Oracle® Communications Service Catalog and Design
Design Studio Modeling Inventory

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Preface

The Modeling Inventory Help is loaded into Oracle Communications Service Catalog and Design - Design Studio when the Design Studio for Inventory feature is installed into Design Studio. In Design Studio, clicking **Help** displays relevant Help topics.

Audience

This guide is intended for business analysts, architects, development managers, developers, and designers who are responsible for system integration or solution development involving the Oracle Communications operational support systems applications.

Ideally, you should be knowledgeable about your company's business processes, the resources you need to model, and any products or services your company offers.

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Oracle is fully committed to diversity and inclusion. Oracle respects and values having a diverse workforce that increases thought leadership and innovation. As part of our initiative to build a more inclusive culture that positively impacts our employees, customers, and partners, we are working to remove insensitive terms from our products and documentation. We are also mindful of the necessity to maintain compatibility with our customers' existing technologies and the need to ensure continuity of service as Oracle's offerings and industry standards evolve. Because of these technical constraints, our effort to remove insensitive terms is ongoing and will take time and external cooperation.

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Getting Started with UIM

You use the Oracle Communications Unified Inventory Management (UIM) feature for Oracle Communications Service Catalog and Design - Design Studio to create and maintain specifications and other content that define inventory entities and their behavior in UIM. Specifications can describe physical inventory items (such as routers or interface cards) or intangible items such as roles, business interactions, and addresses. You use specifications as blueprints for the various kinds of entities contained in your inventory.

When getting started with UIM, see the following topics:

- About Creating Specifications and Other Inventory Content
- Design Studio Users and Tasks

About Creating Specifications and Other Inventory Content

There is no set pattern to the way you use Design Studio to create specifications and other inventory-related content for UIM. The following list provides a high-level overview of the tasks you perform to create new content for UIM along with links to the help topics about those tasks:

- Create a project to contain the specifications and rulesets that you develop.

  Each project is mapped to directories in the file system and is a collection of files and folders. See the "Working with Design Studio Projects" for information about creating and opening projects.

- Define entity specifications.

  Specifications are the blueprints used to create inventory entities in UIM. There are many different types of entities, such as logical devices, equipment, telephone numbers, roles, places, and so on. See "Creating New Specifications" for general information about entity specifications. See the sections about the various specification types for detailed information about them.

  When you define a specification, you enter its properties, establish relationships of various kinds with other specifications, specify its layout, and more. See "Defining Specification Properties", "Defining Specification Relationships", and "About Specification Layouts" for more information.

- Define characteristics and add them to specifications.

  Characteristics define items of data that you want to collect, such as serial numbers, settings, dates, and so on. The same characteristic can be used in multiple specifications. See "Creating Characteristics" and "Adding Characteristics to Specifications" for more information.

- Defining configurations.

  Some types of entity specifications can be associated with configurations. Configurations define the resources that can be assigned to an entity and provide a record of the evolution of facts about the entity over time. See "Creating Configuration Specifications" for more information.

- Define rulesets and related entities.

You use rulesets to customize UIM behavior. Rulesets are associated with extension points, which determine when the rule is applied. See *UIM Developer's Guide* and "Working with Rulesets and Extension Points" for more information.

- Prepare for deployment into UIM.

  Design Studio automatically builds cartridges from UIM projects. Before deployment, you should clean the project and resolve any errors. See "Reviewing the Error Log" and "Problems View" for more information.

Design Studio Users and Tasks

There are three primary groups of users for the Inventory features of Design Studio:

- Modelers
- Cartridge Developers
- Deployment Managers

Modelers

Modelers are responsible for developing and extending complex models of services, networks, and other parts of your inventory. This involves the following tasks:

Task	Reference
Creating Entity Specifications	Creating New Specifications For information about particular kinds of specifications, see the individual sections about them.
Creating Characteristics	Creating Characteristics
Creating Configurations	Creating Configuration Specifications

Cartridge Developers

Cartridge developers can perform the tasks mentioned previously, and also write the rulesets, extension points, and other entities required to customize UIM behavior. See *UIM Developer's Guide* for more information about development tasks and procedures.

In addition to modeling, this involves the following tasks:

Task	Reference
Creating entity identification specifications	Working with Entity Identification Specifications
Creating sequence specifications	Working with Sequence Specifications
Creating extension points	Working with Extension Points Working with Enabled Extension Points
Creating rulesets	Working with Rulesets
Creating ruleset extension points	Working with Ruleset Extension Points
Extending cartridge packs	About Cartridge Packs and Cartridges Extending Cartridge Packs and Cartridges

Deployment Managers

Deployment managers are responsible for build management and are usually advanced users of the version control system. Activities performed by deployment managers may include:

Task	Reference
Importing cartridges	About Imported Inventory Cartridge Projects
Cleaning projects	Running Clean Builds
Resolving build issues	Reviewing the Error Log and Problems View
Reviewing error logs	Reviewing the Error Log

Creating Inventory Cartridge Projects

Design Studio cartridge projects are collections of folders and files that represent the content you are working on. They are used for builds, version management, sharing, and resource organization. Cartridge projects map to directories in the file system. When you create a cartridge project, you specify a location for it in the file system. Design Studio uses the files and folders in a project to build a cartridge that you can import into UIM. Each Inventory project corresponds to a cartridge. See "Working with Design Studio Cartridge Projects" for more information.

Related Topics

Project Editor

2
Working with Specifications

Many entities in Oracle Communications Unified Inventory Management (UIM) are defined by specifications, which you create in Oracle Communications Service Catalog and Design - Design Studio. There are different types of specifications for different types of entities. For example, UIM includes specifications for telephone numbers, networks, physical devices, and inventory groups.

Specifications provide a way to classify entities and augment them with additional properties, called characteristics. For example, you can create a Service specification to define a DSL service and associate characteristics to the specification for the properties that you want to capture on DSL services at run time.

In addition, you can associate rulesets and extension points to specifications to extend or customize the run-time behavior of entities created from the specifications. See "Working with Rulesets and Extension Points" for more information.

You can relate specifications to other specifications to affect behavior in UIM. For example, you can relate Inventory Group specifications to Telephone Number specifications to limit the types of inventory groups in which a telephone number can be included.

> **✏ Note:**
>
> The procedures for working with specifications assume that you are working in the Studio Design perspective.

When working with specifications, see the following topics:

- About the Specification Editor
- About Specification Relationships
- About Configuration Specification Usage
- Creating New Specifications
- Configuring Specifications
- Specification Editor
- Inventory Entity Editor

About the Specification Editor

The Specification editor can contain many different tabs. Some of these tabs are specific to a small subset of specifications, and others are relevant to most specifications. The following tabs appear in most specification editors:

- **Characteristics**: Defines characteristics associated with the specification. See "Adding Characteristics to Specifications" for more information.

- **Specification Properties**: Defines basic information about a specification. See "Defining Specification Properties" for more information.

- **Related Specifications**: Defines relationships between a specification and other specifications. See "Defining Specification Relationships" for more information.

- **Configuration Spec Usage**: Defines the configuration specifications and configuration items in which a specification is listed as an option. This tab enables you to add specification options to configuration items without having to modify the configuration specification. See "Defining Configuration Specification Usage" for more information.

- **Rules**: Defines rulesets and extension points that extend or customize the behavior of entities created from the specification. See "Associating Specification-Based Extension Points to Rulesets" for more information.

- **Layouts**: Defines how the properties of entities created from the specification appear in various pages of the UIM user interface. See "About Specification Layouts" for more information.

- **Media**: Defines any media files associated with the specification. See "Adding Media to a Specification" for more information.

- **Extends**: Defines the entity type that is defined by the specification. See "Reviewing Specification Extensions" for more information.

Most Specification editor tabs include the Display Name field, where you can enter the name that appears in Design Studio editors and in UIM. Design Studio supports multiple languages for this field. The field adjacent to **Display Name** displays your list of languages. You can define a display name for any language you select from the list.

If your preferences are set up to work in one language only, the system displays only the **[default]** option. See "Defining Language Preferences" for more information.

Related Topics

Specification Editor

About Specification Relationships

You can relate a specification to other specifications to affect run-time behavior in UIM. For example, UIM uses a Physical Port specification relationship to an Equipment specification to automatically create ports on equipment. See *UIM Information Model Reference* for more information about specification relationships recognized and used in UIM.

Specification relationships can also be used in customized logic using rulesets and extension points. See "Working with Rulesets and Extension Points" for more information.

You can create child and parent relationships between any specifications in the current workspace, including specifications in other projects. For example, you can create a relationship between a specification you have created in a new project and another specification in a sealed cartridge pack. See "Extending Cartridge Packs and Cartridges by Adding Content" for more information.

Creating a relationship with a specification in another project creates a dependency between the cartridges built from the two projects. The required cartridge must be deployed into UIM before the cartridge that requires it.

Related Topics

Defining Specification Relationships

Specification Editor Related Specifications Tab

About Configuration Specification Usage

You can define the configuration items in which a specification is listed as an option. These specification options define the type of entities that may be referenced or assigned to other entities on a configuration. For example, you can define that telephone numbers created from a certain specification can be assigned to entities that use a certain configuration specification.

You can add specification options to configuration items without having to modify the configuration specification. This is a useful way to extend a cartridge pack. See "Extending Cartridge Packs and Cartridges by Adding Content" for more information about extending cartridge packs.

If you are not extending a cartridge pack or an external cartridge, define configuration items and specification options from the configuration specification. See "Adding Configuration Items".

You can specify any configuration specification that is in the current workspace. If you specify a configuration specification that is in another project, you create a dependency between the cartridges. The cartridge containing the configuration specification must be deployed into UIM before the cartridge that contains the specification that refers to the configuration.

Related Topics

Defining Configuration Specification Usage

Specification Editor Configuration Spec Usage Tab

Creating New Specifications

The procedure for creating specifications is the same for all specification types. When creating new specifications, you must specify a project. See "Creating New Cartridge Projects" for more information.

To create a new specification:

1. From the **Studio** menu, select **New**, then select **Inventory**, then select a conceptual division, and then select a specification type.

   The Specification Wizard appears.

2. In the **Project** field, select the name of the project to which the new specification should be added.

3. In the **Name** field, enter a name for the new specification.

   The name must be unique among specification types in the same namespace. This is the name that will appear in UIM.

4. (Optional) Select a location for the new specification.

   By default, Design Studio saves the entity to your default workspace location. You can enter a folder name in the **Folder** field or select a location different from the system-provided default. To select a different location:

   a. Click the **Folder** field **Browse** button.

   b. Navigate to the directory in which to save the entity.

   c. Click **OK**.

5. Click **Finish**.

   Design Studio creates the new specification and displays its information in a Specification editor.

   Related Topics

   Configuring Specifications

   Specification Editor

Configuring Specifications

After you create a specification, you can define how it relates to other specifications, use rules to control its behavior in UIM, and add characteristics to capture details that are not included in the entity type defined by the specification.

When configuring specifications, see the following topics:

- Defining Specification Properties
- Defining Specification Relationships
- Defining Configuration Specification Usage
- About Specification Layouts
- Adding Media to a Specification
- Reviewing Specification Extensions
- Copying Specifications

Defining Specification Properties

You can define basic information about a specification, such as a display name, a description, and the dates during which the specification is valid.

To define specification properties:

1. In a Specification editor, click the **Specification Properties** tab.

2. (Optional) In the **Description** field, enter a description for the specification.

3. (Optional) In the **Start Date** and **End Date** fields, enter the specification's validity dates.

   If you leave the **Start Date** field blank, the application sets it to the date on which the cartridge was built in Design Studio. Leaving the **End Date** field blank means that the specification is valid indefinitely.

4. (Optional) If instances of this specification can be assigned to more than one instance of a consumer entity at the same time, select the **Can be assigned to multiple entities** check box.

   This check box appears only if the entity type associated with the specification can be assigned to entity types that are referred to as consumer entity. Consumer entity types include Service, Geographic Site, Logical Device, Network, Pipe, and Pipe Termination Point.

5. (Optional) If instances of this specification can assign entities whose specifications allow them to be assigned to multiple instances of consumer entities at the same time, select the **Can assign entities that allow multiple assignments** check box.

This check box appears only if the entity type associated with the specification is a consumer entity. Consumer entity types include Service, Geographic Site, Logical Device, Network, Pipe, and Pipe Termination Point.

6. (Optional) To enter an ID for this entity instance, select **Enter Id Manually**.

   If this check box is not selected, the ID for this entity instance is auto-generated.

7. (Optional) Associate to the specification an Entity ID specification.

   Do one of the following:

   • Click **Entity ID Specification** to associate with the specification a new Entity ID specification.

   • Click **Select** to associate with the specification an existing Entity ID specification.

   See "Working with Entity Identification Specifications" for more information.

8. From the **File** menu, select **Save**.

Related Topics

Specification Editor Specification Properties Tab

Defining Specification Relationships

You can define relationships between specifications in the current workspace, including specifications in other projects. These specification relationships affect the behavior of entities in UIM. For example, listing Equipment Holder specifications in the **Equipment Holders** section of the **Related Specifications** tab of an Equipment specification means that Equipment entities based on this specification can provide only equipment holders based on the related specifications.

Each entity type has a different set of valid possible specification relationships. The **Related Specifications** tab has sections for the valid specification relationships. The **Related Specifications** tab also includes an Others section where you can include specifications to which you want to establish a custom relationship. Custom relationships require that you create rulesets to trigger behaviors and actions in UIM.

When you define a specification relationship, its properties are set to default values. You can modify the properties after the relationship has been defined.

To define specification relationships:

1. In a Specification editor, click the **Related Specifications** tab.

2. Scroll to the section for the entity type of the specification relationship you are defining.

3. Click **Select**.

   The Selection Dialog dialog box appears.

4. Do one of the following:

   • Select an existing specification and click **OK**.

   • Click **New** to create and relate a new specification. See "Creating New Specifications" for more information.

   The specification appears in the **Related Specifications** tab, which lists the specification name, the cartridge in which it is located, and the type of relationship (**CHILD** by default).

5. (Optional) If the relationship is child-to-parent, change the relationship type to **PARENT**.

