within HPE EM.
- **Taxonomy Editor**
Customizes the taxonomies used to categorize artifacts in HPE EM.
- **Assertion Editor**
Customizes the conditions applied by your business policies within HPE EM.
- **Report Editor**
Customizes report definitions for use with HPE EM.

Overview

HPE EM is distributed with a preconfigured data model. For typical deployment scenarios, the model should be customized to fit an organization-specific environment.

HPE EM Customization Editor provides a mechanism to customize the model, implement those changes, and keep them isolated in a so-called extension package that can then be re-applied during a re-installation or upgrade of HPE EM.

To customize HPE EM, follow this process:

1. Create an extension project.

For details, see ["Creating an Extension Project " on page 19.](#)

2. Modify the data model.

For details, see the following:

- ["Manipulating Artifact Types " on page 22](#)
- ["Modifying the Properties of an Artifact Type " on page 23](#)
- ["Creating and Using Components " on page 29](#)
- ["Modifying Taxonomies " on page 31](#)

3. Deploy the customization to HPE EM.

For details, see *Deploying Extensions*.

Be very careful when modifying artifacts that already have instances in the repository. For example, a new installation already contains the person artifact *administrator*. Removing properties from an artifact type with instances, or adding a new required property without a default value, may cause instability in HPE EM. Customization Editor should prevent this if the HPE EM server is running during modification.

User Interface

The default **Extension** perspective is split into a number of sections with menu options across the top.

The perspective consists of the following elements:

- **Project Explorer**

The tree view of the SDM configuration represented by your project.

For details, see ["Extension Explorer " below.](#)

- **Server Explorer**

The view listing HPE EM server connections to HPE EM Workbench.

For details see, ["Server Explorer " on page 13.](#)

- **Editor Views**

The main area of the perspective contains editor views of project elements. You can open multiple editors. The functionality of each editor varies depending on the project element.

For details, see ["Views " on page 37.](#)

- **Information Views**

Messages and search results open their own views.

For details, see ["Views " on page 37.](#)

- **Menu Items**

The standard Eclipse menu options plus additional HPE EM Workbench options.

For details about the additional options for Customization Editor, see ["Menu Options " on page 12.](#)

Extension Explorer

The Extension Explorer, as shown in “Extension Explorer View”, represents a tree view of the extension project that you are currently working with. It includes all the elements from extensions that it depends on as well.

The tree is split into the extension root and five branches representing different elements of your extension.

Double-click an item in the tree to open the relevant editor, or to open or close a branch.

For details about each editor, see ["Views " on page 37](#).

Right-click an element to open a context menu that contains options for the element.

Each element and its contextual functionality is described in the following sections:

- ["Extension Name " below](#)
- ["Artifact Types " below](#)
- ["SDM Details " on the next page](#)
- ["User Interface " on the previous page](#)
- ["Taxonomies " on page 15](#)
- ["Project Editor " on page 40](#)

Extension Name

The extension name is the root element of the project.

The context menu contains the option to **Build Extension**, which creates a jar file that contains your extension. This extension is ready to import to HPE EM.

For deployment details, see ["Deploying Extensions " on page 32](#).

Artifact Types

The Artifact Types branch contains the artifact types organized into a hierarchical structure reflecting the System Data Model (SDM). Each element within **Artifact Types** is a type of artifact or artifact package.

Caution: HPE EM separates the SDM into two models, public and system. Customization Editor hides system artifacts, preventing you from modifying them.

Tip: An artifact package is an artifact type that serves as a group of other artifacts. They do not have instances in the repository and just serve to organize a hierarchy of artifact types in the SDM.

For details, see ["Artifacts " on page 14](#)

The context menu for the Artifact Types branch contains the following functionality:

- **New Artifact Type or Package**
Creates an artifact type as described in ["Creating an Artifact Type or Package " on page 22](#).
- **Open Artifact Type or Package**
Opens the artifact editor for the selected element with the name of the element as the editor title.
For details, see ["Artifact Editor " on page 37](#)
- **Deprecate Artifact Type or Package**

Deactivates the artifact type in the extension project and hides it in the HPE EM UI.

- **Undeprecate Artifact Type or Package**
Reactivates a deprecated artifact type in the extension project.
- **Delete Artifact Type or Package**
Removes the artifact type from the extension project.

SDM Details

The SDM Details branch contains two element types described in the following sections:

- ["Property Descriptors " below](#)
- ["Property Groups " on page 15](#)
HPE EM separates the SDM into two models, public and system. Customization Editor shows properties and property groups used by system artifacts, but prevents you from modifying them.

Property Descriptors

Property descriptors are the attributes of artifact types.

For details, see ["Properties " on page 14](#).

In the Extension Explorer, properties are divided into the following branches:

- Primitive Property Descriptors
- Relationship Property Descriptors
- Taxonomy Property Descriptors

Each property type branch contains one context menu option: New Property.

For details, see ["Creating a Property " on page 27](#).

Each property type branch contains a list of the properties of that type.

The context menu for properties contains the following options:

- **Open Property**
Opens the property editor for the selected element with the name of the element as the editor title.
For details, see [""Property Editor " on page 42"](#).
- **Deprecate Property**
Deactivates the property in the extension project and hides it in the HPE EM UI.
- **Undeprecate Property**
Reactivates the deprecated property in the extension project.
- **Delete Property**
Removes the property from the extension project.
- **Find Usage**
Opens a search view displaying all the artifacts and property groups containing this property.
For details, see ["Search View " on page 44](#).

Property Groups

Property groups are sets of properties that can be added collectively to an artifact type.

For details, see ["Property Groups "](#) on page 15.

The context menu of the Property Group branch contains one option: New Property Group.

For details, see ["Creating a Property Group "](#) on page 28.

The context menu for each property group contains the following options:

- **Open Property Group**
Opens the property group editor for the selected element with the name of the element as the editor title.
For details, see ["Property Group Editor "](#) on page 44.
- **Delete Property Group**
Removes the property group from the extension project.
- **Find Usage**
Opens a search view displaying all the artifacts that contain this property group.
For details, see ["Search View "](#) on page 44.

Menu Options

The menus in HPE EM Workbench are standard Eclipse menus, with the addition of specific functionality for HPE EM Workbench editors.

The additional menu options for Customization Editor include:

- **File > New > HPE Extension Project**
Create a new project, as described in ["Creating an Extension Project "](#) on page 19.
- **File > New > Artifact Type**
Create an artifact type, as described in ["Creating an Artifact Type or Package "](#) on page 22.
- **File > New > Artifact Package**
Create an artifact package, as described in ["Creating an Artifact Type or Package "](#) on page 22.
- **File > New > Property**
Create a property, as described in ["Creating a Property "](#) on page 27.
- **File > New > Property Group**
Create a property group, as described in ["Creating a Property Group "](#) on page 28.
- **File > New > Component**
Create a component, as described in ["Creating a Component "](#) on page 29.
- **File > New > Task**
Create a task, as described in ["Creating a Task "](#) on page 29.
- **Navigate > Go To > Open Artifact**
Open an artifact editor, as described in ["Artifact Editor "](#) on page 37.
The keyboard shortcut **Ctrl+Alt+A** also performs this function.
- **Navigate > Go To > Open Property**
Open a property editor, as described in ["Property Editor "](#) on page 42.

The keyboard shortcut **Ctrl+Alt+P** also performs this function.

- **Navigate > Go To > Open Property Group**

Open a property group editor, as described in ["Property Group Editor " on page 44.](#)

The keyboard shortcut **Ctrl+Alt+R** also performs this function.

- **Search > Search**

Open a search dialog box, as described in ["Searching the Extension " on page 21.](#)

- **Help > Dynamic Help**

Access context-sensitive help, directing you to the relevant section of this document based on the active view in Customization Editor.

Server Explorer

The Server Explorer displays the HPE EM servers connected to Workbench. The functionality is shared by all the HPE EM Workbench editors.

Right-click a server in the Server Explorer to open the context menu described in the “Server Explorer Context Menu Options” table below.

Server Explorer Context Menu Options

Option	Function
New Server	Add a server for downloading assertions and taxonomies (Assertion Editor, Taxonomy Editor, and Customization Editor).
Remove Server	Delete a server from the Server Explorer.
Download Taxonomy	Download a taxonomy from a platform server (Taxonomy Editor and Customization Editor).
Download Assertion	Download assertions from a platform server (Assertion Editor).
Download Report	Download reports from a reporting server (Report Editor).
Properties	View and edit the server name, URL, username, and password.

SDM Elements

Customization Editor manages four types of entities in the SDM configuration of HPE EM.