The normal relationship is defined as a child. You must specify a parent relationship only when the related entity is in a separate cartridge that exists independently. See "Changing Specification Relationship Properties" for more information.

6. From the **File** menu, select **Save**.

Related Topics

Changing Specification Relationship Properties

Specification Editor Related Specifications Tab

Changing Specification Relationship Properties

After you have defined a relationship between specifications, you can change the relationship's properties.

To change relationship properties:

1. Open the Specification editor of a specification whose relationship properties you want to change.

2. Click the **Related Specifications** tab.

3. Scroll to the section for the entity type of the specification relationship you are modifying.

4. Select a specification from the list and click **Modify**.

   The Relationship Properties dialog box appears.

5. Enter or change relationship properties.

   See "Specification Editor Related Specifications Tab" for more information about the properties that you can change.

6. Click **OK**.

   Design Studio sets the properties and closes the dialog box.

Related Topics

Defining Specification Relationships

Defining Configuration Specification Usage

You can define the configuration items in which a specification is listed as an option. This process enables you to add specification options to configuration items without having to modify the configuration specification. This is a useful way to extend a cartridge pack. See "Extending Cartridge Packs and Cartridges by Adding Content" for more information about extending cartridge packs.

> **Note:**
>
> If you are not extending a cartridge pack or an external cartridge, define configuration items and specification options from the configuration specification. See "Adding Configuration Items".

To define configuration specification usage:

1. Open the Specification editor of the specification for which you want to define configuration specification usage.

2. Click the **Configuration Spec Usage** tab.

3. Click **Select**.

   The Configuration Types Selection dialog box appears.

4. Select the type of configuration.

5. Click **Next**.

   The Select a Configuration Specification dialog box appears, listing all configuration specifications of the selected type in all projects in the workspace.

6. Select a configuration specification, then click **OK**.

   The Configuration Item Selection dialog box appears, displaying the hierarchy of configuration items in the selected configuration specification.

7. Do one of the following:

   • Select a configuration item, then click **OK**.

   • Click **New** to create and use a new specification. See "Creating New Specifications" for more information.

   The configuration item is added to the **Configuration Spec Usage** tab. The name of the configuration specification, its type, and the cartridge in which it is located are displayed, along with the path of the selected configuration item.

8. From the **File** menu, select **Save**.

Related Topics

About Configuration Specification Usage

Specification Editor Configuration Spec Usage Tab

About Specification Layouts

Specification layouts define how the default data elements, derived data, and characteristics (of entities defined by the specification) appear in the UIM user interface. You can define this configuration for each page and panel associated with an entity. In UIM, a page is an area that serves a function for the entity, and a panel is a section on a page where default data elements and characteristics of the entity appear.

You can define which default data elements and characteristics of an entity appear on a page and panel. You can also configure the row on which a default data element or characteristic appears and the order of elements and characteristics within the row.

Additionally, you can configure user interface settings for a characteristic of an entity. These settings define how the characteristic appears and behaves on a page or panel.

When defining layouts, see the following topics:

• Defining Specification Layouts

• Defining Characteristic User Interface Settings

Defining Specification Layouts

You define layouts for specifications to determine the data elements that appear as fields in UIM. You can define layouts for the characteristics that you define for the specification, and for all modeled and derived data elements of the entity.

To define layouts:

1. In a Specification editor, click the **Layouts** tab.

2. In the **Page/Panels** field, select a page type for the specification.

   You can define different attributes for a characteristic when it appears on different types of pages. For example, you can define an edit mask for a characteristic when it appears on an edit page and a display mask for the same characteristic when it appears on a summary page.

   > **Note:**
   >
   > The options available in the **Page/Panels** field are defined in the **ora_uim_mds** project. You must import and open this project and the **ora_uim_model** project in your workspace before modeling UIM entities in Design Studio.

3. Select the elements that you want to appear as fields in the run-time user interface.

   To select elements, you can:

   - Select elements in the Available column, then click the arrow to move them to the Selected column.

   - Shift-select multiple elements to move them as a group.

4. Remove elements that you do not want to appear in the user interface.

   Select an elemen in the Selected column then click the arrow to move it to the Available column.

5. Change the order in which the elements appear.

   Select an element in the Selected column and then click an arrow to reposition the element.

6. For **Edit Panel** layouts, change the distribution of the elements in the layout.

   Do any of the following:

   - Right-click in the **Selected Elements** area at the desired location and select **Insert New Row** to create a new row.

   - Right-click in the **Selected Elements** area on an existing row and select **Delete New Row** to remove an existing new row marker.

7. (Optional) To return the layout to the default version, click **Reset**.

8. From the **File** menu, select **Save**.

Related Topics

Specification Editor Layouts Tab

Defining Characteristic User Interface Settings

Defining Characteristic User Interface Settings

You define user interface settings for each characteristic to determine how the characteristic appears and behaves on each page and panel in UIM.

To define characteristic user interface settings:

1. In a Specification editor, click the **Layouts** tab.

2. In the Selected column, select a characteristic.

   The configurable options for the characteristic appear in the UI Settings area.

   > ✎ **Note:**
   >
   > You can configure user interface settings only for characteristics.

3. Define the user interface options for each characteristic.

   See "Settings Tab" for information about the options.

4. From the **File** menu, select **Save**.

Related Topics

Specification Editor Layouts Tab

Defining Specification Layouts

Adding Media to a Specification

Media files can be associated to a specification and are used in UIM to display an image of an entity instance created from the specification. Media files are used in UIM to display an entity as an icon in a tree view, as a node in a network visualization, as a node in a service topology visualization, and as a card in an equipment visualization.

To add a media file to a specification:

1. In a Specification editor, click the **Media** tab.

2. Click **Add**.

   The Open dialog box appears.

3. Select a file, then click **Open**.

   The path to the selected media file appears in the **Media** tab.

4. Click the **Media Type** field, then select a type.

   > ✎ **Note:**
   >
   > Only one media type can be selected per row. To use the same image for more than one purpose, you must add it to a new row and select an additional media type.

5. From the **File** menu, select **Save**.

Related Topics

Specification Editor Media Tab

Reviewing Specification Extensions

To review a specification extension:

1. In a Specification editor, click the **Extends** tab.

2. Review the value in the **Extends** field.

   Design Studio automatically populates the value in the **Extends** field when you create new specifications. You can remove the value, but you cannot make a different selection.

3. (Optional) To open the business entity that is extended by the specification, click **Extends**.

4. (Optional) To remove the association, click **Clear**.

Related Topics

Specification Editor Extends Tab

Copying Specifications

You can copy specifications from one project to another. For example, you can extend a cartridge pack by copying a specification into your own project and make any necessary modifications.

To copy specifications:

1. From the **Studio** menu, select **Show Design Perspective**.

2. Click the **Cartridge** tab.

3. In the Solution view, locate the target specification.

   The project must exist in the same workspace. See "Importing Projects" for information.

4. Right-click the target specification and select **Copy**.

5. Navigate to the source project.

6. Right-click the source project and select **Paste**.

   The Set Name of Copy dialog box appears.

7. In the **Name** field, enter a unique name for the specification.

   Specification names must be unique in the workspace.

8. Click **OK**.

   The specification is added to the source project.

Specification Editor

Use the Specification editor to configure properties for a specification. The specification tabs referenced below are used by most specification types and are the same or similar for each type. For information about tabs that are specific to a specification type, see the Help for that specification type.

When working with specification tabs, see the following topics:

Specification Editor Characteristics Tab

Use the **Characteristics** tab to create, select, edit, and remove characteristics. See "Creating Characteristics" and "Adding Characteristics to Specifications" for more information about adding characteristics to Specification editors.

> **Note:**
>
> The default data elements that appear in the **Characteristics** tab data tree are inherited from the extended entity, defined in the **ora_uim_model** project. These default data elements are read-only.

When working with the Specification editor **Characteristics** tab, see the following topics:

- [About the Characteristics Tab Context Menu](#)
- Details Tab
- Notes Tab
- Usage Tab
- [Characteristics Tab Data Values Subtab](#)

About the Characteristics Tab Context Menu

The **Characteristics** tab context menu contains actions specific to data elements tagged as characteristics. To access these actions, right-click in the left column of the tab. The context menu options that are available depend on the selection in the editor. For example, the list of context menu options that appear when you right-click in the white space is different than the list that appears when you right-click a characteristic.

Command	Use
Delete	Select to delete the characteristic from the specification.
Refactoring	Select to access a menu of options for improving names and locations of the characteristics. See "Managing Data Element Names and Locations" for more information.
Refresh	Refreshes the view.

Command	Use
Add Characteristic	Select to create a new data element (that is automatically tagged as a characteristic) to add to the specification. See "Creating Characteristics" for more information. **Note:** You can add a 'CLUSTER' characteristic to the Business Interaction Specification Characteristics so the **Cluster** field appears in UIM. You can use this characteristic to group specifications, set a default cluster value, and customize clusters as per requirements.
Select Characteristic	Select to add an existing data element (tagged as a characteristic) to the specification. See "Tags Tab" for more information about tagging data elements as characteristics.

Characteristics Tab Data Values Subtab

Use the **Data Values** subtab to define at the specification level values for a drop down list that do not change (static values).

> **✎ Note:**
>
> See "Data Schema Editor Characteristics Tab" for information about defining parameters for drop down lists at the schema level.

Field	Use
Included table	Click the text inside the **Code** and **Description** columns to change the code name and description for the drop down value. The value you enter in the **Code** field is stored in the database. The value you enter in the **Description** field is displayed in the run-time user interface. Values that are inherited from a base type are read-only. Click inside the Default column and select **Yes** to make the selected value the default value in the run-time environment.
Add	Click to add a new value to the Included table.
Remove	Click to remove a value from the Included table.
Excluded table	Displays inherited values that you want to exclude from the list of values in the run-time environment. Move values between the Included and Excluded tables using the arrows to display a subset of the inherited values as valid values for the characteristic in the UIM.
Language	Displays the language in which the selected value appears in UIM.

Specification Editor Specification Properties Tab

Use the **Specification Properties** tab to enter identifying information about a specification.

Field	Use
Display Name	Enter the name that appears in Design Studio editors and in UIM.
	Design Studio supports multiple languages for this field. The field adjacent to **Display Name** displays your list of languages. You can define a display name for any language you select from the list.
	If your preferences are set up to work in one language only, the system displays only the **[default]** option. See "Defining Language Preferences" for more information.
Start Date	Enter the first date on which this specification is valid.
End Date	Enter the last date on which this specification is valid.
System Provided	Indicates whether a specification is provided by Oracle. System-provided specifications enable you to define entity-level characteristics for IP Address Resource Extension, and Property Location Extension entities. Additionally, system-provided specifications can be selected as a specification option on an item in a configuration specification.
	Note: You must import the ora_uim_basespecifications cartridge (which includes the specifications for extension entities) before you define characteristics for the extension entities. For information about the ora_uim_basespecifications cartridge, see *UIM Cartridge Guide*.
Can be assigned to multiple entities	Select if the entity created using this specification can be assigned to more than one instance of a consumer entity at the same time.
Can assign entities that allow multiple assignments	Select if an entity created using this specification can assign entities whose specifications allow them to be assigned to multiple instances of consumer entities at the same time.
Enter Id Manually	Select if you do not want data instances using this specification to have an automatically-generated ID. This check box is displayed only for the entities that are enabled for auto-generation of ID.
	The **Entity Identification Specification** field is not available when you select this option.
Entity Identification Specification	Defines the format for an identifier generated for an instance of the entity created from the specification. This option appears only for the specification that is enabled for auto-generation of ID.
	Click the **Entity Identification Specification** to create a new Entity Identification specification.
Select	Click to select an existing Entity Identification specification.
Clear	Click to deselect an Entity Identification specification.
Description	Enter a description of the specification.

Related Topics

Defining Specification Properties

Specification Editor Related Specifications Tab

Use the **Related Specifications** tab to relate a specification to another specification or to change relationship properties.

The tab is divided into sections where you can define relationships to different entity types. Only the entity types listed in the tab have meaningful relationships by default in UIM. The Others section enables you to relate other specifications, but these relationships require rulesets to trigger behaviors and actions in UIM.

The fields and controls listed below appear in each section.

Field	Use
Specification	Displays the name of the specification.
Cartridge	Displays the name of the cartridge project into which the specification is built.
Type	Displays the type of the specification, such as Service specification or Place specification.
Relationship	Indicates that the related entity is designated as either a parent or a child of the entity being edited. The normal relationship is defined as a child. You must specify a parent relationship only when the related entity is in a separate cartridge that exists independently.
Minimum Quantity and **Maximum Quantity**	Displays the minimum number of instances that may be provided by the relationship and the maximum number of instances that may be provided by the relationship. Select the specification row and click **Modify** to change the values for these fields. These fields are not valid for relationships with Role specifications.
Required	(Role specifications only) Indicates whether the relationship is required in UIM for entities based on this specification. **Auto-Generated** is selected automatically if you select **Required**.
Auto-Generated	(Role specifications only) Indicates whether a Role entity based on the listed specification should be created automatically in UIM when you create an entity based on the current specification. **Auto-Generated** is selected automatically if you select **Required**.
Select	Click to select an existing specification to which you can relate the selected specification.

Field	Use
Modify	Click to modify any of the following relationship properties: • **Name** • **Status** • **Relationship** • **Required** • **Auto-Generated** • **Minimum Quantity**. • **Maximum Quantity** • **Description** See "Changing Specification Relationship Properties" for more information.
Remove	Click to remove the related specification.

Related Topics

Defining Specification Relationships

Specification Editor Configuration Spec Usage Tab

Use the **Configuration Spec Usage** tab to define the configuration specifications and configuration items in which a specification is listed as an option.

You can use this tab to add specification options to configuration items without having to modify the configuration specification. This is useful for extending cartridge packs. See "Extending Cartridge Packs and Cartridges by Adding Content" for more information about extending cartridge packs.

> **Note:**
>
> If you are not extending a cartridge pack or an external cartridge, define configuration items and specification options from the configuration specification.

Field	Use
Configuration Spec	Displays the name of the configuration specification.
Cartridge	Displays the name of the cartridge project into which the configuration specification is built.
Type	Displays the type of the configuration specification, such as Service Configuration specification or Place Configuration specification.
Item Path	Displays the path to the configuration specification item where the edited specification may be used as a specification option.
Select	Click to select an existing configuration specification.
Remove	Click to remove the configuration specification.

Related Topics

About Configuration Specification Usage

Specification Editor Rules Tab

Use the **Rules** tab to extend or customize any UIM specification by adding ruleset extension points. The ruleset extension point brings together a ruleset, which defines the customized behavior, and the extension point, which defines when the rule will be run.

For information about extending specifications, see *UIM Developer's Guide*.

Field	Use
Ruleset Extension Point	Displays the ruleset extension points that are added to a UIM specification.
Cartridge	Displays the name of the cartridge project into which the ruleset extension point is built.
Select	Click to select a ruleset extension point that you want to add to a UIM specification.
Remove	Click to remove a ruleset extension point that is already added to a UIM specification.
Add	Click to add a new ruleset extension point to a UIM specification.

Related Topics

Associating Specification-Based Extension Points to Rulesets

Specification Editor Layouts Tab

Use the **Layouts** tab to define which elements appear in UIM for the entities created from the specification.

See "Settings Tab" for information about the fields that appear in the UI Settings area.

Field	Use
Display Name	Enter the name that appears in Design Studio editors and in UIM.
	Design Studio supports multiple languages for this field. The field adjacent to **Display Name** displays your list of languages. You can define a display name for any language you select from the list.
	If your preferences are set up to work in one language only, the system displays only the **[default]** option. See "Defining Language Preferences" for more information.
Page/Panels	Select the UIM run-time application page layout type.
	You can define different attributes for characteristics when they appear on different types of pages. For example, you can define an edit mask for a characteristic when it appears on an edit page, and a display mask for the same characteristic when it appears on a summary page.
	The options available in this field are defined in the **ora_uim_mds** project. You must import and open this project and the **ora_uim_model** project in your workspace before modeling UIM entities in Design Studio.

Field	Use
Available column	Displays the elements that are available to be displayed as fields in the run-time user interface, but which are not currently selected. Use the arrow keys to move the elements between the Available column and the Selected column.
Selected column	Displays the elements that will appear as fields in the run-time UI, and includes the characteristics (defined on the Characteristics tab) and all derived data. The fields are displayed in the order in which they appear in the product. Use the up and down arrow keys to reposition the elements in this column. Select a characteristic to view the user interface (UI) settings. See "Settings Tab" for more information about the fields in the UI Settings area. See UIM Help for information about how to use these fields in the UIM run-time environment.
Reset	Click to revert the layout back to the most recently saved version.

Related Topics

About Specification Layouts

Specification Editor Media Tab

Use the **Media** tab to add a media file, such as a JPG or GIF file, to a specification. When adding media files, you can specify the media type to determine the orientation of the image and how the image is used in the application.

For example, a media file of type **front** is used to display an entity as a node in a network visualization, as a node in a service topology visualization, and as an equipment (if the equipment is of the type CARD) in an equipment visualization. A media type of **right** would indicated that the image be used when the right side of the object is displayed. A media of type **icon** is used when displaying the equipment in a tree view.

> **✎ Note:**
>
> UIM uses the media types **front** and **icon** only.

Field	Use
Media Type	Click to select how the media is to be used in the application. Select: • **front** to represent the front view of the object. • **back** to represent the back view of the object. • **top** to represent the top view of the object. • **bottom** to represent the bottom view of the object. • **right** to represent the right side of the object. • **left** to represent the left side of the object. • **tiny** to use a small version of the object in tree views. • **icon** to use an icon to represent the object. • **background** to represent the background of a visualization display.
Media File	Displays the path of the media file, such as JPG or GIF, which you have added to the specification.
Remove	Click to remove a media file.
Add	Click to add a new media file.

Related Topics

Adding Media to a Specification

Specification Editor Extends Tab

Use the **Extends** tab to inherit the data elements of the corresponding business model entity.

Field	Use
Extends	Click the link to open the selected entity in a Specification editor. Click **Clear** to delete the selection and remove the association. Click **Select** to select a business model entity. The specification inherits all characteristics and default data elements of the business model entity. Inherited data elements are read-only.
Realizes	Appears only for specifications that realize conceptual model entities. Click the link to open the associated conceptual model entity. Click **Clear** to delete the selection and remove the association. Click **Select** to associate the specification with a conceptual model entity from a list of available entities.

Related Topics

Reviewing Specification Extensions

Specification Editor Tags Tab

Use the **Tags** tab to view, add and remove tags for the entity specification.

Field	Use
Add	Click to select a tag to add to the specification.
Remove	Click to remove the selected tag from the specification.

Related Topics

Working with Tags

Inventory Entity Editor

You use the Inventory Entity editor to review the inventory entities included in the **ora_uim_model** project. The editor displays the default data elements defined for the entity and (when applicable) the base entity from which the entity inherits data elements. This editor is read-only and is for informational purposes only.

3
Working with Characteristics

A characteristic is a data element that you intend to associate with Oracle Communications Unified Inventory Management (UIM) specification.

You use characteristics to add additional attributes to specification beyond those that are available by default for the various specification types. A characteristic can be associated to multiple entity specifications. When an entity instance is created in UIM from a specification, that entity includes the characteristics defined at the specification level.

In Design Studio, characteristics are identified as such by a tag applied to the data element. The tag is applied automatically when you create a characteristic explicitly. You can also create a simple data element and add tag it later as a characteristic.

Characteristics have some capabilities not shared by other data elements, including the ability to specify validity dates and the ability to populate drop-down lists dynamically.

When working with characteristics, see the following topics:

- Creating Characteristics
- Adding Characteristics to Specifications
- Populating Drop-Down Lists Dynamically
- Overriding Default Values of Characteristics in Entity Specifications
- Specifying Validity Dates for Characteristics
- About Masks
- Data Schema Editor Characteristics Tab

Creating Characteristics

You can create characteristics in several ways. See the following topics:

- Creating Characteristics in the Dictionary View
- Creating Characteristics from the Specification Editor
- Tagging Data Elements as Characteristics

Creating Characteristics in the Dictionary View

In the Dictionary view, you can create data elements that are automatically tagged as a characteristic.

To create a characteristic in the Dictionary view:

1. From the **Studio** menu, select **Show Design Perspective**.
2. Click the **Dictionary** tab.
3. Right-click in the Dictionary view and select **Add Characteristic**.

   The Create Characteristic dialog box appears.

4. Select **Create new element** and then click **Next**.

   The Common Details dialog box appears. From this point, the procedure is the same as that for other simple data elements. See "Creating New Simple Data Elements".

Related Topics

Creating Characteristics

Modeling Data

Creating Characteristics from the Specification Editor

When working in a Specification editor, you can create new data elements that are automatically tagged as characteristics.

To create a characteristic from a Specification editor:

1. Create a new specification or open an existing specification in the Specification editor.

   See "Creating New Specifications" for more information.

2. Click the **Characteristics** tab.

3. In the data tree area, right-click and select **Add Characteristic**.

   The Create Characteristic dialog box appears.

4. Select **Create new element** and then click **Next**.

   The Common Details dialog box appears. From this point, the procedure is the same as that for other simple data elements. See "Creating New Simple Data Elements".

Related Topics

Creating Characteristics

Specification Editor Characteristics Tab

Modeling Data

Tagging Data Elements as Characteristics

You can identify a data element as a characteristic using Design Studio tags. When modeling specifications, you can filter entities to display only those data elements tagged as characteristics.

To tag data elements as characteristics:

1. From the **Studio** menu, select **Show Design Perspective**.

2. Click the **Dictionary** tab.

3. Select the data element that you want to tag as a characteristic.

   The **Data Element** tab appears in the Data Schema editor.

4. Click the **Tags** subtab.

5. Click **Add**.

   The Tag Selection dialog box appears.

6. Select **Characteristic** and click **OK**.

7. (Optional) Select a tag and click **Remove** to delete the association.

8. From the **File** menu, select **Save**.

Related Topics

Creating Characteristics

Modeling Data

Adding Characteristics to Specifications

You can add existing characteristics to specifications. For example, you can add a characteristic that was originally created for use in one specification to a different specification.

You can also create new characteristics in Specification editors. See "Creating Characteristics from the Specification Editor" for more information.

To add existing characteristics to a specification:

1. Create a new specification or open an existing specification in the Specification editor.

   See "Creating New Specifications" for more information.

2. Click the **Characteristics** tab.

3. In the data tree area, right-click and select **Select Characteristic**.

   The Select Characteristic dialog box appears.

   See "Select Characteristic Dialog Box" for more information.

4. Select a characteristic and click **OK**.

   The characteristic appears in the **Characteristics** tab data tree.

5. From the **File** menu, select **Save**.

Related Topics

Specification Editor Characteristics Tab

Select Characteristic Dialog Box

Use the Select Characteristic dialog box to search for and select existing characteristics.

Field	Use
Element and **Entity Name**	Search for specific characteristics or for specific entities. • The search is not case sensitive. • Use a space between terms to search on multiple terms. • Add OR between terms to search for either one or the other. For example, entering **32 OR aa** returns names with either **32** or **aa**. • Variations of a word are returned. For example, a search query for **ID** returns **productID**, **customerID** and **orderID**. • Use a negative sign (-) before a second search term to omit specific variations of words (ensure there is a space before the negative sign). For example, a search query for **ID -product** returns **customerID** and **orderID**, but not **productID**.

Populating Drop-Down Lists Dynamically 3-4

You can populate the contents of a drop-down list characteristic in three ways:

- **Static Values:** Enables you to populate the drop-down list with a group of values that do not change. See "Populating a Drop-Down list with Static Values" for more information.

- **Entity Link:** Enables you to populate the drop-down list with the names of all entities created from the selected specification. See "Populating Drop-Down Lists with Entity Links Using Existing Specifications" and "Populating Drop-Down Lists with Entity Links Using New Specifications" for more information.

- **Query:** Enables you to populate the drop-down list with the results of a query that you define. See "Populating Drop-Down Lists with Query Results" for more information.

> ✎ **Note:**
>
> See "Overriding Values for Drop Down List Characteristics" for information about defining values for drop down lists at the Specification editor level.

Populating a Drop-Down list with Static Values

You can populate a drop-down list with values that do not change.

To populate a drop-down list with static values:

1. From the **Studio** menu, select **Show Design Perspective**.

2. Click the **Dictionary** tab.

3. Select the data element that you want to tag as a characteristic.

   The **Data Element** tab appears in the Data Schema editor.

4. Click the **Settings** tab.

5. In the **Control Type** field, ensure that the **DropDown** value is selected.

   See "About Control Types" for more information.

6. Click the **Characteristics** tab.

   The fields on this tab are read-only if the data element is not tagged as a characteristic. See "Tagging Data Elements as Characteristics" for more information.

7. In the Data Values area, select **Enumerations**.

8. Click the **Enumerations** tab.

9. Click **Add**.

   Design Studio creates a new row in the Included table and uses placeholder text for the **Code** and **Description** values.

10. Click the placeholder text in the **Code** or **Description** columns.

    The placeholder text becomes editable.

11. Edit the placeholder text.

The contents of these fields are stored in the database, but only the **Description** field is displayed to the user in UIM. For example, you may want **Red** as the label displayed to the user, but **1** as the value stored in the database.

You can enter text in the **Code** field without entering text in the **Description** field. In this case, the **Code** text is displayed.

12. (Optional) To make the enumeration the default value in the run-time environment, click inside the Default column and select **Yes**.

13. (Optional) To remove a value from the table, select any value and click **Remove**.

14. From the **File** menu, select **Save**.

Populating Drop-Down Lists with Entity Links Using Existing Specifications

Entity links enable you to populate the drop-down list with the names of all entities created from the selected specification. For example, if you specify a Logical Device specification named Customer Edge Router, the drop-down list includes the names of all Logical Device instances created from the Customer Edge Router specification.

Also, you can use SQL commands to filter the entity instances for a selected entity link. By default, the drop-down list is populated with label and value pairs. For example, if you define a Logical Device instance with the ID **1234** and with the name as **LD1**, the label in drop-down displays **1234-LD1**. You can change the default behavior of a drop-down label by writing the custom extension for the following API:

CharacteristicHelper.getEntityLinkDisplaySelectSQL()

To populate a drop-down list with the names of entity instances created from an existing specification:

1. From the **Studio** menu, select **Show Design Perspective**.

2. Click the **Dictionary** tab.

3. Select the data element that you want to tag as a characteristic.

   The **Data Element** tab appears in the Data Schema editor.

4. Click the **Settings** tab.

5. In the **Control Type** field, ensure that **DropDown** is selected.

   See "About Control Types" for more information.

6. Click the **Characteristics** tab.

   The fields on this tab are read-only if the data element is not tagged as a characteristic. See "Tagging Data Elements as Characteristics" for more information.

7. In the **Drop Down Options** field, select **Entity Link**.

8. In the Entity Link area, click **Select**.

   The Entity Selection dialog box appears, containing a list of available specifications.

9. Select a specification in the list.

   To shorten the list of specifications, enter characters in the **Select an item to open** field. The list displays specifications whose names begin with the characters you enter. You can use the wildcard characters shown in the dialog box.

10. Click **OK**.

   The specification you selected is displayed in the Entity Link area.

11. (Optional) To view the selected specification in its editor, click the **Entity** link.

12. (Optional) To remove a selected specification from the Entity Link area, click **Clear**.

13. (Optional) In the **Parameters** field, do one of the following:

    - To select a characteristic to use in a filtered SQL query, click **Select**. The Add Element Selection dialog box appears.

      When you use a filtered data query, you must use the following syntax to indicate where in the query the characteristic parameter is to be used:

      :_Characteristic Parameter Name_

      For example, if you select **Char1** in the Parameters table, then you would include the following parameter binding in the additional SQL filter:

      :Char1

    - To create a new characteristic for use in the filtered data query, click the **Parameter** link.

      The Create Data Schema Element dialog box appears.

14. (Optional) To enter an additional SQL filter, enter the filter in the **Body** field.