These entity types are described in the following sections:

- ["Artifacts " on the next page](#)
- ["Properties " on the next page](#)
- ["Property Groups " on page 15](#)
- ["Taxonomies " on page 15](#)

Artifacts

Artifacts are the basic building blocks of SOA. Every entity in the repository is an instance of an artifact. Each type of artifact is defined by an artifact type in the SDM. Artifact types are further categorized into artifact packages. These packages are abstract artifact types that do not have instances in the repository but instead define groups of artifacts.

You can explore artifact types and packages in the Artifact Types branch of the Extension Explorer.

For details, see [""Artifact Types " on page 10"](#).

For artifact type procedures, see ["Manipulating Artifact Types " on page 22"](#).

Properties

Properties are the attributes of artifacts, the labels that distinguish one instance of an artifact from another. For example, all artifact instances have the *name* property, but every artifact has a different name.

There are three categories of property:

- **Primitive Properties**

The basic labels for artifacts such as name and description.

Basic properties are of the following types:

Property Type	Description
addressPropertyType	A full postal address.
booleanPropertyType	True or false.
categoryBagPropertyType	A taxonomic categorization.
dailyIntervalPropertyType	A time period with a start and end day, for example Monday to Friday.
dateTimePropertyType	A specific date and time.
doublePropertyType	A double precision floating point number.
encryptedPasswordPropertyType	An encrypted password.
identifierBagPropertyType	A taxonomic identification.
integerPropertyType	An integer number.
nameUrlPairPropertyType	A URL with an optional name assigned.
nameValuePairPropertyType	A name and value pair.
plainTextPropertyType	One-line text, suitable for properties such as name.
textareaPropertyType	Multi-line text, suitable for properties such as description.

- **Relationship Properties**

The nature and direction of a relationship with another artifact such as ImplementationOf.

- **Taxonomy Properties**

The categories used to define an artifact based on taxonomies such as the High category in the Failure Impact taxonomy.

You can explore properties in the SDM Details branch of the Extension Explorer.

For details, see “SDM Details”.

For property procedures, see ["Modifying the Properties of an Artifact Type " on page 23.](#)

Property Groups

You can organize properties into groups, and add them to artifacts collectively instead of individually. For example, you can organize name, address, and telephone number into a contact details property group. Then, whenever a new artifact type is created that represents a person, the group can be added to it instead of the individual properties.

You can explore property groups in the SDM Details branch of the Extension Explorer.

For details, see “SDM Details”.

For property group procedures, see ["Modifying the Properties of an Artifact Type " on page 23.](#)

Taxonomies

Taxonomies are categorization groups, each of which contain a set of values within a single category. For example, office location can be a taxonomic group containing a set of values representing each office in an organization.

You can explore taxonomies in the Taxonomies branch of the Extension Explorer.

For details, see “Taxonomies”.

For taxonomy procedures, see ["Modifying Taxonomies " on page 31.](#)

Chapter 3: Getting Started

You can use Customization Editor to create extensions to the core HPE configuration. The core configuration itself is not modified. Instead, HPE EM includes a utility for adding extensions to the configuration.

This chapter contains the following sections:

- "Installing HPE EM Workbench" below
- "SSL Configuration" on page 18
- "Creating an Extension Project " on page 19
- "Searching the Extension " on page 21
- "Saving Modifications " on page 21

Installing HPE EM Workbench

HPE EM is an Eclipse development platform distributed as a zip file, `hpe-em-workbench-3.10-win64.zip`.

Note: HPE EM requires Java SE Development Kit (JDK) 1.8.0 (64 bit version only) or higher. You must include the path to this version of the JDK in the `JAVA_HOME` environment variable.

To install Enterprise Maps as a new Eclipse platform:

- Extract the archive to your required location, referred to in this document as `WB_HOME`.

Note: The path must not be longer than 97 characters.

To Start HPE EM:

- Execute `WB_HOME/workbench/start.exe`.

The first time you start HPE EM Workbench, the welcome screen opens.

Select one of the options to open one of the editor tools, start a new editing project, or view the documentation set.

You can return to the welcome screen from any of the editor tools by selecting **Help > Welcome** from the menu options.

Tip: By default, HPE EM Workbench runs in 'normal' mode which prevents users from uploading system taxonomies (IDs start with `uddi:systinet.com:soa:model:taxonomies`) and the Report Editor `.rptlibrary` file to HPE EM servers. If you need to work with system taxonomies or want to upload the `.rptlibrary` file you can switch HPE EM Workbench into 'admin' mode.

Caution: Be extremely careful when working with system taxonomies, HPE EM uses some hard-coded values from system taxonomies. Changing or removing them may cause errors.

To Switch HPE EM Workbench to Admin Mode

1. Open `WB_HOME/configuration/config.ini` with a text editor.
2. Add `mode=admin` to `config.ini`.
3. Restart HPE EM Workbench.

Tip: HPE Enterprise Maps is memory-intensive. If you experience performance issues, HPE recommends increasing the memory allocation.

To increase the memory allocation for HPE Enterprise Maps:

1. Open `WB_HOME/workbench/start.ini` for editing.
2. Set these new values:
 - `-Xms128m`
 - `-Xmx1024m`
3. Save your changes.
4. Restart HPE EM Workbench.

Tip: HPE Enterprise Maps downloads from HPE EM may time out. If you experience issues, HPE recommends increasing the time out.

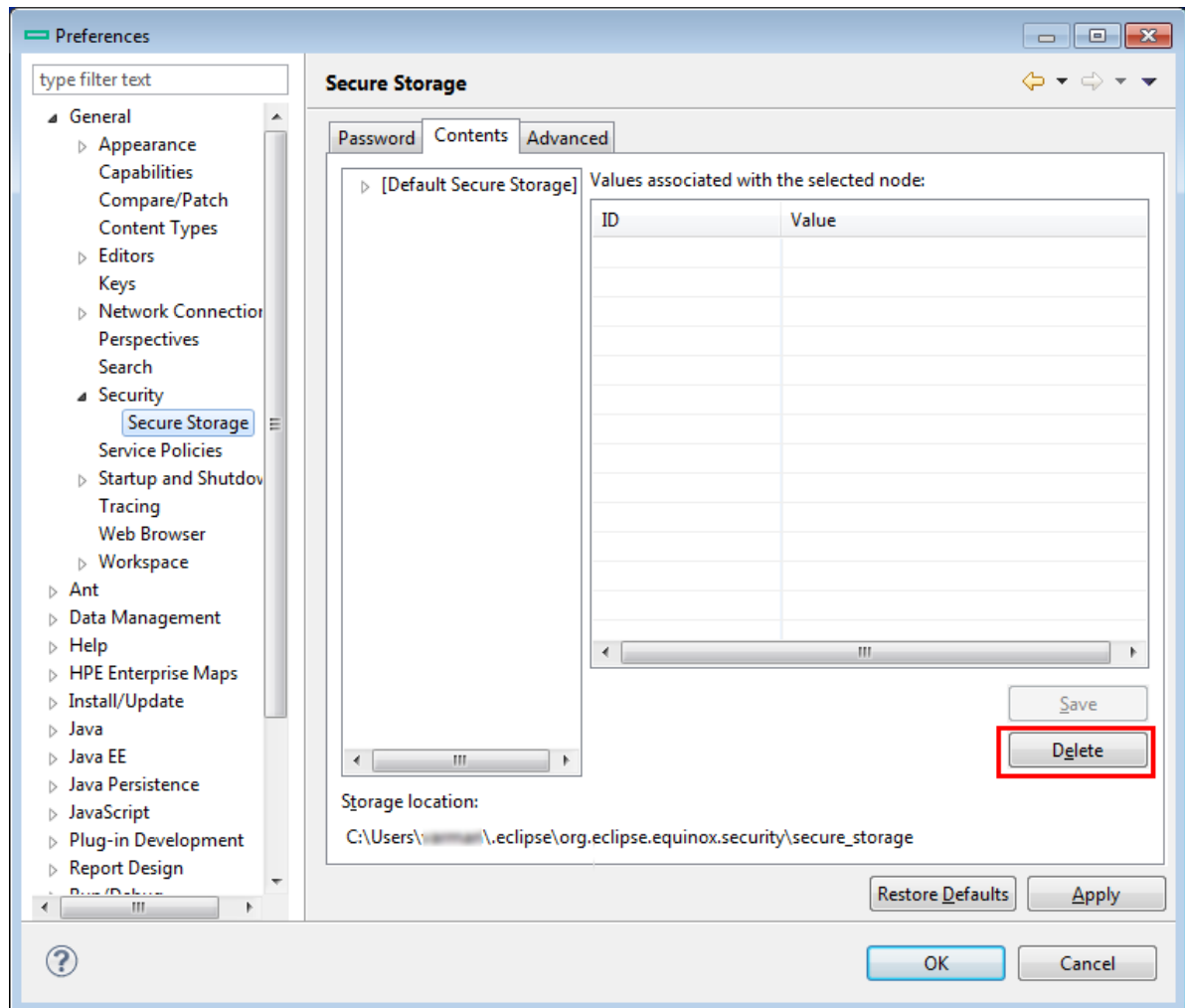
To increase the time out for HPE Enterprise Maps:

1. Open `WB_HOME/workbench/start.ini` (or `eclipse.ini` for stand-alone installation) for editing.
2. Set the new value:
`-Dorg.em.platform.rest.Client.timeout=200000`
The value is in milliseconds with a default value of 120000 (2 minutes).
3. Save your changes.
4. Restart HPE EM Workbench.