15. From the **File** menu, select **Save**.

Populating Drop-Down Lists with Entity Links Using New Specifications

Entity links enable you to populate the drop-down list with the names of all entities created from the selected specification. For example, if you specify a Logical Device specification named Customer Edge Router, the drop-down list includes the names of all Logical Device instances created from the Customer Edge Router specification.

To populate a drop-down list with the names of entity instances created from a new specification:

1. From the **Studio** menu, select **Show Design Perspective**.

2. Click the **Dictionary** tab.

3. Select the data element that you want to tag as a characteristic.

   The **Data Element** tab appears in the Data Schema editor.

4. Click the **Settings** tab.

5. In the **Control Type** field, ensure that **DropDown** is selected.

   See "About Control Types" for more information.

6. Click the **Characteristics** tab.

   The fields on this tab are read-only if the data element is not tagged as a characteristic. See "Tagging Data Elements as Characteristics" for more information.

7. In the **Drop Down Options** field, select **Entity Link**.

8. In the Entity Link area, click the **Entity** link.

   The New Studio Entity dialog box appears.

9. Select an entity type, then click **Next**.

   The Entity Specification Wizard appears. See "Creating New Specifications" for more information.

10. Configure the properties of the new specification.

See "Specification Editor" for more information.

11. When you finish configuring the new specification, return to the Data Schema editor.

    The new specification is displayed in the Entity Link area.

12. From the **File** menu, select **Save**.

Populating Drop-Down Lists with Query Results

You can populate drop-down lists with the results of a query that you define. You use Java Persistence Query Language (JPQL) or SQL commands to write the query to search for values that are stored in instance data.

For example, you can create a City Name characteristic as a drop-down list populated with all Place entities created from the City specification.

The JPQL query for this data is as follows:

```
Select name from GeographicPlace where specification.name.contains("City")
```

You can also populate a drop-down list with the results of pre-defined query that returns all authorized UIM users.

To populate a drop-down list from the results of a query:

1. From the **Studio** menu, select **Show Design Perspective**.

2. Click the **Dictionary** tab.

3. Select the data element that you want to tag as a characteristic.

    The **Data Element** tab appears in the Data Schema editor.

4. Click the **Settings** tab.

5. In the **Control Type** field, ensure that **DropDown** is selected.

6. Click the **Characteristics** tab.

7. In the **Drop Down Options** field, select **Query**.

8. In the **Data Source** field, select **JPQL**, **SQL** or **USERS**.

9. (Optional) If you selected **JPQL** or **SQL**, do one of the following:

    • In the **Parameters** field, select one or more characteristics.

    • In the **Body** field, enter a query to use in a filtered data query. When you use a filtered data query, you must include a question mark(**?**) in the query string to indicate where in the query the characteristic parameter is to be used.

10. From the **File** menu, select **Save**.

Overriding Default Values of Characteristics in Entity Specifications

You can override the default values of characteristics when you add them to entity specifications and entity configuration specifications. Additionally, you can override the values defined for drop down lists. This capability enables you to adjust values to meet specific circumstances without having to create new characteristic specifications.

When overriding characteristic default values, see the following topics:

About Characteristic Attribute Overrides

Characteristics that you add to specifications can have attributes defined at the data schema level. You can override the values defined at the data schema level by editing the characteristic attributes for a specific specification. In this case, the override applies only in the entity or entity configuration specification where you made the change. For example, if you change the values for a drop-down list in a particular Logical Device specification, those changes apply only to that specification. If you use the drop-down list in another specification, it retains its originally defined values.

You must ensure that override values meet all restrictions defined in the characteristic specification. For example:

• The value must be within the valid values that you defined on the characteristic. For example, for numeric text type characteristic, if the valid value range is from **3** to **5**, you get an error message if you enter **6**.

• The value must conform to an edit mask or display mask if one is defined for the characteristic.

• The value must conform to the length defined for the characteristic.

Related Topics

Overriding Characteristic Default Values

Overriding Values for Drop Down List Characteristics

Overriding Characteristic Default Values

To override default values of characteristics:

1. Create a new specification or open an existing specification in the Specification editor.

   See "Creating New Specifications" for more information.

2. Click the **Layouts** tab.

3. In the **Page/Panels** field, select a page type for the specification.

   You can define different attributes for a characteristic when it appears on different types of pages. For example, you can define an edit mask for the characteristic when it appears on an edit page and a display mask for the same characteristic when it appears on a summary page.

   > ✏ **Note:**
   >
   > The options available in the **Page/Panels** field are defined in the **ora_uim_mds** project. You must import and open this project and the **ora_uim_model** project in your workspace before modeling UIM entities in Design Studio.

4. In the Panels/Element area, select a characteristic in the Select column.

The characteristic attribute fields appear in the UI Settings area. The fields that appear are determined by the value in the **Control Type** field.

5. Specify override values for the characteristic.

   The values that you define here override the values defined for the characteristic at the data schema level. See "Settings Tab" for information about the fields that appear in the UI Settings area.

6. From the **File** menu, select **Save**.

Related Topics

About Characteristic Attribute Overrides

Overriding Values for Drop Down List Characteristics

Overriding Values for Drop Down List Characteristics

To override default values of characteristics defined as drop down lists:

1. Create a new specification or open an existing specification in the Specification editor.

   See "Creating New Specifications" for more information.

2. Click the **Characteristics** tab.

3. In the data tree area, select a characteristic with a control type defined as **DropDown**.

   The characteristic attribute subtabs appear.

   See "Settings Tab" for information about defining the control type.

4. Click the **Data Values** subtab.

5. Do any of the following:

   - Click **Add** to add additional values to the drop down list.

   - Select a value listed in the table and click the arrow to move the value to the Excluded table.

     You cannot delete values defined at the data schema level. However, you can prevent these values from appearing in the list for specific specifications by moving them to the Excluded table.

     Select a value and click **Remove** to delete a value from the drop down list. You cannot delete values defined at the data schema level.

   - Click inside the Default column and select **Yes** to make the selected value the default value in the run-time environment.

6. From the **File** menu, select **Save**.

Related Topics

About Characteristic Attribute Overrides

Overriding Characteristic Default Values

Enumerations Tab

Specifying Validity Dates for Characteristics

You can specify validity dates for characteristics. Validity dates can be set for characteristics of all primitive and control types.

> **Note:**
>
> Validity dates are not the same as the date range that you specify when you set a characteristics control type to **Calendar**.

You do not have to specify both a start and end date. You can specify only one. For example, you can specify a start date but no end date.

To specify validity dates for a characteristic:

1. From the **Studio** menu, select **Show Design Perspective**.

2. Click the **Dictionary** tab.

3. Select the data element that you want to tag as a characteristic.

    The **Data Element** tab appears in the Data Schema editor.

4. Click the **Characteristics** tab.

5. To specify a start date, do the following:

    a. Select the **Start Date** check box.

    b. Enter or select a date on which the characteristic becomes valid.

6. To specify an end date, do the following:

    a. Select the **End Date** check box.

    b. Enter or select a date after which the characteristic becomes invalid.

7. From the **File** menu, select **Save**.

About Masks

Masks control the way characteristics (defined with a control type of **Numeric** or **Text**) are formatted and displayed in UIM.

- The edit mask controls how text is formatted in editable fields, such as those that appear during creation or update.

- The display mask controls how text is formatted in read-only fields.

You use Java regular expressions to define the edit and display masks. For example, to format the text as an IPv4 address, you could use the following regular expression for both masks:

\\d{3}.\\d{3}.\\d{3}.\\d{3}

> **Note:**
>
> When a user enters text in a field, only the text is stored in the UIM database. If you do not specify a display mask, the unformatted text is displayed in pages.

You can use the following Java regular expressions:

Characters, Predefined Character Classes, or Greedy Quantifier	Description
x	The character *x*
\\	The backslash character
\d	A digit: [0-9]
\D	A non-digit: [^0-9]
\s	A whitespace character: [\t]
\w	A word character: [a-z A-Z_0-9]
X?	*X*, once or not at all
X*	*X,* zero or more times
X+	*X*, one or more times

For additional information, see the Java regular expression documentation:

http://docs.oracle.com/javase/6/docs/api/java/util/regex/Pattern.html

Related Topics

About Control Types

Data Schema Editor Characteristics Tab

Use the Data Schema editor **Characteristics** tab to define valid dates for calendar-type characteristics and to define enumerations (also known as drop down list values) for drop down-type characteristics.

> **Note:**
>
> You can define valid values for characteristics at two different levels: at the schema level (general) and at the specification level (specific). Design Studio evaluates the values defined for characteristics from the general level to the specific level. For example, the characteristic properties defined at the data element level (defined for data elements in the Data Schema editor) are overridden if you define properties for the same characteristic at the specification level (properties defined in the Specification editor).
>
> See "Specification Editor Characteristics Tab" for more information about defining characteristic attributes at the specification level.

Field	Use
Start Date	Select the date on which the characteristic becomes valid.
End Date	Select the date after which the characteristic becomes invalid.
Drop Down Options	Select one of the following: • Select **Enumerations** to populate the drop down list with a set of statically-defined values. See "Creating Data Element Enumerations" and "Enumerations Tab" for more information. • Select **Entity Link** to populate the drop down list with the names of all entities created from the selected specification. Use the options in the Entity Link area to complete the configuration. • Select **Query** to populate a drop-down list with the results of the query that you define. Use the options in the Query area to complete the configuration.
Entity Link	If you selected **Entity Link** in the **Drop Down Options** field, you can populate the drop down list with the names of all entities created from the selected specification. Do one of the following: • Click the **Entity** link to create and use a new specification. • Click **Select** to use an existing specification.
Query	If you selected **Query** in the **Drop Down Options** field, you can populate a drop-down list with the results of the query that you define. To specify the syntax of the query, select from the **Data Source** list, select **JPQL**, **SQL** or **USERS**. • Select **JPQL** to use JPQL syntax. • Select **SQL** to use SQL syntax. • Select **USERS** to specify a query that populates the drop-down list with all UIM users. If you want to use a filtered data query, do one of the following: • Click **Parameter** if you to want to create a new data element to use in a filtered data query. • Click **Select** to select an existing data element in a filtered data query for the query parameter. Enter the query in the Body field using the selected syntax. No query text is required in you selected **USERS**.

4

Working with Configurations

Oracle Communications Unified Inventory Management (UIM) Service, Place, Network, Pipe, Logical Device, and Logical Device Account specifications can have configurations associated with them. A configuration describes details about how an entity is realized, and how it is supported by the resources that enable it.

When working with configurations, see the following topics:

- About Configurations
- About Configuration Items
- Creating Configuration Specifications
- Adding Configuration Items
- Configuration Specification Editor

About Configurations

A configuration is a hierarchically organized collection of facts (configuration items) in the form of characteristics, resource allocations, and entity references. Configurations can be versioned such that a collective set of facts can be organized, managed and referenced as a unit (version) with its own life cycle. Service, Place, Network, Pipe, Logical Device, and Logical Device Account specifications can have configurations associated with them.

> **✎ Note:**
>
> The term Place Configuration specification applies to places that are of type Geographic Site.

In general, configurations should contain the bulk of the information about the specification. They should contain the characteristics that are likely to change over time, while the service itself should contain attributes that are unlikely to change: name, description, and so on.

Configurations are separate entities that are defined by specifications. Configurations include the following features that are not available in other entities:

- **Configuration items:** Define the content of the configuration. Configuration items can include child items, which are arranged hierarchically. Each configuration item can have its own properties, characteristics, layout, and specification options. See "Adding Configuration Items" for more information.

- **Specification options:** Define the entities that can be assigned or referenced to a configuration item.

Related Topics

Adding Existing Configurations to a Service Specification

Adding Existing Configurations to a Network Specification

About Configuration Items

Configuration items enable you to create a hierarchy of items within a configuration. Configuration items can contain other configuration items, so you can nest information to capture how resources are organized.

In Design Studio, configuration items appear in a hierarchical format in the Configuration area of the entity Configuration Specification editor.

Configuration items enable you to assign or reference resources to the configuration and to configure those resources appropriately (entities referenced to the configuration are not consumed by the configuration). You can add any of the following to configuration items:

- **Minimum and maximum quantities**: These determine how many instances of the item can be included in the configuration. The minimum quantity also dictates the items that are automatically created when you create a configuration version or add a new configuration item, with child configuration items, to a configuration version.

- **Characteristics**: You use characteristics to capture specific attributes about the configuration item. You can override the default values defined in a characteristic specification. See "Overriding Default Values of Characteristics in Entity Specifications" for more information.

- **Specification options**: You use specification options to determine which entities can be referenced by or assigned to a service, place, pipe, network, logical device, logical device account, and so forth. When you create a specification option, you associate one or more specifications with it. See "Configuration Specification Editor Specification Options Subtab" for more information.

Related Topics

Adding Configuration Items

Creating Configuration Specifications

You can create a configuration specification independently or create a new configuration specification in the processing of adding it to a Service, Place, Network, Pipe, Logical Device, or Logical Device Account specification.

> **✏ Note:**
>
> Place configurations apply only to places defined as sites.

To create a configuration specification:

1. Do one of the following:

   - If you are creating the configuration independently, from the **Studio** menu select **New**, then select **Inventory**, then select a conceptual division, then select one of the configuration specifications.

- If you are creating a configuration while adding it to a specification, open the Specification editor, click the configurations tab (for example, in the Service Specification editor, click the **Service Configurations** tab), then click **Add**.

   The Entity Configuration Specification Wizard appears.

2. In the **Project** field, select the name of the project to which the new configuration specification should be added.

3. In the **Name** field, enter a name for the new configuration specification.

   The name you enter appears in UIM.

4. (Optional) Select a location.

   By default, Design Studio saves the entity to your default workspace location. You can enter a folder name in the **Folder** field or select a location different from the system-provided default. To select a different location:

   a. Click the **Folder** field **Browse** button.

   b. Navigate to the directory in which to save the entity.

   c. Click **OK**.

5. Click **Finish**.

   Design Studio creates the new configuration specification and displays its information in an editor.

Related Topics

Adding Configuration Items

Adding Existing Configurations to a Service Specification

Adding Existing Configurations to a Network Specification

Adding Existing Configurations to a Logical Device Specification

Adding Configuration Items

Configuration items enable you to create a hierarchy of items within a configuration.

To add configuration items:

1. In the Studio Projects view, double-click any entity configuration specification to open it in an entity Configuration Specification editor.

2. Click the **Details** tab.

3. In the **Details** tab data tree area, do one of the following:

   - Right-click a configuration item that will be the parent of the new configuration item in the hierarchy.

   - Right-click in the white space to add a configuration item at the top level.

4. Select **Configuration Items**, then select **Add Item**.

   The Create Configuration Item dialog box appears.

5. Enter a name for the configuration item, then click **OK**.

   The new configuration item appears in the **Details** tab data tree area.

6. Select the new configuration item.

7. On the **Details** tab **Details** subtab, select minimum and maximum quantities in the **Multiplicity** fields.

   Set the **Minimum** field to a non-zero value to indicate that the configuration item is required in the configuration and that the specified number of items will be created automatically in UIM when an instance of the configuration is created.

   See "Details Tab" for more information about the fields on this subtab.

8. Add characteristics to the configuration item.

   See "Adding Characteristics to Configuration Items" for more information.

9. Add specification options to the configuration item.

   See "Adding Specification Options to Configuration Items" for more information.

10. From the **File** menu, select **Save**.

Adding Characteristics to Configuration Items

Characteristics enable you to add attributes to the configuration item.

> **✎ Note:**
>
> When necessary, you can override the default values defined for a characteristic at the data schema level. The override applies only to the characteristic as it is used in a specific configuration specification. See "Overriding Default Values of Characteristics in Entity Specifications".

When adding characteristics to configuration items, you can add existing characteristics or you can create new characteristics to add to the configuration item. See the following topics for more information:

- Adding Existing Characteristics to Configuration Items
- Adding a New Characteristic to Configuration Items

Adding Existing Characteristics to Configuration Items

To add existing characteristics to configuration items:

1. In the Solution view, double-click any entity configuration specification.

   The entity Configuration Specification editor opens.

2. Click the **Details** tab.

3. In the **Details** tab data tree area, right-click a configuration item and select **Select Characteristic**.

   The Select Characteristic dialog box appears. See "Select Characteristic Dialog Box" for more information.

4. Select a characteristic from the list and click **OK**.

   The characteristic is added to the configuration item in the **Details** tab data tree.

5. From the **File** menu, select **Save**.

Related Topics

Adding New Specification Options to Configuration Items

Configuration Specification Editor

Adding a New Characteristic to Configuration Items

You can create new characteristics to add to a configuration item.

To add a new characteristic to configuration items:

1. In the Solution view, double-click any entity configuration specification.

   The entity Configuration Specification editor opens.

2. Click the **Details** tab.

3. In the **Details** tab data tree area, right-click a configuration item and select **Add Characteristic**.

   The Create Characteristic dialog box appears.

4. Select **Create new element** and then click **Next**.

   The Common Details dialog box appears. From this point, the procedure is the same as that for other simple data elements. See "Creating New Simple Data Elements".

5. Click **Finish**.

   The characteristic is added to the configuration item in the **Details** tab data tree.

6. In the **Details** tab data tree, select the characteristic.

7. In the **Details** tab subtabs, define the attribute information for the characteristic.

   See "Design Studio Common Editor Tabs" for more information about the fields on these subtabs.

8. From the **File** menu, select **Save**.

Related Topics

Adding Existing Characteristics to Configuration Items

Configuration Specification Editor

Adding Specification Options to Configuration Items

Specification options enable UIM users to associate entities to configuration items. There are two kinds of specification options:

- Assignments (or allocations) mean that a resource (such as a logical device or pipe) is consumed by the configuration.

- References indicated the interest in or significance of an entity to the configuration. The entity is not consumed, but referenced.

In Design Studio, when you add specifications as reference or assignment options to a configuration item, entities based on the specification will be available for assignment or reference in UIM. The entities that are available to assign or reference depend on the specification type. For example, you can use a service configuration to assign telephone numbers, but you cannot use a network configuration to assign telephone numbers.

You can add existing specifications as specification options to configuration items or create new specifications in process of adding them. See the following topics for more information:

- Adding Existing Specifications to Configuration Items
- Adding New Specification Options to Configuration Items

Adding Existing Specifications to Configuration Items

To add existing specifications to configuration items:

1. In the Solution view, double-click any entity configuration specification.

    The entity configuration specification editor opens.

2. Click the **Details** tab.

3. In the **Details** tab data tree area, select a configuration item.

4. Click the **Specification Options** tab.

5. In the **Item Option Type** field, select an option type.

    You can select **Assignment** or **Reference**. The default value is **None**. See "Configuration Specification Editor Specification Options Subtab" for more information.

6. Click **Add**.

    The Specification Option dialog box appears.

7. Click **Select**.

    The Selection Dialog dialog box appears.

8. Select a specification, then click **OK**.

    The specification name appears in the **Specification** field of the Specification Option dialog box.

9. Click **OK**.

    The entity specification appears in the **Specification Options** tab.

10. From the **File** menu, select **Save**.

Related Topics

Adding New Specification Options to Configuration Items

Configuration Specification Editor

Specification Editor Configuration Spec Usage Tab

Adding New Specification Options to Configuration Items

You can create new specification options to add to the configuration item.

To add a new specification option to configuration items:

1. In the Solution view, double-click any entity configuration specification.

    The entity Configuration Specification editor opens.

2. In the Configuration area, select a configuration item.

3. Click the **Specification Options** tab.

4. In the **Item Option Type** field, select an option type.

You can select **Assignment** or **Reference**. The default value is **None**. See "Configuration Specification Editor Specification Options Subtab" for more information.

5. Click **Add**.

   The Specification Option dialog box appears.

6. Click **New**.

   The New Studio Entity dialog box appears. See "Selecting Entity Types" for information about selecting entity types in the dialog box.

7. Select an entity type, then click **Next**.

   The Entity Specification Wizard appears.

8. Create the new specification.

   See "Creating New Specifications" for more information.

9. In the Specification Option dialog box, click **OK**.

10. From the **File** menu, select **Save**.

Related Topics

Adding Existing Specifications to Configuration Items

Configuration Specification Editor

Adding Rules to Configurations

You can define ruleset extension points for the entire configuration. When adding rules to configurations, you can add existing rules or you can create new rules to add to the configuration. See the following topics for more information:

- Adding Existing Rules to Configurations
- Adding New Rules to Configurations

Adding Existing Rules to Configurations

You can add existing rules to a configuration.

To add rules to a configuration:

1. In the Solution view, double-click any entity configuration specification.

   The entity Configuration Specification editor opens.

2. Click the **Rules** tab.

3. Click **Select**.

   The Selection Dialog dialog box appears, containing a list of available ruleset extension points.

4. Select a rule in the list.

5. Click **OK**.

   The rule that you selected is displayed in the Ruleset Extension Point area.

Related Topics

Adding New Rules to Configurations

Configuration Specification Editor

Adding New Rules to Configurations

You can create new rules to add to a configuration.

To add a new rule to a configuration:

1. In the Solution view, double-click any entity configuration specification.

   The entity Configuration Specification editor opens.

2. Click the **Rules** tab.

3. Click **Add**.

   The Ruleset Extension Point Wizard appears.

4. In the **Project** field, select the name of the project to which the new rule should be added.

5. In the **Name** field, enter a name for the new rule.

   The name you enter appears in UIM.

6. (Optional) Select a location.

   By default, Design Studio saves the entity to your default workspace location. You can enter a folder name in the **Folder** field or select a location different from the system-provided default. To select a different location:

   a. Click the **Folder** field **Browse** button.

   b. Navigate to the directory in which to save the entity.

   c. Click **OK**.

7. Click **Finish**.

   The rule that you added is displayed in the Ruleset Extension Point column.

Related Topics

Configuration Specification Editor

Associating Tags with Configuration Items

Tags are keywords that you can use to categorize data elements and instances of entities. Tags help you filter and search for data elements that are associated with specific Oracle Communications applications. See "Working with Tags" for more information.

You can create your own tags and associate your tags to configuration items that you add to Service, Place, Logical Device, Logical Device Account, and Network entity Configuration specifications. Associating tags with configuration items that you add to Configuration specifications enables UIM users to search for tags using the Tags Search page. At run time, the tag is visible (on the Configuration Summary page) for all instances of entities that were created from the Configuration specification. These tags are also visible in the **getConfiguration** and **getConfigurationDifferences** web service operations, which are included in the **Service Fulfillment** web service. The **getConfiguration** web service operation response contains the tag information from the request.

> **Note:**
>
> You cannot associate tags with configuration items that you add to Pipe Configuration specifications.

To associate a tag with configuration items:

1. Create a new tag in a Model project.

   When creating the new tag, complete the optional step to define the **Build Directives** attribute with the system-delivered **Generate Inventory Runtime Tag** tag. See "Creating Tags" for more information.

2. Create a dependency between the Model project and the Design Studio for Inventory project in which you intent to save the Configuration specification.

   See "Managing Project Dependencies" for more information.

3. Open the Configuration Specification editor for the entity with which you want to associate the tag.

4. On the **Details** tab, select a configuration item.

5. Click the **Tags** tab.

6. Click **Add**.

   A list of tags appears. The list includes all user-defined tags with a **Build Directives** attribute defined as **Generate Inventory Runtime Tag**.

7. Select a tag from the list and click **OK**.

   The tag appears on the **Tags** tab and is now associated with the configuration item.

8. Deploy the Design Studio for Inventory Cartridge project to the run-time environment.

   UIM users can search for tags using the Tags Search page. At run time, the tag is visible (on the Configuration Summary page) for all instances of entities that were created from the Configuration specification. See UIM Help for more information.

Configuration Specification Editor

You use a Configuration Specification editor to model a hierarchically organized collection of configuration items, which can contain characteristics and resource allocations.

When working with a Configuration Specification editor, see the following topics:

- About the Configuration Specification Editor Context Menu
- Configuration Specification Editor Details Tab
- Configuration Specification Editor Layouts Tab
- Configuration Specification Editor Rules Tab

> **Note:**
>
> Some types of configuration specifications also contain a **Specs** tab. See the Help topics specific to those editors for more information.

Configuration Specification Editor Details Tab

Use the **Details** tab to create, select, and remove characteristics and configuration items.

When working with the **Details** tab, see the following topics:

- About the Configuration Specification Editor Context Menu
- Details Tab
- Notes Tab
- Usage Tab
- Configuration Specification Editor Data Values Subtab
- Configuration Specification Editor Layouts Subtab
- Configuration Specification Editor Tags Subtab
- Configuration Specification Editor Specification Options Subtab

About the Configuration Specification Editor Context Menu

The **Details** tab context menu contains actions specific to characteristics. To access these actions, you right-click in the left column of the tab. The context menu options that are available depend on the selection in the editor. For example, the list of context menu options that appear when you right-click in the white space is different than the list that appears when you right-click a characteristic.

Command	Use
Add Characteristic	Select to create a new characteristic to add to the configuration specification. See "Creating Characteristics" for more information.
Select Characteristic	Select to add an existing characteristic to the configuration specification.
Configuration Items	Select to add a new configuration item to the configuration specification.
Delete	Select to delete a characteristic or a configuration item from the configuration specification.
Move Up	Repositions a characteristic or a configuration item in the view by moving it up in the list.
Move Down	Repositions a characteristic or a configuration item in the view by moving it down in the list.
Refactoring	Select to access a menu of options for improving names and locations of the characteristics. See "Managing Data Element Names and Locations" for more information.
Refresh	Refreshes the view.

Configuration Specification Editor Data Values Subtab

Use the **Data Values** subtab to define sets of valid enumeration values for elements. Enumerations (also referred to as look-up or drop-down values) represent actual values that characteristics can take as valid values.

Field	Use
Included table	Click the placeholder text inside the **Code** and **Description** columns to change the code name and description for the enumeration. The value you enter in the **Code** field is stored in the database. The value you enter in the **Description** field is displayed to the user. Enumerations that are inherited from a base type are read-only. Additionally, enumerations can be inherited from an ancestor if the base type does not specifically define its own value space but derives the enumerations from an ancestor. Click inside the Default column and select **Yes** to make the selected value the default value in the run-time environment.
Add	Click **Add** to add an enumeration for the characteristic you selected in the Included table.
Excluded table	Displays inherited enumerations that you want to exclude from the list of values in the run-time environment. Move enumerations between the Included and Excluded tables using the arrow buttons. Use this capability to display a subset of the inherited enumerations as valid values for the element in the run-time application.
Language	For some data elements, you can specify the language in which to display the selected enumeration value. This field is not applicable to data elements tagged as characteristics.

Related Topics

Configuration Specification Editor Details Tab

Configuration Specification Editor Layouts Subtab

Use the **Layouts** subtab to define how the characteristics appear for a configuration item in an instance of a configuration specification.

See "Settings Tab" for information about the fields that appear in the UI Settings area.

Field	Use
Page/Panels	Select the page type in the UIM run-time environment. You can define different attributes for a characteristic when it appears on different types of pages. For example, you can define an edit mask for the characteristic when it appears on an edit page, and a display mask for the same characteristic when it appears on a summary page. **Note:** The options available in this field are defined in the **ora_uim_mds** project. You must import and open this project and the **ora_uim_model** project in your workspace before modeling UIM entities in Design Studio.
Available column	Displays the elements that are available to be displayed as fields in the run-time user interface, but which are not currently selected. Use the arrow keys to move the elements between the Available column and the Selected column.

Field	Use
Selected column	Displays the elements that will appear as fields in the run-time user interface, and include the characteristics (defined on the Characteristics tab) and all derived data. The fields are displayed in the order in which they appear in the product. Use the up and down arrow keys to reposition characteristics in this column. Select an element to view the user interface (UI) settings. See "Settings Tab" for more information about the fields in the UI Settings area. See UIM Help for information about how to use these fields in the UIM run-time environment.
Reset	Click to revert the layout to the default version.

Related Topics

About Specification Layouts

Configuration Specification Editor Tags Subtab

Use the **Tags** subtab to associate a tag with a configuration item.