Tip: HPE EM Workbench may fail to store saved credentials of servers. In such cases, HPE recommends clearing the secure storage.

To reset the secure storage for Enterprise Maps server credentials:

1. In Enterprise Maps, go to **Windows > Preferences > General > Security > Security Storage > Contents** tab.
2. Click root node **Default Secure Storage** and then click **Delete** button.



3. Restart the Workbench.

SSL Configuration

By default, HPE EM Workbench trusts all HPE EM server certificates. You may want HPE EM Workbench to verify HPE EM certificates.

To Verify HPE EM Server Certificates:

- Add the following options to `WB_HOME/workbench/start.ini`:

```
-Dcom.hp.em.security.ssl.verifyCert=true  
-Djavax.net.ssl.trustStore=USER_TRUSTSTORE  
-Djavax.net.ssl.trustStorePassword=TRUSTSTORE_PASS  
-Djavax.net.ssl.trustStoreType=TRUSTSTORE_FORMAT
```

If HPE EM is configured for 2-way SSL, you must provide HPE EM Workbench certificates to HPE EM.

To Provide HPE EM Workbench Client Certificates to HPE EM:

- Add the following options to `WB_HOME/workbench/start.ini`:

```
-Djavax.net.ssl.keyStore=USER_KEYSTORE
```

```
-Djavax.net.ssl.keyStorePassword=KEYSTORE_PASS  
-Djavax.net.ssl.keyStoreType=KEYSTORE_FORMAT
```

Creating an Extension Project

The first step in customizing your HPE EM installation is to create an extension project in the Customization Editor. This is the workspace where you make all your modifications.

The symbol \succ supports the separation of projects based on their type. The following extension project types are supported:

- **model**
Extensions for changes to the data model.
- **code**
Extensions for custom components.
- **mixed**
Combined model and code extensions.

HPE Software recommends separating extensions into separate types because HPE EM does not guarantee backward compatibility for the Java API. This may make it difficult to migrate custom components to newer versions.

model extensions are easily migrated by opening them in the latest version of Customization Editor, building a new extension and redeploying them.

To create an extension project:

1. In the menu, select **File > New > Project**.
The New Project wizard opens.
2. Expand **HPE EM Extension Project**, and click **Next**.
3. In the New Extension Project dialog box, select either a local or remote EM installation and add the parameters you want.
For parameter descriptions, see "[New Extension Project: Specify HPE EM Server Installation](#)" on page 48.

Note: Creating an extension project based on a remote installation of EM, is not available in Production installation mode.

4. Click **Next** to select or create a server.
If no servers are currently configured the dialog continues to Step 6.
5. Do one of the following:
 - Select **Create a New Server**, and then click **Next**.
Continue to Step 6.
 - Select **Use an Existing Server**, select the server from the list and input its credentials, and then click **Next**.
Continue to Step 7.
6. In the New Server dialog box, add the parameters you want, and then click **Next**.

For parameter descriptions, see ["New Extension Project: New Server" on page 48](#).

7. Do one of the following:

- Select **Create a New Extension Project from Scratch** to create an empty extension containing no elements at all.

Click **Next**.

- Select **Edit an Existing Extension** to open an existing extension for modification.

Select an extension from the extension folder, or use **Add Extension** to select one from another location.

Click **Next** to continue to Step 10.

- Select **Create a New Extension from an Existing One** to use an existing extension as the basis of a new one.

Select an extension from the extension folder or use **Add Extension** to select one from another location.

Click **Next**.

If you use this option, you must remove the existing extension from the extensions folder before you deploy the new modified extension.

8. In the Create Extension or Project dialog box, add the parameters you want, and then click **Next**.

For parameter descriptions, see ["New Project: Create a New Extension" on page 49](#).

9. In the Add Dependencies dialog box, optionally select or add extensions to depend on, and then click **Next**.

10. In the HPE EM Extension Project dialog box, add the parameters you want, and then select available projects to reference.

Adding referenced projects enables you to use assertions or taxonomies from the referenced projects without the need to copy them manually to the extension project.

11. Click **Finish** to open the project.

In the Platform perspective, the Project Explorer now displays a view of your extension that contains not only the elements contained in your extension project but all the elements from any other extensions that your project depends on.

For details about the contents of your extension project, see ["Extension Explorer" on page 9](#).

Sharing an Extension Project

HPE EM enables the sharing of an extension project in the CVS repository.

To share an extension project:

1. In Extension Explorer, right-click the project you need to open its context menu, and select **Team > Share Project** to open the **Share Project** dialog box. For details, see ["Share Project" on page 54](#).

2. Enter the required parameters and click **Finish**.

The project is published to the CVS repository.

Referencing Other HPE EM Workbench Projects

You can include assertions and taxonomies from an Assertion or Taxonomy Project in your current Extension Project.

To reference an Assertion or Taxonomy Project:

1. From the platform perspective, right-click your extension project and select **Properties** to open the **Preferences** dialog box, and then select **Project References** to view projects available to reference.
2. Select the projects you want to reference and click **OK**.

The assertions or taxonomies from the referenced project are copied to your extension project.

Saving Modifications

As you modify an entity in your extension project, the tab label of the entity editor is marked with an asterisk (*).

To save your changes to the project, select **File > Save** from the menu, or use keyboard shortcut **Ctrl+S**.

If you close an editor or the application with unsaved changes, you are prompted to save these changes.

Your modifications are made to your extension project and not to the configuration of HPE EM. To deploy your customization to HPE EM, see ["Deploying Extensions " on page 32](#).

Searching the Extension

The Customization Editor contains a customized search function, which enables you to find entities in your extension project.

To search your extension project:

1. From the menu, select **Search > Search**.
The Search dialog box opens.
2. In the SDM Search tab of the Search dialog box, add the parameters for your search.
For parameter descriptions, see ["Search " on page 53](#).
3. Click **Search**.
The search results appear in the Search view.
For details, see ["Search View " on page 44](#).

Chapter 4: Manipulating Artifact Types

You can use Customization Editor to create, modify, and delete artifact types and packages in your extension project. You can also change the format of artifact pages in the HPE EM UI.

HPE EM separates the SDM into two models, public and system. Customization Editor hides system artifacts, preventing you from modifying them.

For more details about artifact types and packages, see ["Artifacts " on page 14](#).

The chapter explains the following procedures:

- ["Creating an Artifact Type or Package " below](#)
- ["Modifying the Attributes of an Artifact Type " on the next page](#)
- ["Modifying the Properties of an Artifact Type " on the next page](#)
- ["Mapping an Artifact Type to a Registry " on page 24](#)
- ["Example: Adding the Department Property to Services " on page 25](#)

Creating an Artifact Type or Package

Customization Editor enables you to create a new artifact type or package in your extension project.

To create an artifact type or package:

1. Do one of the following:
 - From the main menu, select **New > Artifact Type** or **Package**.
 - In the Extension Explorer, open the context menu of an artifact package branch and select **New Artifact Type** or **Package**.

The New Artifact Type or New Artifact Package dialog box opens.

2. In the dialog box, add the artifact parameters you want.
For parameter descriptions, see ["New Artifact: Create " on page 46](#).
For localname naming conventions, see ["Localname Naming Rules " on page 55](#).
3. Do one of the following:
 - Click **Finish** to create the artifact type or package and exit the dialog box.
 - Click **Next** and continue to Step 4 to set database parameters.
4. In the dialog box, add the database parameters you want.
For parameter descriptions, see ["New Artifact: Database Settings " on page 47](#).
5. Click **Finish** to create the artifact type or package.

Modifying the Attributes of an Artifact Type

Customization Editor enables you to edit the main attributes of artifact types.

To edit the attributes of an artifact type:

1. Open the artifact editor and select the **Overview** tab.
2. In the Overview tab, make any changes you want.
You cannot change the local name of the artifact if the extension project is in production mode.
For a description of the Overview tab, see "[Artifact Editor](#)" on page 37.
3. Press **Ctrl+S** to save your changes.

Modifying the Properties of an Artifact Type

The main attributes of artifact types are properties. You can modify these properties, add them individually, or add them as a group within the artifact editor.