Field	Use
Name	Displays the list of tags associated with the selected configuration item.
Description	Displays a description of the tag that will appear in the UIM run-time application.
Build Directives	Indicates whether the user-defined tag is associated with the system-delivered Generate Inventory Runtime Tag tag.
Remove	Click to remove the association of the selected tag.
Add	Click to associate a user-defined tag with the configuration item.

Related Topics

Associating Tags with Configuration Items

Configuration Specification Editor Details Tab

Working with Tags

Configuration Specification Editor Specification Options Subtab

Use the **Specification Options** subtab to assign resources by associating instances of specifications with the configuration.

Field	Use
Assignment	Select to add a specification option as an assignment.
Reference	Select to add a specification option as a reference.

Field	Use
None	Select to indicate that the configuration item cannot consume or reference resources. The configuration item, however, can include child configuration items that consume or reference resources.
Specification	Displays the selected specification.
Cartridge	Displays the name of the cartridge project into which the specification option is built.
Add	Click to add a specification option for an existing specification or for a new one. See "Adding Existing Specifications to Configuration Items" and "Adding New Specification Options to Configuration Items" for more information.
Modify	Click to modify a specification option for an existing specification.
Remove	Click to remove a specification option for an existing specification.

Related Topics

Adding Specification Options to Configuration Items

Specification Editor Configuration Spec Usage Tab

Configuration Specification Editor Layouts Tab

Use the **Layouts** tab to define how the characteristics appear for the configuration specification.

See "Settings Tab" for information about the fields that appear in the UI Settings area.

Field	Use
Page/Panels	Select the page type in the UIM run-time environment.
	You can define different attributes for a characteristic when it appears on different types of pages. For example, you can define an edit mask for a characteristic when it appears on an edit page, and a display mask for the same characteristic when it appears on a summary page.
	Note: The options available in this field are defined in the **ora_uim_mds** project. You must import and open this project and the **ora_uim_model** project in your workspace before modeling UIM entities in Design Studio.
Available column	Displays the elements that are available to be displayed as fields in the run-time user interface, but which are not currently selected. Use the arrow keys to move the elements between the Available column and the Selected column.

Field	Use
Selected column	Displays the elements that will appear as fields in the run-time user interface, and includes the characteristics (defined on the Characteristics tab) and all derived data. The fields are displayed in the order in which they appear in the product. Use the up and down arrow keys to reposition characteristics in this column.
	Select a characteristic to view the user interface (UI) settings. See "Settings Tab" for more information about the fields in the UI Settings area.
	See UIM Help for information about how to use these fields in the UIM run-time environment.
Reset	Click to revert the layout to the default version.

Related Topics

About Specification Layouts

Configuration Specification Editor Rules Tab

Use the **Rules** tab to extend or customize a UIM specification by adding extension points and rulesets.

Field	Use
Ruleset Extension Points	Displays the ruleset extension points that are added to a UIM specification.
Cartridge	Displays the name of the cartridge project into which the ruleset extension point is built.
Select	Click to select a ruleset extension point that you want to add to a UIM specification.
Remove	Click to remove a ruleset extension point that is already added to a UIM specification.
Add	Click to add a new ruleset extension point to a UIM specification.

Related Topics

Adding Rules to Configurations

Working with Rulesets and Extension Points

5

Working with Product and Service Specifications

In Oracle Communications Unified Inventory Management (UIM), products and services are closely related. Products are marketed and sold to customers, whereas services are provided to support the product. Products and services represent the commercial and technical aspects of the inventory: products represent the commercial view, and the corresponding services represent the technical view.

> **Note:**
>
> Product specifications are included in Oracle Communications Service Catalog and Design - Design Studio for Inventory only for backward compatibility with customized solutions that require mapping services to corresponding products.
>
> See *UIM Concepts* for more information about using Products in UIM.
>
> See *Design Studio Concepts* for more information about using Products in a conceptual model.

When working with products and services, see the following topics:

- Working with Product Specifications
- Working with Service Specifications
- Working with Service Configuration Specifications

Working with Product Specifications

> **Note:**
>
> Product specifications are included in Design Studio for Inventory only for backward compatibility with customized solutions that require mapping services to corresponding products.
>
> See *UIM Concepts* for more information about using Products in UIM.
>
> See *Design Studio Concepts* for more information about using Products in a conceptual model.

Product specifications can represent any or all of the following items in your inventory:

- A service to which a customer or subscriber subscribes, such as Broadband Internet access
- A service that a service provider performs for a customer, such as equipment installation

- A piece of hardware that a customer purchases or leases

You are not required to create products in UIM. You can create services without the service being associated to a product. You can create products as a way to map to other systems that can send product information to UIM.

Product specifications can also be related to other Product specifications to constrain what products can be hierarchically related in UIM. A Product specification can be related to one or more Service specifications which constrains which services can be related to a product in UIM.

When working with Product specifications, see the following:

- Defining Product Specifications
- Product Specification Editor
- Configuring Backward Compatibility for Product Specifications

Defining Product Specifications

> **Note:**
>
> Product specifications are included in Design Studio for Inventory only for backward compatibility with customized solutions that require mapping services to corresponding products.
>
> See *UIM Concepts* for more information about using Products in UIM.
>
> See *Design Studio Concepts* for more information about using Products in a conceptual model.

When you create Product specifications, you define which Service specifications are included in the product. For example, if you create a product called MPLS VPN, you can specify that only instances of the MPLS VPN Service specifications can be included in the product. You can also relate child product specifications to a product specification.

In Design Studio, you define the list of valid Service specifications in the Product Specification editor. You can select from existing Service specifications or create new ones. If you do not specify particular Service specifications, then the product can include any service in the inventory.

To define Product specifications:

1. Create a new Product specification or navigate to the editor of an existing one.

   See "Creating New Specifications" for more information.

2. Click the **Related Specifications** tab.

3. Click **Select**.

   The Selection Dialog dialog box opens.

4. In the Selection Dialog dialog box, do one of the following:

   - Select a specification from the list and click **OK** to add an existing Service specification to the Product specification.

- Click **New** to create and add a new Service specification to the Product specification. See "Creating New Specifications" for more information.

  In both scenarios, the Service specification appears in the **Related Specification** tab.

5. (Optional) Double-click a Service specification in the table.

   The appropriate specification editor opens. For example, after creating a new Service specification, you can double-click the new row in the table to configure the specification.

6. (Optional) Select a Service specification in the table and click **Modify**.

   The Relationship Properties dialog appears, where you can view or change information about the relationship between the Service and Product specifications.

   See "Specification Editor Related Specifications Tab" for more information about the fields on the Relationship Properties dialog box.

7. (Optional) Select a Service specification in the table and click **Remove**.

   The relationship between the Service specification and Product specification is deleted.

8. From the **File** menu, select **Save**.

Related Topics

Product Specification Editor

Product Specification Editor

> **Note:**
>
> Product specifications are included in Design Studio for Inventory only for backward compatibility with customized solutions that require mapping services to corresponding products.
>
> See *UIM Concepts* for more information about using Products in UIM.
>
> See *Design Studio Concepts* for more information about using Products in a conceptual model.

Use the Product Specification editor to define Product specifications. When working with Product specifications, see the following topics:

- Specification Editor Characteristics Tab
- Specification Editor Specification Properties Tab
- Specification Editor Related Specifications Tab
- Specification Editor Configuration Spec Usage Tab
- Specification Editor Rules Tab
- Specification Editor Layouts Tab
- Specification Editor Media Tab
- Specification Editor Extends Tab

Configuring Backward Compatibility for Product Specifications

Product specifications are included in Design Studio for Inventory for backward compatibility with customized solutions that require mapping services to corresponding products.

See *UIM Concepts* for more information about using Products in UIM.

See *Design Studio Concepts* for more information about using Products in a conceptual model.

If you require Design Studio for Inventory Product specifications for backward compatibility, see the following topics:

- Copying Existing Product Specifications into an Inventory Project
- Creating New Product Specifications Entities Using the Java Perspective

Copying Existing Product Specifications into an Inventory Project

Product specifications are included in Design Studio for Inventory for backward compatibility with customized solutions that require mapping services to corresponding products.

If you require Design Studio for Inventory Product specifications for backward compatibility, and if you have existing Product specifications in your workspace that you want to continue to use, you can copy the existing Product specification to a new Inventory project.

To copy existing Product specifications to a new Inventory project:

1. In the Solution view, locate the existing Inventory Product specification in your workspace.
2. Right-click the Product specification and select **Copy**.
3. Right-click the target Inventory project and select **Paste**.
4. Click **Save**.

Creating New Product Specifications Entities Using the Java Perspective

Product specifications are included in Design Studio for Inventory for backward compatibility with customized solutions that require mapping services to corresponding products.

If you require Design Studio for Inventory Product specifications for backward compatibility, and to create new Product specifications in your workspace, you can create the **.product** Design Studio entity in the Java perspective.

To create new Product specifications using the Java perspective:

1. From the Java perspective, click the **Package Explorer** tab.

   The Package Explorer view appears.
2. Navigate to the Inventory project where you want to create a new Product specification, and select the **model** folder.
3. Right-click the **model** folder, then select **New**, and then select **File**.

   The New File dialog box appears.
4. In the **File Name** field, enter a name for the file and include the **.product** extension.

   For example, name the file **SampleProduct.product**.

   The new file appears in the **model** folder in the Package Explorer view.

5. Right-click the new file, select **Open With**, and then select **Text Editor**.

The file opens in the Design Studio default text editor.

6. Copy the following XML fragment into the file:

```xml
<?xml version="1.0" encoding="UTF-8"?>
<com:modelEntity
      xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
      xmlns:com="http://www.mslv.com/studio/core/model/common"
      xmlns:data="http://www.oracle.com/communications/studio/core/model/common/
data"
      xmlns:inv="http://www.mslv.com/studio/inventory/model/specification"
      xmlns="http://www.mslv.com/studio/inventory/model/specification"
      xsi:type="inv:ProductSpecificationType"
      name="SampleProduct">

  <com:baseEntityRef>
    <com:entity>Product</com:entity>
    <com:entityType>inventoryEntity</com:entityType>
    <com:relationship>unknown</com:relationship>
  </com:baseEntityRef>

  <com:id>Wodf--+O--+fkI4A---+Fg</com:id>

  <data:dataElementNode virtual="true">
    <com:id>Wodf--+O--+fkI4A---+Fg</com:id>
    <com:elementType>oracle.communications.studio.model.data.StudioModelDataElement</
com:elementType>
    <data:name>SampleProduct</data:name>
    <data:displayName lang="[default]">SampleProduct</data:displayName>
    <data:primitiveType>none</data:primitiveType>
  </data:dataElementNode>

  <data:dataElementDetails xsi:type="data:dataElementCommonDetail">
    <com:id>z+l27sgB--+0-mVX--+m1Q</com:id>

<com:elementType>oracle.communications.studio.model.data.StudioModelDataElementCommon
Details</com:elementType>
    <data:dataElementId>Wodf--+O--+fkI4A---+Fg</data:dataElementId>
    <data:defaultValue></data:defaultValue>
    <data:deprecated>false</data:deprecated>
    <data:sensitive>false</data:sensitive>
    <data:minLength>0</data:minLength>
    <data:maxLength>40</data:maxLength>
    <data:minMultiplicity>0</data:minMultiplicity>
    <data:maxMultiplicity>-1</data:maxMultiplicity>
  </data:dataElementDetails>
</com:modelEntity>
```

7. Click **Save**.

8. Switch to the Studio Design perspective.

9. Click the **Studio Projects** tab.

The Studio Projects view appears.

10. Expand your Inventory project, then expand the **Product Specifications** folder.

The Product specification that represents the new **.product** entity appears in the folder.

11. Right-click the new Product specification, then select **Copy**.

12. Right-click the Inventory project and then select **Paste**.

The Set Name of Copy dialog box appears.

13. Rename the copy of the Product specification to the desired name.

14. Delete the original Product specification that you created in the Java perspective.

15. Click **Save**.

Working with Service Specifications

In UIM, a service represents the way that a product is realized and delivered to a customer. For example, a DSL Gold product is delivered as a DSL Gold service, enabled by appropriate resources.

You define Service specifications to record basic information about the service. You define Service Configuration specifications to record versionable sets of facts about the service. As these facts evolve over time, you can create new configuration versions. See "About Configurations" for more information.

Network-oriented services are a specialization that support multipoint and point-to-point packet connectivity. These services are part of a larger network-oriented service arrangement that includes other entities, such as networks and service locations.

For network-oriented services that support multipoint connectivity, you determine whether the service is the network service (the parent of the service arrangement) or a member service. The **Network Oriented Service Type** data element in the Service Specification editor includes **Network** and **Member** values for this purpose. If no value is set, the service can be a point-to-point network-oriented service or a service that is not involved with packet connectivity.

See *UIM Concepts* for more information about network-oriented services.

When working with Service specifications, see "Service Specification Editor" for reference information about the tabs you use to define a Service specification.

Related Topics

Creating New Specifications

Working with Service Configuration Specifications

Service Specification Editor

You use the Service Specification editor to define Service specifications. When working with the Service Specification editor, see the following topics:

- Specification Editor Characteristics Tab
- Specification Editor Specification Properties Tab
- Service Specification Editor Service Properties Tab
- Service Specification Editor Service Configurations Tab
- Service Specification Editor Related Specifications Tab
- Specification Editor Configuration Spec Usage Tab
- Specification Editor Rules Tab
- Specification Editor Layouts Tab
- Specification Editor Media Tab
- Specification Editor Extends Tab

- Specification Editor Tags Tab

Service Specification Editor Service Properties Tab

Use the **Service Properties** tab to set and view the **Network Oriented Service Type** value.

Field	Use
Network Oriented Service Type	Displays the name of the Service Configuration specification. • **None**. (Default) Select if this is not a network-oriented service or represents a point-to-point network service. • **Network**. Select if this specification represents the parent service in a network-oriented service arrangement. For example, in an E-LAN service arrangement, a service of this type represents the network as a whole. • **Member**. Select if this Service specification represents a member service in a network-oriented service arrangement. A separate member service is created for each service location in the arrangement. All member services have a Network service parent and appear as configuration items in the parent Service configuration.

Related Topics

Service Specification Editor

Service Specification Editor Service Configurations Tab

Use the **Service Configurations** tab to select, add, and remove a service configuration.

Field	Use
Service Configuration	Displays the name of the Service Configuration specification.
Cartridge	Displays the name of the cartridge project into which the Service Configuration specification is built.
Select	Click to select and add an existing service configuration to the Service specification.
Open	Click to open the selected service configuration in the Service Configuration Specification editor.
Remove	Click to remove the selected service configuration from the Service specification.
Add	Click to create a new service configuration and add it to the Service specification. See "Adding Existing Configurations to a Service Specification" for more information.

Related Topics

Service Specification Editor

Service Specification Editor Related Specifications Tab

Use the **Related Specifications** tab to define and review specification relationships. Only relationships with the entity types listed in this tab are meaningful by default in UIM. If you add specifications to the Others section, you must define custom rulesets that trigger actions or behavior based on those relationships.

Section	Use
Inventory Groups	Lists the specifications of inventory groups to which services based on this specification can belong.
Others	Lists specifications of entities that have a customized relationship with entities based on this specification.

Related Topics

Defining Specification Relationships

Specification Editor Related Specifications Tab

Working with Service Configuration Specifications

Service Configuration specifications capture the details about the resources used by the service. Because these details can change frequently, service configurations provide a versioning capability that enables the management of the changes to a service over time. As the facts about a service changes over time, new versions of the service configuration can be created.

When you define a Service Configuration specification in Design Studio, you determine the collection of resources that can be assigned to the service. You define these resources as configuration items. The configuration items can have characteristics that enable you to express details about the configuration. The configuration items can be arranged hierarchically. See "Working with Configurations" for more information.

When working with Service Configuration specifications, see the following topics:

- Adding Existing Configurations to a Service Specification
- Adding New Configurations to a Service Specification
- Service Configuration Specification Editor

Adding Existing Configurations to a Service Specification

You can add existing service configurations to a Service specification. The service configuration and the Service specification do not have to be in the same project.

To add an existing service configuration to a Service specification:

1. Open an existing Service Specification entity in the Service Specification editor or create a new Service Specification entity.

   See "Creating New Specifications" for more information.

2. Click the **Service Configurations** tab.

3. Click **Select**.

   The Add Entities dialog box appears.

4. Select the service configuration and click **OK**.

   The service configuration you selected appears in the table.

5. From the **File** menu, select **Save**.

Related Topics

Adding Configuration Items

Adding New Configurations to a Service Specification

Adding New Configurations to a Service Specification

You can create and add a new service configurations to a Service specification. The service configuration and the Service specification do not have to be in the same project. You add a service configuration in the **Service Configurations** tab in the Service Specification editor.

To add a new service configuration to a Service specification:

1. Open an existing Service Specification entity in the Service Specification editor or create a new Service Specification entity.

   See "Creating New Specifications" for more information.

2. Click the **Service Configurations** tab.

3. Click **Add**.

   The Service Configuration Specification Wizard appears.

4. In the **Project** field, select the name of the project to which the new specification should be added.

5. In the **Name** field, enter a name for the new specification.

   This is the name that will appear in UIM.

6. (Optional) Select a location.

   By default, Design Studio saves the entity to your default workspace location. You can enter a folder name in the **Folder** field or select a location different from the system-provided default. To select a different location:

   a. Click the **Folder** field **Browse** button.

   b. Navigate to the directory in which to save the entity.

   c. Click **OK**.

7. Click **Finish**.

   The service configuration you added appears in the table.

8. From the **File** menu, select **Save**.

Related Topics

Creating Configuration Specifications

Adding Configuration Items

Adding Existing Configurations to a Service Specification

Service Configuration Specification Editor

Use the Service Configuration Specification editor to define Service Configuration specifications.

When working with the Service Configuration Specification editor, see the following topics:

- Configuration Specification Editor Details Tab
- Configuration Specification Editor Layouts Tab
- Configuration Specification Editor Rules Tab
- Service Configuration Specification Editor Service Specs Tab

Service Configuration Specification Editor Service Specs Tab

Use the **Service Specs** tab to select, add, and remove the Service specifications that use the Service Configuration specifications. This tab identifies the Service specifications that use the Service Configuration specification. You must use this tab to relate a Service specification to its Service Configuration specification only when the Service specification and Service Configuration specification need to be in separate cartridges, and the Service specification can exist without the Service Configuration specification. If both the Service specification and Service Configuration specification are in the same cartridge, make the association in the Service Specification editor.

Field	Use
Service Specification	Displays the name of the Service specification.
Cartridge	Displays the name of the cartridge project into which the Service specification is built.
Select	Click to select an existing Service specification.
Open	Click to open the selected Service specification in the Service Specification editor.
Remove	Click to remove a Service specification.
Add	Click to add a new Service specification.

Related Topics

Service Configuration Specification Editor

6

Working with Specifications for Geographic Location

In Oracle Communications Unified Inventory Management (UIM), you use Place specifications to define entities that represent places that can be located on maps.

You can also use Property Location entities for geographic locations involved in connectivity scenarios. Unlike Place entities, Property Location entities are all based on a single entity. You can extend this predefined specification in Oracle Communications Service Catalog and Design - Design Studio to include characteristics.

When working with Place and Property Location Extension specifications, see the following topics:

- Working with Place Specifications
- Working with Place Configuration Specifications
- Property Location Extension Specification Editor

Working with Place Specifications

You use Place specifications to define geographic entities that can be located on a map, such as a state, city, street, postal address, campus, or building. Place entities answer the business question of where other inventory entities (such as subscribers, services, equipment, service terminations, and so on) are located.

There are four different types of Place specification that describe different geographical entities:

- Location defines places based on geographic references.
- Address defines ways to locate places based on textual information.
- Address Range defines a group of addresses as a range, such as an address defined with a low street number and high street number.
- Site define places that do not have a single, precise location like a regional office or a cell site that may change physical locations over time.

When working with Place specifications, see the following topics:

- About the Site Place Type
- About the Address Place Type
- About the Address Range Place Type
- About the Location Place Type
- Defining Place Types
- Place Specification Editor

About the Site Place Type

A site is a loosely defined place such as a campus, cell site, or VPN site. Unlike a location, a site is not necessarily bound to specific geographic coordinates. Because sites are only loosely defined, they can evolve over time. For example, you might need to plan a VPN without knowing the specific locations of the VPN sites. You can create configurations to keep track of the changes.

If a site includes multiple specific locations, you can include them in a Place hierarchy for the site. For example, if you create a Site specification instance for a campus, you can create Location specification instances for its individual buildings and include them in the site's Place hierarchy.

Related Topics

Defining Place Types

Place Specification Editor

About the Address Place Type

An Address specification can be used to define a standard address format to meet your business requirements and national postal standards. For example, you could define an Address specification that includes the following information:

*   Street address
*   City name
*   State or province
*   Country
*   Postal code

These individual pieces of information are called address components. You define them as characteristics and add them to a Place specification with the entity type of Address.

Address components are classified into the following categories:

*   **Geographically based:** Values for these components can be defined as a geographic location based on Location-type Place specification.

*   **Non-geographically based:** Values for these components cannot be defined as geographic locations, so they are typically captured as text.

For geographically-based address components, you can add characteristics to an Address specification that provide lists of entities of the appropriate type. See "Populating Drop-Down Lists Dynamically" for more information.

Related Topics

Defining Place Types

Place Specification Editor

About the Address Range Place Type

You use Address Range specifications to define collections of addresses such as those used in Master Street Address Guide (MSAG) implementations. You can include individual addresses in the Place hierarchy of an address range instance.

Related Topics

Defining Place Types

Place Specification Editor

About the Location Place Type

You use the Location type for places that can be specifically defined by geographic references. Locations can be very specific places, such as a residence, or more general places, such as a city or province. In UIM, you create these hierarchies in the Place Hierarchy section of the Place Summary page.

You can geocode a location to identify its placement on the face of the earth and to enable geographic visualizations of your network or business.

Using geographic coordinates also makes it possible to calculate distances between locations.

Related Topics

Defining Place Types

Place Specification Editor

Defining Place Types

You select from the four types of places when modeling Place specifications.

To select a place type:

1. Create a new Place specification or navigate to the editor of an existing one.

   See "Creating New Specifications" for more information.

2. Click the **Properties** tab.

3. In the **Entity Type** field, select a place type.

   See "Place Specification Properties Tab" for more information.

4. From the **File** menu, select **Save**.

Related Topics

Place Specification Editor

Working with Place Specifications

Place Specification Editor

You use the Place Specification editor to model Place specifications. When working with Place specifications, see the following topics:

• Specification Editor Characteristics Tab

- • Specification Editor Specification Properties Tab
- • Place Specification Properties Tab
- • Place Specification Editor Place Configurations Tab
- • Place Specification Editor Related Specifications Tab
- • Specification Editor Configuration Spec Usage Tab
- • Specification Editor Rules Tab
- • Specification Editor Layouts Tab
- • Specification Editor Media Tab
- • Specification Editor Extends Tab
- • Specification Editor Tags Tab

Place Specification Properties Tab

Use the **Properties** tab to define the entity type for the Place specification. In the **Entity Type** field, select one of the following values:

Field	Use
Site	Select to define a place that does not have a single, precise location. See "About the Site Place Type" for more information.
Address	Select to define a place using the standard address format to meet your business requirements and national postal standards. See "About the Address Place Type" for more information.
Address Range	Select to define a place using groups of related addresses. See "About the Address Range Place Type" for more information.
Location	Select to define a place based on geographic references. See "About the Location Place Type" for more information.

Related Topics

Defining Place Types

Place Specification Editor

Place Specification Editor Place Configurations Tab

Use the **Place Configurations** tab to relate Place specifications defined as **Site** (on the Place Specification editor **Properties** tab) to Place configurations.

> ✎ **Note:**
>
> You use this tab for geographic sites only. The buttons on this tab are disabled for all other types of Place specifications.

Field	Use
Place Configurations	Displays the name of the Place Configuration specification.
Cartridge	Displays the name of the cartridge project into which the Place Configuration specification is built.
Select	Click to select an existing Place Configuration specification.
Open	Click to open the selected configuration in the Place Configuration Specification editor.
Remove	Click to remove a Place Configuration specification.
Add	Click to add a new Place Configuration specification.

Place Specification Editor Related Specifications Tab

Use the **Related Specifications** tab to define and review specification relationships. Only relationships with the entity types listed in this tab are meaningful by default in UIM. If you add specifications to the Others section, you must define custom rulesets that trigger actions or behavior based on those relationships.

Section	Use
Inventory Groups	Lists the specifications of inventory groups to which places based on this specification can belong.
Roles	Lists roles to which entities based on this Place specification can be assigned.
Others	Lists specifications of entities that have a customized relationship with entities based on this specification.

Related Topics

Defining Specification Relationships

Specification Editor Related Specifications Tab

Working with Place Configuration Specifications

Place Configuration specifications capture the details about the resources used by the Place specification. Place configurations only apply to Place entities defined as sites.

You can add existing Place Configuration specifications to a Place specification or you can create new Place Configuration specifications in the process of adding it to a Place specification. The place configuration and the Place specification do not have to be in the same project.

When working with Place Configuration specifications, see "Place Configuration Specification Editor" for more information.

Place Configuration Specification Editor

Use the Place Configuration Specification editor to model Place Configuration specifications. When working with Place Configuration specifications, see the following topics:

- Configuration Specification Editor Details Tab
- Configuration Specification Editor Layouts Tab
- Configuration Specification Editor Rules Tab
- Place Configuration Specification Editor Place Specs Tab

Place Configuration Specification Editor Place Specs Tab

Use the **Place Specs** tab to select, add, and remove the Place specifications that use the Place Configuration specifications. The **Place Specs** tab identifies the Place specifications that use the Place Configuration specification. You must use this tab to relate a Place specification to its Place Configuration specification only when the Place specification and Place Configuration specification need to be in separate cartridges, and the Place specification can exist without the Place Configuration specification. If both the Place specification and Place Configuration specification are in the same cartridge, make the association on the Place specification.

Field	Use
Place Specification	Displays the name of the Place specification.
Cartridge	Displays the name of the cartridge project into which the Place specification is built.
Select	Click to select an existing Place specification.
Open	Click to open the selected specification in the Place Specification editor.
Remove	Click to remove a Place specification.
Add	Click to add a new Place specification.

Related Topics

Place Specification Editor

Property Location Extension Specification Editor

You use the Property Location Extension Specification editor to extend the predefined Property Location specification. When working with the Property Location Extension Specification editor, see the following topics:

- Specification Editor Characteristics Tab
- Specification Editor Layouts Tab
- Specification Editor Rules Tab
- Specification Editor Extends Tab

7

Working with Party and Role Specifications

You use Part and Role specifications to define the people and organizations in your inventory and to define the functions that entities serve in your inventory.

When working with Party and Role specifications, see the following topics:

- Working with Party Specifications
- Working with Role Specifications

Working with Party Specifications

You create Party specifications to model the people or organizations that interact with your inventory. Party specifications answer the business question of who is involved in your inventory.

Parties often play roles in your inventory. You can assign roles that are defined by Role specifications. You can assign one or more roles to an instance of a Party specification.

When working with Party specifications, see "Party Specification Editor" for reference information about the tabs you use to define a Party specification.

Related Topics

Creating New Specifications

Party Specification Editor

Use the Party Specification editor to model Party specifications. When working with Party specifications, see the following topics:

- Specification Editor Characteristics Tab
- Specification Editor Specification Properties Tab
- Party Specification Editor Related Specifications Tab
- Specification Editor Configuration Spec Usage Tab
- Specification Editor Rules Tab
- Specification Editor Layouts Tab
- Specification Editor Media Tab
- Specification Editor Extends Tab

Party Specification Editor Related Specifications Tab

Use the **Related Specifications** tab to define and review specification relationships. Only relationships with the entity types listed in this tab are meaningful by default in UIM. If you add specifications to the Others section, you must define custom rulesets that trigger actions or behavior based on those relationships.