To add or modify the properties and property groups of an artifact type:

1. Open the artifact editor and select the **Properties** tab.
2. In the Properties tab, make any changes you want.
For a description of the Properties tab, see "[Artifact Editor: Properties Tab](#)" on page 38.
3. Press **Ctrl+S** to save your changes.

You can change the local name of the property descriptor defined in the current extension project.

To change the local name of a property descriptor:

1. From the tree menu of Extension Explorer, expand **SDM Details > Property Descriptors**.
2. Browse for the descriptor you want, and double-click to open the **Overview** view.
3. In the **Local Name** field, enter the parameters you require, and then save your changes.

You can also change the cardinality of an artifact defined in the current extension project.

Note: You cannot change the local name of the property descriptor if the extension project is in production mode.

To change the cardinality of an artifact type:

1. Browse for the artifact you need and open the Editor view, and then switch to the **Properties** tab.
2. In the **Cardinality** field, click to open the drop-down menu, and select the cardinality you need.

Note: For taxonomic properties, the cardinality affects the way the property displays in the HPE EM UI.

- Required taxonomic properties display as an **Add Category** function.
- Optional taxonomic properties display as a drop-down menu.

- Multiple taxonomic properties display as a list box.

Tip: You cannot change the cardinality of an artifact if the extension project is in production mode.

You can also change the direction of relationship of a property descriptor which is defined in the current extension project.

To change the direction of a relationship property descriptor:

1. In Extension Explorer, expand **SDM Details > Property Descriptors > Relationship Property Descriptors** and double-click the descriptor you need to open its Editor view.
2. In the **Direction** field, click the link next to **Inverse Display Name** to toggle the relationship between **incoming** or **outgoing**, and then save your changes.

HPE EM also enables you to modify the taxonomical properties of an artifact type.

To modify the taxonomical properties of an artifact:

1. In Extension Explorer, browse for the artifact you need and open its Editor view, and then switch to the **Properties** tab.
2. In the Properties window, click **New** to open the **New Property** dialog box, and select **Taxonomy Property**, and then click **Next**.

The **New Taxonomy Property** dialog box opens. For details, see "[New Property: Taxonomy](#)" on page 51.

3. Enter general parameters and in the **Taxonomy Name** field, do one of the following:
 - Click **Browse** to browse for and select from a list of available taxonomies.
 - Click **Create** to open the Create a New Taxonomy dialog box. For details, see "[New Taxonomy](#)" on page 52.

4. Enter the parameters you want and click **Finish**.

The created taxonomy is now visible in the **New Taxonomy Property** dialog box.

5. Click **Finish**.

Mapping an Artifact Type to a Registry

You can map artifacts in HPE EM to registry entities in a UDDI registry.

The artifact types listed in "Predefined Registry Mapping" have predefined mappings to registry and cannot be amended.

Predefined Registry Mapping

SDM Artifact	UDDI Entity	Direction
Organizational Unit	BusinessEntity	Bi-directional
Business Service	tModel	Bi-directional
Implementation Artifacts	Business Service	Bi-directional
Endpoint	BindingTemplate	Bi-directional

The mapping of an artifact to a registry entity is illustrated in “Registry Mapping”.

To add or modify artifact type mappings to registry entities:

1. Open the artifact editor and select the **Registry Mapping** tab.
2. In the Registry Mapping tab, make any changes you want.
For a description of the Registry Mapping tab, see ["Artifact Editor: Registry Mapping Tab"](#) on page 39.
For details on how to add an artifact mapping, see ["Adding a Registry Mapping for an Artifact Type"](#) below
For details on how to add a property mapping, see ["Adding a Registry Mapping for a Property"](#) below.
3. Press **Ctrl+S** to save your changes.

Adding a Registry Mapping for an Artifact Type

You can map artifact types to registry entities.

To add an artifact mapping:

1. Open the Artifact Editor and select the **Registry Mapping** tab.
2. In the Artifact Mapping pane, click **Add**.
The New Artifact Mapping dialog box opens.
3. In the New Artifact Mapping dialog box, add the parameters you want.
For parameter descriptions, see ["Registry Mapping: New Artifact Mapping"](#) on page 52.
4. Click **Finish** to add the mapping.

Adding a Registry Mapping for a Property

You can map properties to registry entity keyed references.

To add a property mapping:

1. Open the Artifact Editor and select the **Registry Mapping** tab.
2. In the Property Mapping pane, click **Add**.
The New Property Mapping dialog box opens.
3. In the New Property Mapping dialog box, add the parameters you want.
For parameter descriptions, see ["Registry Mapping: New Property Mapping"](#) on page 53.
4. Click **Finish** to add the mapping.

Example: Adding the Department Property to Services

In this example, you add a new taxonomic property, department, to the service artifact.

To follow this example, you must first do the following:

- In Customization Editor, create a new extension dependent on the core extension, as described in ["Creating an Extension Project " on page 19](#)
- In Taxonomy Editor, create a new department taxonomy and deploy it to HPE EM, as described in the "Example: Creating and Publishing a Department Taxonomy" section of the *HPE Enterprise Maps Taxonomy Editor Guide*.

To add the department property to services:

1. Open theService editor and select the **Properties** tab.
2. In the Properties segment, click **New**.
3. Select **Taxonomy Property** and click **Next**.
4. Input Department as the **Display Name**.
5. For the **Taxonomy**, click **Browse** and import the **Departments** taxonomy.
6. Press **Ctrl+S** to save your changes to the business service artifact type.
7. Deploy your extension, as described in ["Deploying Extensions " on page 32](#)
8. Start your installation of HPE EM

Add the property to the artifact in the user interface.

Chapter 5: Manipulating Properties

Customization Editor enables you to create, modify, and delete properties and property groups in your extension project.

Caution: HPE EM separates the SDM into two models, public and system. Customization Editor shows properties and property groups used by system artifacts, but prevents you from modifying them.

For more details about properties and property groups, see ["Properties " on page 14](#) and ["Property Groups " on page 15](#).

This chapter describes the following procedures:

- ["Creating a Property " below](#)
- ["Modifying a Property " on the next page](#)
- ["Creating a Property Group " on the next page](#)
- ["Modifying a Property Group " on the next page](#)

In addition, ["Manipulating Artifact Types " on page 22](#) includes the following procedures related to properties:

- ["Modifying the Properties of an Artifact Type " on page 23](#)
- ["Mapping an Artifact Type to a Registry " on page 24](#)

Creating a Property

You can create properties individually and then add them to artifact types later.

To create a property:

1. Do one of the following:
 - From the menu, select **File > New > Property**.
 - In the Extension Explorer, open the context menu for the Property Descriptors branch, select **New Property**, and then select the property type.
 - In the Extension Explorer, open the context menu for a property type branch and select **New Type Property** to create a property of that type.

The New Property dialog box opens.

2. In the New Property dialog box, add the property parameters you want.

For parameter descriptions of each property type, see the following:

- ["New Property: Primitive " on page 50](#)
- ["New Property: Relationship " on page 50](#)
- ["New Property: Taxonomy " on page 51](#)

For localname naming conventions, see "[Localname Naming Rules](#) " on page 55.

3. Click **Finish** to create the property.

Modifying a Property

Customization Editor enables you to modify properties.

To edit a property:

1. Open the Property Editor.
2. In the Property Editor, make any changes you want.
For a description of the Property Editor, see "[Property Editor](#) " on page 42.
3. Press **Ctrl+S** to save your changes.

Creating a Property Group

Many artifact types share sets of the same properties. It is useful to create groups of properties and add these to artifact types instead of adding each property individually.

To create a property group:

1. Do one of the following:
 - From the menu, select **File > New > Property Group**.
 - In the Extension Explorer, open the context menu for the Property Groups branch, and select **New Property Group**.
 - Open the Artifact Editor and select the Properties tab. In the Property Groups pane, click **New** to create a new property group as a set of attributes for an artifact type.

The New Property Group dialog box opens.

2. In the New Property Group dialog box, add the parameters you want.
For parameter descriptions, see "[New Property Group](#) " on page 51.
3. Click **Finish** to create the property group.

Modifying a Property Group

Customization Editor enables you to modify property groups.

To edit a property group:

1. Open the property group editor.
2. In the Property Group Editor, make any changes you want.
For a description of the Property Group Editor, see "[Property Group Editor](#) " on page 44.
3. Press **Ctrl+S** to save your changes.

Chapter 6: Creating and Using Components

Customization Editor enables you to create custom components, for use in the customizable HPE EM user interface.

To create and use components:

1. Create a new extension project, selecting **Develop JSPs**, and setting the appropriate application server settings.
For details, see as described in “Creating an Extension Project”.
2. Create a component.
For details, see “Creating a Component”.
3. Create a task to use your component.
For details, see “Creating a Task”.
4. Develop the Java and JSP that the component uses.
For details, see “Developing a Component”.
5. Deploy the code extension to HPE EM.
For details, see ["Deploying Extensions " on page 32.](#)
6. Perform the appropriate UI customization to use your component in HPE EM.

Creating a Component

Components are functional elements that you can call using a number of different elements in the HPE EM UI.

To create a component:

1. Do one of the following:
 - In the Extension Explorer, open the context menu for the Components branch and select **New Component**.
 - In the Components Editor, click **Add**.

The New Component dialog box opens.

2. In the New Component dialog box, add the parameters you want.
For parameter definitions, see “New Component”.
3. Click **Finish** to create the component.

Creating a Task

Tasks are top level components accessible via their URIs. The addition of a URI allows you to access the component in the HPE EM UI, and to make more sophisticated multi-layered components.

To create a task:

1. Do one of the following:
 - In the Extension Explorer, open the context menu for the Tasks branch and select **New Task**.
 - In the Tasks editor, click **Add**.

The New Task dialog box opens.

2. In the New Task dialog box, add the parameters you want.
For parameter descriptions, see “New Task”.
3. Click **Finish** to create the task.

Developing a Component

When you create a component, as described in ["Creating a Component " on the previous page](#), the templates for the Java class and JSP page are created automatically.

To view this code, switch to the Java or Debug perspective, as shown in “Debug Perspective”.

The project contains two source folders containing the Java and JSP files, respectively.

To open an edit view, double-click the source file you want to edit. In the edit view, you can write a custom component.

Chapter 7: Modifying Taxonomies

Customization Editor controls which taxonomies are available in the extension project. You can create and modify taxonomies from your extension project.

Creating and modifying taxonomies uses the Taxonomy Editor functionality.

For details, see the *HPE EM Taxonomy Editor Guide*.

To control taxonomies in your extension project:

1. In the Extension Explorer, double-click the Taxonomies branch to open the Taxonomies editor.
2. To modify the available taxonomies in your extension project, do one of the following:
 - Open the taxonomy from the extension project, and edit the parameters as required.
The modified taxonomy is then indicated by a > next to the taxonomy.
 - To import taxonomies from HPE EM and add them to the extension, click **Import**. Select multiple taxonomies by holding **Ctrl**.
You can also import taxonomies in the Server Explorer view. For more details, see ["Server Explorer" on page 13](#).
 - To update taxonomies in your extension to newer versions from HPE EM, click **Update**. Select multiple taxonomies by holding **Ctrl**.
Alternatively, in the Extension Explorer, expand the branches in the Taxonomy branch, select the taxonomy (use **Ctrl** to select multiple taxonomies), open the context menu, and select **Update Taxonomy**.
The selected taxonomies are added as separate items for modification under the Taxonomy branch.
 - To remove a taxonomy from the extension, select the taxonomy and click **Remove**. Select multiple taxonomies by holding **Ctrl**.
To enable the import or update of taxonomies from HPE EM, you must specify the correct server URL during configuration.
For details, see ["Creating an Extension Project" on page 19](#).

You can change the taxonomy in a taxonomy based property descriptor which is used in the current extension project.

To change the taxonomy in a taxonomy based property descriptor:

1. In the tree menu of Extension Explorer, expand **SDM Details > Taxonomy Property Descriptors** and double-click the descriptor you need to open its Editor in the Overview tab.
2. In the **Taxonomy Name** field, click **Browse**.
3. Select the taxonomy you want, and click **Select**.

The new taxonomy overrides the previous taxonomy in the property descriptor.

You cannot change the taxonomy in a taxonomy based property descriptor if the extension project is in production mode.

Chapter 8: Deploying Extensions

Deploying an extension to HPE EM is a three-part process:

1. ["Exporting the Extension Project " below](#)
2. ["Applying Extensions " below](#)
3. ["Redeploying the EAR File " on page 35](#)
4. ["Deploying Components to HPE EM " on page 35](#)
5. ["Deploying Extensions Remotely" on page 35](#)

Alternatively, if you are developing components in Customization Editor, you can directly deploy an extension from Customization Editor.

Exporting the Extension Project

Customization Editor displays the entire configuration of your extension plus other extensions it depends on. However, your extension consists only of any modifications and additions that you have made. Only these changes are stored when you save your project as an extension JAR file, and only these changes are deployed to HPE EM.

To create your extension package:

1. In the Extension Explorer, open the context menu of the extension name, and select **HPE Enterprise Maps > Build Extension**.
The Export Extension dialog box opens.
2. Choose a save location and file name, and then click **Save**.
By default, the Extension Folder set during configuration is selected.
For configuration details, see ["Creating an Extension Project " on page 19](#)
If the extension already exists, Customization Editor prompts you to confirm that you want to overwrite it.

Applying Extensions

You can extend HPE EM by adding libraries or JSPs to the deployed EAR files, by modifying the data model, by configuring the appearance of the UI, and by importing prepackaged data.

Extensions to HPE EM come from the following sources:

- **Customization Editor**

Typical extensions created by Customization Editor contain modifications to the data model and artifact appearance, and possibly data required by the customization (taxonomies). They may also contain new web components, which may include custom JSP and Java code.

If your extension contains new artifact types, HPE EM does not create default ACLs for them. Set default ACLs for the new artifact types in HPE EM.

- **Assertion Editor, Report Editor, and Taxonomy Editor**

These extensions contain assertion, reporting, and taxonomy data only. They do not involve changes to the data model.

The Setup Tool opens the EAR files, applies the extensions, and then repacks the EAR files.

Apply extensions according to one of the following scenarios:

- ["Single-Step Scenario" below](#)

The Setup Tool performs all the processes involved in applying extensions, including any database alterations, as a single step.

- ["Decoupled DB Scenario" on the next page](#)

Database SQL scripts are run manually. The Setup Tool performs the other processes as individual steps that are executable on demand. This scenario is useful in organizations where the user applying extensions does not have the right to alter the database, which is done by a database administrator.

Caution: In some specific circumstances (underscores and numbers in property names), extension application may fail because HPE EM cannot create short enough database table names (31 character maximum for most databases).

The error in `setup.log` resembles the following:

```
[java] --- Nested Exception ---  
[java] java.lang.RuntimeException: cannot reduce length of identifier  
      'ry_c_es_Artifact02s_c_priEspPty01Group_c_priEspPty01',  
      rename identifier elements or improve the squeezing algorithm  
[java] at com.em.platform.rdbms.design.decomposition.naming.impl.  
      BlizzardNameProviderImpl.getUniqueLimitedLengthName(  
          BlizzardNameProviderImpl.java:432)  
[java] at com.em.platform.rdbms.design.decomposition.naming.impl.  
      BlizzardNameProviderImpl.filterTableName(BlizzardNameProviderImpl.java:374)
```

If you do not require backward compatibility with these older versions, you can change the table naming algorithm.

To change the table naming algorithm:

1. Open `EM_HOME/lib/pl-repository-old.jar#META-INF/rdbPlatformContext.xml` with a text editor.
2. In the `rdb-nameProvider` bean element, edit the following property element:
<property name="platform250Compatible" value="false"/>
3. Save `rdbPlatformContext.xml`

Caution: This solution only impacts properties with multiple cardinality. If the problem persists, then review the property naming conventions in your extension.

Single-Step Scenario

Follow this scenario if you have permission to alter the database used for HPE EM.

To apply extensions to HPE EM in a single step:

1. Make sure that all extensions are in the following directory:
`EM_HOME/extensions`
The Setup Tool automatically applies all extensions in that directory.
If you are applying extensions to another server, substitute the relevant home directory for `EM_HOME`.
2. Stop the server.
3. Start the Setup Tool by executing the following command:
`EM_HOME/bin/setup.bat(sh)`
4. Select the **Apply Extensions** scenario, and click **Next**.
The Setup Tool automatically validates the step by connecting to the server, copying the extensions, and merging the SDM configuration.
5. Click **Next** for each of the validation steps and the setup execution.
This process takes some time.
6. Click **Finish** to end the process.
7. Deploy the EAR file:
The Setup Tool deploys the EAR file automatically.
If you need to deploy the EAR file to JBoss manually, see [Redeploying the EAR File](#).
8. Restart the server.

Caution: Applying an extension that modifies the SDM model may drop your full text indices.

`EM_HOME/log/setup.log` contains the following line in these cases:

```
Could not apply alteration scripts, application will continue with slower DB  
drop/create/restore scenario. . . .
```

In these cases, reapply full text indices.

Decoupled DB Scenario

Follow this scenario if the user who applies extensions does not have permission to modify the database.

To apply extensions and modify the database separately:

1. Make sure that all extensions are in the following directory:
`EM_HOME/extensions`
The Setup Tool automatically applies all extensions in that directory.
2. Stop the server.
3. Start the Setup Tool by executing the following command:
`EM_HOME/bin/setup -a`
4. Select the **Apply Extensions** scenario, and click **Next**.
5. Click **Next**, to execute the extension application, and exit the Setup Tool.
6. Provide the scripts from `EM_HOME/sql` to the database administrator.
The database administrator can use `all.sql` to execute the scripts that drop and recreate the database schema.

7. Execute the Setup Tool in command-line mode to finish the extension application:

EM_HOME/bin/setup -c

8. Redeploy the EAR file:

The Setup Tool deploys the EAR file automatically.

If you need to deploy the EAR file to JBoss manually, see [Redeploying the EAR File](#).

Redeploying the EAR File

After using the Setup Tool to apply extensions or updates, you must redeploy the EAR file to the application server. For JBoss, you can do this using the Setup Tool.

To redeploy the EAR file to JBoss:

1. Stop the application server.
2. Start the Setup Tool by executing the following command:
EM_HOME/bin/setup.bat(sh).
3. Select the **Advanced** scenario, and click **Next**.
4. Scroll down, select **Deployment**, and then click **Next**.
When the Setup Tool validates the existence of the JBoss Deployment folder, click **Next**.
5. Click **Finish** to close the Setup Tool.
6. Restart the application server.

Deploying Components to HPE EM

If you are creating components in Customization Editor, it is not convenient to continually build and apply extensions to HPE EM. Customization Editor enables you to deploy your extension directly to HPE EM.

Only HPE EM deployed to a JBoss application server is supported by this release.

To directly deploy an extension from Customization Editor:

1. Stop the application server.
2. Switch to the Debug perspective in Customization Editor.
3. From the main menu, select **Run > External Tools > Open External Tools Dialog**.
The External Tools dialog box opens.
4. Select **Ant Build > Customization Editor – Apply Extension**.
5. Click **Run** to apply the extension.

The Console view displays the output of the deployment process.

Deploying Extensions Remotely

In addition to manual deployment, you can deploy an extension remotely from Workbench to EM server.

To do so, follow the steps below:

1. Open the extension project.
2. In the Extension Explorer, open the context menu of the extension name , and select **HPE Enterprise Maps > Apply Extension on Server**.
3. Follow the subsequent screens to deploy the extension to EM server.

Note: Remote deployment requires administrative rights. Thus, you are prompted to provide administrative credentials.

Chapter 9: Views

Each Customization Editor view in the main and bottom-right section of the editor is described in the following sections:

- ["Artifact Editor " below](#). Manage your SOA artifacts and customize their properties, appearance, and registry mapping.
- ["Messages View " on page 40](#). View the action log as you customize your extension project.
- ["Project Editor " on page 40](#). Manage your extension project.
- ["Property Editor " on page 42](#). Manage your SOA properties and which perspectives can see and edit them.
- ["Property Group Editor " on page 44](#). Organize your properties into groups.
- ["Search View " on page 44](#). View the results of usage and entity searches.
- ["Tasks Editor " on page 45](#). Manage tasks in HPE EM.
- ["Taxonomies Editor " on page 45](#). Customize the taxonomies available in HPE EM.

Artifact Editor

Artifacts are the basic building blocks of SOA and represent all types of entity. This editor enables you to modify the parameters, and properties of an artifact type within HPE EM. Each artifact type and package has an editor with the artifact name as the title.

Each editor contains the following tabs described in the following sections:

- ["Artifact Editor: Overview Tab " below](#)
The main attributes of the artifact type.
- ["Artifact Editor: Properties Tab " on the next page](#)
The properties of the artifact type.
- ["Artifact Editor: Registry Mapping Tab " on page 39](#)
The mapping of the artifact to registry entities.

Artifact Editor: Overview Tab

The **Overview** tab displays the general attributes of the artifact and allows you to modify some of them.

The Overview tab contains the following segments:

- **Artifact General Information.** The following parameters related to artifacts shown in this pane. They are described in the table below:

Parameter	Definition
URI	The identifier for the artifact descriptor in the configuration.

Parameter	Definition
Display Name	The name of the artifact as it appears in the HPE EM UI.
Local Name	The name of the artifact as it is stored in the extension.
Collection Display Name	The plural version of the name as it appears in the HPE EM UI.
Artifact Icon	Displays the icon used for the artifact in the UI with an option to change it.
Package	The parent artifact type that this artifact type belongs to.
Extends Type	The artifact type that this artifact type inherits the properties of.
Description	The description of the artifact type as it appears in the HPE EM UI.
Deprecated	A check box indicating whether the artifact is currently active in the extension.
Revisionless	Indicates whether the artifact creates a new revision when it updates.
Abstract	A check box indicating whether the artifact is an artifact package which does not have actual instances in the repository.
Data Attachment	Indicates the type of data content that may be attached to the artifact.

- **Properties**

A summary of the different properties that the artifact has. Each of the links opens the **Properties** tab described in "[Artifact Editor: Properties Tab](#)" below.

Artifact Editor: Properties Tab

The **Properties** tab displays all the properties of the artifact and enables you to add and remove them:

This tab contains the following panes:

- **Properties**

This is the list of individual properties of the artifact. On the right are the following buttons:

- **New** opens the **New Property** dialog described in "[Creating a Property](#)" on page 27.
- **Add** adds a property to the artifact type from the list of available property descriptors, set its cardinality, and its location on the **View Artifact** page.
- **Deprecate** deactivates the property in the artifact type.
- **Undeprecate** reactivates the property in the artifact type.
- **Remove** removes the selected property from the artifact type.

- **Property Groups**

This is the list of the property groups of the artifact. On the right are the following buttons:

- **New** opens the **New Property Group** dialog. For details, see "[Creating a Property Group](#)" on page 28.

- **Add** adds a property group to the artifact type from the list of available property groups.
- **Remove** removes the selected property group from the artifact type.
- **Inherited Groups and Properties**
If the artifact is based on another artifact then this segment displays the inherited artifact and its properties and groups.

The following property parameters are displayed in these panes:

Parameter	Definition
Name	The name of the property as it appears in the HPE EM UI.
Cardinality	The occurrence of the property in an artifact with options: <ul style="list-style-type: none"> • Optional The property is not required to be populated. • Required The property must be populated. • Multiple The cardinality is determined by the MinOccurs/MaxOccurs defined in the Property Editor: Advanced Tab. For details, see "Property Editor: Advanced Tab " on page 43.
Extension	Which extension this property is part of.

Artifact Editor: Registry Mapping Tab

The **Registry Mapping** tab displays any mappings between the artifact and entities in registries and allows you to create, edit, and remove them:

It is split into the following panes:

- **Artifact Mapping**
This is the list of registry entities that represent the artifact in registries. On the right are the following buttons:
 - **Add** adds a registry mapping, as described in ["Mapping an Artifact Type to a Registry " on page 24](#)
 - **Edit** edits the mapping, as described in ["Mapping an Artifact Type to a Registry " on page 24](#)
 - **Remove** removes the mapping from the artifact.

The following registry mapping parameters are displayed in this pane:

Parameter	Definition
Registry Name	The registry that the artifact type is mapped to.
TModel Key	The taxonomy key used to categorize the UDDI entity in the registry.

Parameter	Definition
Key Name	The name used to categorize the UDDI entity in the registry.
Key Value	The value used to categorize the UDDI entity in the registry.
Extension	Which extension this mapping is part of.

- **Property Mappings**

This is the list of the properties of the artifact and if they are mapped to a registry. On the right are the following buttons:

- **Add** adds a new registry mapping for the selected property, as described in "[Mapping an Artifact Type to a Registry](#) " on page 24.
- **Edit** edits a property mapping, as described in "[Mapping an Artifact Type to a Registry](#) " on page 24
- **Remove** removes a mapping from the selected property.

The following registry mapping parameters are displayed in this pane:

Parameter	Definition
Property Name	The name of the property.
Registry Name	The registry that the artifact type property is mapped to.
TModel Key	The taxonomy key used to categorize the UDDI entity in the registry.
Key Name	The name used to categorize the UDDI entity in the registry.
Extension	Which extension this property is part of.

Messages View

The **Messages** view tracks the changes that you make to extension entities and displays any warnings and problems that may occur as a result of those actions:

Double-clicking an item in the tree opens the relevant editor for that object.

Project Editor

The project editor allows you to configure your extension project. It contains three tabs described in the following sections:

- "[Project Editor: Overview Tab](#) " below
- "[Project Editor: Environment Tab](#) " on the next page
- "[Project Editor: Dependencies Tab](#) " on the next page

Project Editor: Overview Tab

The **Overview** tab enables you to view and amend the basic parameters of your extension project:

The **Overview** tab contains the following collapsible panes:

- **Project details** displays parameters for the extension project:

Parameter	Definition
Project name	The name of the extension project.
Project type	The project is an extension project.
Project location	The workspace folder that contains the extension project.
Last modified	The last time the project was changed.

- **Extension details** enables you to configure some of the extension project parameters:

Parameter	Definition
Name	The display name of the extension.
Version	The version number of the extension project.
Description	A description of the extension project.
URI	The identifier for the extension in the configuration (not editable).
Namespace	The prefix used for the URI when you create a new artifact type or property.

Project Editor: Environment Tab

The **Environment** tab displays the parameters of the HPE EM server that the Customization Editor is configured for:

The **Environment** tab contains the following parameters:

Parameter	Definition
Platform Home	Your HPE EM installation folder.
Extension Folder	The location of the extension folder in your HPE EM installation.
Server URL	The URL used to access HPE EM.
Deploy JSPs	Indicates if component and JSP development is configured for your extension project.
JBoss Deploy Directory	Deployment directory for your JBoss application server.
JBoss JNDI Port	JNDI port configured in your JBoss application server.

Project Editor: Dependencies Tab

The **Dependencies** tab displays general information about your extension project and any dependencies that it has:

The **Dependencies** tab contains the following panes:

- **Extension dependencies** displays a tree of extensions that the extension project is dependent on.
- **Project and extension general information** displays parameters of the extension project:

Parameter	Definition
Name	The name of the extension.
Version	The version number of the extension project.
Description	A description of the extension project.
URI	The identifier for the extension project in the configuration (not editable).
Buildtime	The creation date and time of the extension.

Property Editor

Properties are attributes of artifacts. The property editor allows you to modify the properties in your extension project. Each property has an editor with the property name as the title containing the tabs described in the following sections:

- ["Property Editor: Overview Tab " below](#)
The main attributes of the property.
- ["Property Editor: Advanced Tab " on the next page](#)
The advanced attributes of the property.

Property Editor: Overview Tab

The **Overview** tab displays the general attributes of the artifact and enables you to modify some of them:

This tab contains the following panes:

- **General**

The following property parameters are displayed in this segment:

Parameter	Definition
Display Name	The name of the property as it appears in the HPE EM UI.
Local Name	The name of the property as it is stored in the extension.
URI	The identifier for the property descriptor in the configuration.
Description	The description of the property as it appears in the HPE EM UI.
Collection Display	The plural version of the name as it appears in the HPE EM UI.

Parameter	Definition
Name	
Deprecated	A check box indicating whether the property is currently active in the extension.

- **Property Type, Relationship, or Taxonomy**

There are three types of property and this segment is specific to each:

- **Property Type**

The property type for primitive properties.

- **Relationship**

This pane displays the source and target artifacts that this relationship links and some parameters of the inverse relationship. On the right are two sets of two buttons for altering the source and target artifacts:

- **Add** selects an artifact in the extension to source or target.
- **Remove** removes the relationship from a source or target artifact.

- **Taxonomy**

The taxonomy that contains the available options for this property with **Browse** to select a new taxonomy from the extension project.

Property Editor: Advanced Tab

The **Advanced** tab displays the advanced attributes of the property and allows you to modify them:

This tab contains the following panes:

Multiple Cardinality:

Parameter	Definition
MinOccurs	If a property has multiple cardinality this parameter is the minimum occurrences of the property in an artifact.
MaxOccurs	If a property has multiple cardinality this parameter is the maximum occurrences of the property in an artifact. Use unbounded if there is no limit.

Caution: Properties that inherit `urn:com:systinet:soa:model:propertyTypes:text`, such as **Name**, cannot have multiple instances. If you need a text property with multiple cardinality, use one that inherits `urn:com:systinet:soa:model:propertyTypes:plainText`.

Note: Cardinality for incoming relationship properties cannot be changed.

- **Default Values:**

Parameter	Definition
Default Value	An XML extract defining the default value.
Multiple Default Value	An XML extract defining default values in the case of multiple cardinality.

- **Database Sizes**

Displays optional database sizing for property elements with **Add**, **Edit**, and **Remove** functionality.

Property Group Editor

Properties can be organized into groups. The property group editor allows you to add and remove properties from a property group. Each property group has an editor with the property group name as the title.

The editor contains the following collapsible segments:

- **General** enables you to change the **Display Name** and view the **URI** of the property group.
- **Properties** enables you to manage the property group.

On the right are three buttons:

- **New** creates a new property, as described in "[Creating a Property Group](#)" on page 28.
- **Add** adds a property to the group from the list of available properties.
- **Remove** removes the selected property from this property group.

The following property parameters are displayed and described in the table below:

Parameter	Definition
Name	The name of the property.
Cardinality	The occurrence of the property in an artifact with options: <ul style="list-style-type: none">• Optional The property is not required to be populated.• Required The property must be populated.• Multiple The property can occur multiple times with different values.
Extension	The extension this property is part of.

Search View

The **Search** view displays the results of a search or find usage query:

The results are shown as a tree of artifact types, properties, and property groups containing the requested item.

Double-click an artifact type, property, or group to open the relevant editor.

Tasks Editor

Tasks are top level HPE EM UI components accessible via their URIs. The tasks editor allows you to create, edit, and remove tasks from your extension project.

On the right are the following buttons:

- **New** opens the **New Task** dialog box, as described in ["Creating a Task " on page 29](#).
- **Edit** opens the **Edit Task** dialog box with the same parameters described in ["Creating a Task " on page 29](#)
- **Remove** deletes the selected task from your extension project.

The following parameters relate to tasks:

Parameter	Definition
URI	The identifier for the task.
Component	The component the task uses.
Caption	A name for the task.
Extension	Which extension this task is part of.

Taxonomies Editor

Taxonomies are category groups that allow you to organize your services. The taxonomies editor allows the import and removal of taxonomies from your extension project.

On the right are the following buttons:

- **Import** imports taxonomies from the active HPE EM server.
The referenced HPE EM server must be running during import.
- **Update** refreshes the taxonomy list with any changes from the HPE EM server.
- **Remove** deletes the selected taxonomy from the extension project.

The following parameters relate to taxonomies:

Parameter	Definition
Name	The name of the taxonomy as it is stored in the extension.
TModel Key	The taxonomy key identifier.
Extension	Which extension this taxonomy is part of.

Appendix A: Dialog Boxes

Each Customization Editor input dialog is described in the following sections:

- ["New Artifact " below](#): Create a new artifact type or package.
- ["New Component " on the next page](#): Create a new component.
- ["New Extension Project " on the next page](#): Create an extension project.
- ["New Property " on page 50](#): Create a new property.
- ["New Property Group " on page 51](#): Create a new property group.
- ["New Task " on page 52](#): Create a new task.
- ["Registry Mapping " on page 52](#): Add registry mapping.
- ["Search " on page 53](#): Search your extension project.

New Artifact

The New Artifact Type and New Artifact Package dialogs are identical and consist of the following ordered stages:

1. ["New Artifact: Create " below](#)
2. ["New Artifact: Database Settings " on the next page](#)

New Artifact: Create

Enter general parameters of the new artifact type.

Parameter	Definition
Display Name	The name of the artifact as it appears in the HPE EM UI.
Local Name	The name of the artifact as it is stored in the extension.
URI	The identifier of the artifact descriptor in the configuration.
Collection Display Name	The plural name of the artifact as it appears in the HPE EMM UI.
Package	Click Browse to select a parent artifact package to which the artifact belongs. The default is EM if the new artifact is not created from within an existing artifact package.
Extends	If you select Extends , the new artifact inherits any future changes made to the chosen parent artifact. Click Browse to select an artifact type to inherit the properties from

Parameter	Definition
Description	The description of the artifact type as it appears in the HPE EM UI.
Data Attachment	If the artifact type normally has attached data content, select the content type from the drop-down list.
Revisionless	Specify the artifact to be revisionless. These type of artifacts update without creating a new revision.

New Artifact: Database Settings

Specify database settings for the new artifact type.

Parameter	Definition
Collection name	The name of collection where the artifact instances are stored
Database table name	The name of the database table where instances of this artifact are stored

Note: You cannot change these parameters if the new artifact extends an artifact type that already defines them.

New Component

Enter general parameters for the new component.

Parameter	Definition
Name	The name of the component as it is stored in the extension.
Page	The JSP used by the component.
Class name	The Java class used by the component.
Component parameters	Use Add and Remove to select parameters to use with the component.

New Extension Project

The New Extension Project dialog consists of the following stages depending on the options you select:

1. ["New Extension Project: Specify HPE EM Server Installation " on the next page](#)
2. ["New Extension Project: New Server " on the next page](#)
3. ["New Project: Select Working Extensions " on page 49](#)
4. ["New Project: Create a New Extension " on page 49](#)
5. ["New Project: Create Dependencies " on page 49](#)

New Extension Project: Specify HPE EM Server Installation

Specify configuration details for an HPE EM server.

Parameter	Definition
Base URL	EM base URL. For example: <i>http://localhost:8080/em</i> .
Username / Password	Admin credentials to connect to EM.
Platform Home	Use Browse to select the HPE EM platform installation folder. If Workbench is installed on a different machine other than the EM server, simply select an empty folder.
Extension Folder	Use Browse to select the extension folder in your HPE EM installation (populated by default based on the Platform Home input. If Workbench is installed on a different machine other than the EM server, copy the core extension file from HPE EM installation folder (usually in <code>EM_HOME/extensions/</code>) to this folder.
Production Mode	Select this check-box to create the project in production mode (selected by default). This disables customizations that would require the deletion of server data during the application of the extension to HPE EM.
Project Type	Select from the following options: <ul style="list-style-type: none">• model for changes to the SDM model.• code for custom code components and UI customizations.• mixed for both types of changes (not recommended).
JBoss Deploy Directory	Use Browse to select the deployment directory for your application server (usually <code>JBOSS_HOME\standalone\deployments</code>)
JBoss JNDI Port	Input the JNDI Port for your application server.

Only JBoss is supported for the development of components and tasks in this release.

New Extension Project: New Server

Specify parameters for the new server.

Parameter	Definition
Name	The name you want to use for the new server.
URL	The endpoint URL of the server you want to use.
Username and Password	Your login credentials for the specified server.
Save password	Select this check-box to store your login credentials.

Parameter	Definition
Validate connection	Select this check-box to validate connection to the server. Otherwise, you can validate connection the next time you log in.

New Project: Select Working Extensions

Choose how to create your working extensions.

Selection	Action
Create a new extension from scratch	Click Next .
Edit an existing extension	Do one of the following: <ul style="list-style-type: none">• Select from the available extensions and click Next.• Click Add extension to browse for and select a different extension, and click Next. You cannot edit the core extension
Create a new extension from an existing one	Do one of the following: <ul style="list-style-type: none">• Select from the available extensions and click Next. You cannot use the core extensions. <ul style="list-style-type: none">• Click Add extension to browse for and select a different extension, and click Next.

New Project: Create a New Extension

Enter general parameters for the new extension.

Parameter	Definition
Name	The name of your extension project
Namespace	The prefix used for the URI when creating a new artifact type or property
Description	A description of your extension project
Version	The extension version number
URI	The unique identifier of the extension

New Project: Create Dependencies

Select extensions to declare dependencies.

Tip: Your changes are stored in your extension. You can change the labels and descriptions of elements from dependent extensions but you cannot delete them or make any other changes. If you want to delete an element from a dependent extension then deprecate it.

New Property

The New Property dialog contains parameters according to the property type:

- ["New Property: Primitive " below](#)
- ["New Property: Relationship " below](#)
- ["New Property: Taxonomy " on the next page](#)

For details about property types, see ["Properties " on page 14](#).

New Property: Primitive

Enter general parameters for the new primitive property.

Parameter	Definition
Display Name	The name of the property as it appears in the HPE EM UI
Local Name	The name of the property as it is stored in the extension
URI	The identifier for property in the configuration
Collection Display Name	The plural name of the property as it appears in the HPE EM UI
Description	The description of the property as it appears in the HPE EM UI
Property Type	Use Browse to select a property from the available primitive property types. For details, see "Properties " on page 14 .

New Property: Relationship

Enter general parameters for the new relationship property.

Parameter	Definition
Display Name	The name of the property as it appears in the HPE EM UI
Local Name	The name of the property as it is stored in the extension
URI	The identifier for the property in the configuration
Collection Display Name	The plural name of the property as it appears in the HPE EM UI
Description	The description of the property as it appears in the HPE EM UI

Parameter	Definition
Relation Type	Select a type from the drop-down list
From Entity	Use Browse to select the source artifact type or property group of the relationship
To Entity	Use Browse to select the target artifact type or property group of the relationship
Inverse Display Name	The name of the inverse relationship property as it appears in the HPE EM UI
Inverse Local Name	The name of the inverse relationship property as it is stored in the extension
Inverse URI	The identifier for the inverse property descriptor in the configuration
Inverse Collection Display Name	The plural name of the inverse relationship property as it appears in the HPE EM UI
Inverse Relationship Description	The description of the inverse relationship property as it appears in the HPE EM UI

New Property: Taxonomy

Enter general parameters for the new taxonomy property.

Parameter	Definition
Display Name	The name of the property as it appears in the HPE EM UI
Local Name	The name of the property as it is stored in the extension
URI	The identifier for the property in the configuration
Collection Display Name	The plural name of the property as it appears in the HPE EM UI
Description	The description of the property as it appears in the HPE EM UI
Taxonomy	Use Browse to select a taxonomy from the available taxonomies with an option to import taxonomies available in HPE EM that are not in your extension.

New Property Group

Enter general parameters for the new property group.

Parameter	Definition
Display Name	The name of the property group as it appears in the HPE EM UI
URI	The identifier for the property group descriptor in the configuration
Properties	Use Add and Remove to select the properties in the group

New Task

Enter general parameters for the new task.

Parameter	Definition
Uri	The identifier for the task
Component	Use Browse to select the component to associate with the task
Caption	A visible name for the task.
Task parameters	Use Add and Remove to select parameters to use with the task

New Taxonomy

Enter general parameters for the new taxonomy.

Parameter	Definition
Taxonomy Name	The name of the new taxonomy as it will appear in the HPE EM UI.
Taxonomy ID	The system identifier of the new taxonomy.
Filename	The name of the taxonomy as it appears in the repository.

Registry Mapping

- ["Registry Mapping: New Artifact Mapping " below](#)
- ["Registry Mapping: New Property Mapping " on the next page](#)

Registry Mapping: New Artifact Mapping

Enter parameters for the new registry mapping of the artifact.

Parameter	Definition
Registry	Use Select to select from the available registries

Parameter	Definition
T-ModelKey	Use Add to select from the available taxonomies or input one
T-ModelKey version 2	If you are mapping to a UDDI version 2 registry input a taxonomy key
Key Name	The name used to categorize the UDDI entity in the registry
Key Value	The value used to categorize the tModel in the registry
Display Name	The name of the mapping as it appears in the HPE EM UI
Cache content	If selected, the content of documents referenced from the UDDI entity are cached in HPE EM
Direction	Select the direction of the mapping from the drop-down list

Registry Mapping: New Property Mapping

Enter parameters for the new registry mapping of the property.

Parameter	Definition
Property	Use Select to select from the available properties
Direction	Select the direction of the mapping from the drop-down list
Registry	Use Select to select from the available registries
T-ModelKey	Use Add to select from the available taxonomies or input one
T-ModelKey version 2	If you are mapping to a UDDI version 2 registry input a taxonomy key
Key Name	The name used to categorize the UDDI entity in the registry

Search

Enter parameters to search your extension project.

Parameter	Definition
Containing text	The parameter to search for
Case sensitive	Check the box to make the search case sensitive
Regular expression	Enables more sophisticated search parameters (for example, to find everything with more than one word). This is an advanced topic beyond the scope of this guide.

Parameter	Definition
Search For	Select the SDM entities to search
Search In	Select the entity attributes to search
Scope	Select the extension to search

Share Project

Define parameters for the CVS repository.

Parameter	Definition
Host	The name of the host server.
Repository path	The location of the host server.
User and Password	Your login credentials for the host server.
Connection type	The communication protocol for the CVS host server.

Appendix B: Localname Naming Rules

The naming strategy used to generate the names of database tables and columns can only process a specific subset of XML identifiers (element and attribute names). This is because the existing database engines have limits for the length of tablename/columnname identifiers. XML identifiers are generated from the SDM configuration in a straightforward way. This section omits the XML layer for simplicity and summarizes the rules at the SDM level which is more user-friendly.

When creating an artifact type or property, for the localname, do the following:

- Use Latin characters where possible (A-Z, a-z)
- Use short identifiers where possible to improve the readability of the DB schema. For example, `stSchtronXs1t` is a better localname than `searchAndTransformSchematronXs1tUr1Link`.
- You can safely use underscores in localnames.

Do not use numbers in localnames where possible. They should not be used in artifact localnames at all and to avoid confusion, do not use numbers in property localnames when the property is in multiple cardinality.

Using numbers in localnames increases the chances that extension application fails.

There are no restrictions on property group localnames as they are not represented in the database schema.

It is difficult to generate separate validation rules for properties and artifacts because the generated DB identifiers are often influenced by a combination of both.