Section	Use
Inventory Groups	Lists the specifications of inventory groups to which party entities based on this specification can belong.
Roles	Lists roles to which entities based on this Party specification can be assigned.
Others	Lists specifications of entities that have a customized relationship with entities based on this specification.

Related Topics

Defining Specification Relationships

Specification Editor Related Specifications Tab

Working with Role Specifications

You create Role specifications to define the functions played by entities in an inventory. For example, an instance of a Party specification called Individual could have the role of subscriber or employee.

When working with Role specifications, see the following topics:

- About Role Specifications
- Configuring a Role Specification
- Role Specification Editor

About Role Specifications

An entity can play multiple roles simultaneously and its roles can change over time. For example, an instance of a Party specification called Organization could be both a supplier and a customer, either at the same time or at different times.

When a role specification is created you must select one or more role-enabled entity types to which the role applies. When an instance of the selected entity type is created in UIM, the role may be optionally applied to the entity. For example the role of MPLS can be applied to a Logical Device and a Pipe, indicating that they both support MPLS technology.

An entity's role might be relevant to its involvements with other entities. See "Working with Involvement Specifications" for more information about involvements.

Not all entity types can be assigned roles. In UIM, role-enabled entities have Role areas on their Summary pages.

When you create a Role specification, you can optionally select a role type.

The following are the role types:

- **Technology**: This role defines the technology that an entity operates under or supports.
- **Function**: This role defines the function that an entity plays.
- **Topology**: This role defines the role the topology plays in the network topology, such as hub or spoke.

- **Target**: This role identifies the entity as a target for activation systems. See "About Network Targets" for more information.

Related Topics

Configuring a Role Specification

Role Specification Editor

About Network Targets

A network target is a resource on which services or other resources must be activated. For example, in a GSM network, a voice mail service must be activated on a voice mail server. In this scenario, the voice mail server is the target for the voice mail account.

In Oracle Communications Service Catalog and Design - Design Studio, you can create Role specifications with the **Target** role type. In UIM, Role entities based on specifications of the **Target** role type can be associated to logical devices and parties to identify them as network targets.

When you assign a Target role to a Logical Device or Party entity, it becomes a target for other entities associated with it in various ways. Logical devices are network targets for:

- Logical device accounts associated with them
- Logical devices in their hierarchies (unless those logical devices are themselves network targets)
- Device interfaces in their hierarchies
- Any entities with which they have custom involvements based on the Manages (Oracle Provided) base specification

Parties can be network targets for:

- Any entities associated with them
- Any entities with which they have custom involvements based on the Manages (Oracle Provided) base specification

Related Topics

Configuring a Role Specification

Role Specification Editor

Configuring a Role Specification

When configuring Role specifications, you specify role types and valid entity types.

To configure Role specifications:

1. Create a new Role specification or navigate to the editor of an existing one.

   See "Creating New Specifications" for more information.

2. In the Role Specification editor, click the **Properties** tab.

3. In the **Role Type** field, select **Technology**, **Function**, **Topology**, or **Target**.

   See "About Role Specifications" for more information.

4. In the **Available Entity Types** list, select the entity type or types that you want to be able to have this role.

5. Click the right arrow button to move the entity types to the **Selected Entity Types** list.

   If necessary, you can use the left arrow button to move entity types back to the **Available Entity Types** list.

6. From the **File** menu, select **Save**.

Related Topics

Role Specification Editor

Role Specification Editor

Use the Role Specification editor to define the functions played by entities in an inventory.

When working with the Role Specification editor, see the following topics:

- Specification Editor Characteristics Tab

- Specification Editor Specification Properties Tab

- Role Specification Editor Properties Tab

- Specification Editor Related Specifications Tab

- Specification Editor Rules Tab

- Specification Editor Layouts Tab

- Specification Editor Media Tab

- Specification Editor Extends Tab

- Specification Editor Tags Tab

Role Specification Editor Properties Tab

Use the **Properties** tab to select a role type for the role specification that you create.

Field	Use
Role Type	Select a role type when you create a role specification. Select one of the following: • **Technology**: Defines the technology that an entity operates under or supports. • **Function**: Defines the function that an entity plays. • **Topology**: Defines the role the topology plays in the network topology, such as hub or spoke. • **Target**: This role identifies the entity as a target for activation systems.
Available Entity Types	Displays the entity types that are available for selection.
Selected Entity Types	Displays the entity types that have been selected.

Related Topics

Configuring a Role Specification

Role Specification Editor

8

Working with Business Interactions and Workflow-Related Specifications

In Oracle Communications Unified Inventory Management (UIM), you use business interactions, engineering work orders, and projects to plan and organize how you build and maintain your network. You can optionally associate workflow templates with business interactions and engineering work orders. Workflow templates enable you to manage work and the people you assign to complete it.

In Oracle Communications Service Catalog and Design - Design Studio, you define specifications for entities related to planning and workflow:

- Business Interaction specifications define arrangements for completing a set of activities, such as adding resources to the network to increase capacity or to support new locations. See "Working with Business Interaction Specifications" for more information.

- Process specifications define ordered sequences of activities and transitions that accomplish a goal, such as installing a device or designing a network. When deployed to UIM, Process specifications become workflow templates that you can associate with business interactions and engineering work orders. See "Working with Process Specifications" for more information.

- Task specifications define activities that must be completed as part of a workflow. In Design Studio, you associate Task specifications with the activities that are included in a Process specification. See "Working with Task Specifications" for more information.

- Checklist specifications define steps that must be included to complete an activity. You associate Checklist specifications with activities in a Process specification. See "Working with Checklist Specifications" for more information.

You use two other types of entities in UIM for related purposes:

- Engineering work orders are specialized versions of business interactions with some added functionality. In UIM, all engineering work orders are based on the same Business Interaction specification (Engineering Work Order), which is supplied as part of the ora_uim_workorder base cartridge.

> **✎ Note:**
>
> The engineering work orders you create in Design Studio are not the same as engineering work orders in UIM. Engineering work orders in Design Studio are used as containers for Process, Task, and Checklist specifications. Engineering work orders and the specifications they contain become workflow templates in UIM. See "Designing Workflows" for more information.

- UIM projects enable you to manage grooming and rehoming activities for channelized connectivity. You can also use them to group related business interactions and engineering work orders so that you can manage them together. All UIM projects are based on the same specification, called Managed Project, to differentiate them from Design Studio cartridge projects. You can modify the Managed Project specification to include

characteristics that you define. See "Working with the Managed Product Specification" for more information.

Working with Business Interaction Specifications

You use Business Interaction specifications to define arrangements or transactions that provide context to actions performed on entities in the inventory. You can define specifications for business interactions such as service orders, projects, work orders, tasks, and plans.

A business interaction in UIM provides a context for tracking the transactions that are performed against the inventory. Any additions, changes, or deletions to items in the inventory made under the context of a business interaction are included in its transactions. The transactions associated with a business interaction become effective when the business interaction is completed, and they are canceled when the business interaction is canceled. Business interactions provide traceability and auditability. They also enable transaction cancellations and changes. Business interactions can include child business interactions.

You create Business Interaction specifications in the same manner as you create other types of specifications. See "Creating New Specifications" for more information.

See "Business Interaction Specification Editor" for reference information about the tabs you use to define a Business Interaction specification.

Business Interaction Specification Editor

Use the Business Interaction Specification editor to define arrangements or transactions that affect entities in the inventory.

When working with the Business Interaction Specification editor, see the following topics:

- Specification Editor Characteristics Tab
- Specification Editor Specification Properties Tab
- Specification Editor Related Specifications Tab
- Specification Editor Configuration Spec Usage Tab
- Specification Editor Rules Tab
- Specification Editor Layouts Tab
- Specification Editor Media Tab
- Specification Editor Extends Tab
- Specification Editor Tags Tab

Working with the Managed Product Specification

All Project entities in UIM are based on the Managed Project specification. You can extend this specification by defining entity-level characteristics. When you define entity-level characteristics for this specification and deploy the cartridge that contains it to UIM, the new characteristics apply to all Project entities.

Related Topics

Extending Predefined Specifications

Entity Extension Editor

Designing Workflows

In UIM, you can add workflow templates to engineering work orders and business interactions. Workflow templates define an ordered sequence of activities that must be completed. For example, a workflow template could define the activities required for an access site rollout.

In Design Studio, you design workflow templates by creating Engineering Work Order specifications that include Process specifications. Process specifications include Task specifications and Checklist specifications.

> **Note:**
>
> The engineering work orders you create in Design Studio are not the same as engineering work orders in UIM. Engineering work orders in Design Studio are used as containers for Process, Task, and Checklist specifications. Engineering work orders and the specifications they contain become workflow templates in UIM.

When designing workflows, see the following topics:

- Associating a Process Specification to an Engineering Work Order Specification
- Engineering Work Order Editor
- Working with Process Specifications
- Working with Task Specifications
- Working with Checklist Specifications

Associating a Process Specification to an Engineering Work Order Specification

You associate a Process specification with an Engineering Work Order specification to define the process flow for work orders based on that specification. (In UIM, process flows are called workflows.) You can associate an existing Process specification or create a new one. An Engineering Work Order specification is empty until you associate a Process specification with it.

To associate a Process specification:

1. In an Engineering Work Order editor, click the **Properties** tab.
2. Do one of the following:

   To select an existing Process specification:

   a. Click the **Select** button.

      The Select Process dialog box appears.

   b. Select a Process specification, and then click **OK**.

   To create a new Process specification:

   a. Click the **Process** link.

      The Process Wizard dialog box appears.

b. Enter a name, and then click **Finish**.

The dialog box closes and the Process specification name is displayed in the **Process** field on the **Properties** tab. You can click the **Process** link to open the editor for the Process specification.

Related Topics

Working with Process Specifications

Engineering Work Order Editor

Engineering Work Order Editor

Use the Engineering Work Order editor to define work orders that organize workflows and activities in UIM.

When working with the Engineering Work Order editor, see the following topics:

- Order Data Tab
- Engineering Work Order Properties Tab

Order Data Tab

Use the **Order Data** tab to view the contents of the Engineering Work Order specification. All information in this tab is read-only.

Field	Use
Task List	Displays a list of the activities and associated tasks in the Engineering Work Order specification.
Related Specifications	Displays a list of related specifications for the task selected in the Task List table.
Related Tasks	Displays a list of the Task specifications that include the specification selected in the Related Specifications table.

Engineering Work Order Properties Tab

Use the **Engineering Work Order Properties** tab to select and view a Process specification for this Engineering Work Order specification.

Field	Use
Process	Displays the Process specification (if any) associated to this Engineering Work Order specification. Click the **Process** link to: • Open the editor for the associated Process specification. • Create a new Process specification and associate it to the Engineer Work Order specification. • Select an existing Process specification for this Engineering Work Order specification. See "Associating a Process Specification to an Engineering Work Order Specification".

Related Topics

Working with Process Specifications

Working with Process Specifications

You create Process specifications to define process flows. Process flows are available in UIM as workflow templates that define ordered sequences of activities and transitions that you can include in engineering work orders and business interactions. The Process specification name in Design Studio becomes the name of the workflow template in UIM.

You include Process specifications in Engineering Work Order specifications in Design Studio. You deploy the Engineering Work Order specifications into UIM to create workflow templates.

> **✎ Note:**
>
> The engineering work orders you create in Design Studio are not the same as engineering work orders in UIM. Engineering work orders in Design Studio are used as containers for Process, Task, and Checklist specifications. Engineering work orders and the specifications they contain become workflow templates in UIM. See "Designing Workflows" for more information.

When working with Process specifications, see the following topics:

• Creating a Process Flow
• Process Editor

Creating a Process Flow

A process flow is an ordered set of activities and transitions. You define Process specifications so that you can deploy reusable patterns to UIM to manage workflows. For example, you could define an access site rollout process that describes the steps that must be repeated each time you bring a new access site online in your network. In UIM, you can modify the exact steps to account for the peculiarities of each situation.

In UIM, process flows are called workflows. You can include them in both engineering work orders and business interactions. See *UIM Concepts* and UIM Help for more information.

The following rules govern process flows:

- Every flow begins with a Start activity and ends with an End activity. These activities are predefined.

- Backward flows are not valid.

- You can include any number of activities between the start and end of the flow.

- You can include multiple, parallel flows from a single parallel activity.

- Two or more parallel flows can converge on the same activity.

- In UIM workflows, activities must be completed in sequence. Work on the next activity (or activities in the case of parallel flows) cannot begin until the preceding activity is complete.

You can create process flows for Process specifications in three ways:

- By using the palette in the **Process Flow** tab to add activities and flows graphically. See "Creating a Process Flow Graphically".

- By dragging Task specifications into the **Process Flow** tab. See "Creating a Process Flow by Dragging and Dropping".

- By using the **Activities** tab to add activities and the **Transitions** tab to define flows. See "Creating a Process Flow in the Activities and Transitions Tabs".

Creating a Process Flow Graphically

You can create a process flow by using the palette in the **Process Flow** tab of the Process editor.

To create a process flow graphically:

1. Open or create a Process specification.

   The Process specification editor appears.

2. Click the **Process Flow** tab.

3. Click the **Activity** item in the **Palette** menu.

   The cursor is replaced by crosshairs.

4. Click where you want the activity to appear in the palette. You can reposition the activity later if necessary.

   The Create Activity dialog box appears.

5. In the **Name** field, enter a name for the activity.

6. (Optional) In the **Display Name** field, enter a name for the activity that will be visible in UIM. If you do not enter a display name, the activity name is used instead.

7. In the **Task** field, do one of the following:

   To associate the activity with an existing Task specification:

   a. Click the **Select** button.

      The Select Task dialog box appears.

   b. Select a Task specification, and then click **OK**.

The Select Task dialog box closes and the Create Activity dialog box displays the name of the task.

To create and select a new Task specification:

a. Click the **New** button.

The Task Specification Wizard dialog box appears.

b. Enter a name for the Task specification.

c. (Optional) Enter or select a location for the Task specification.

d. Click **OK**.

The Task Specification Wizard dialog box closes and the Create Activity dialog box displays the name of the task.

8. (Optional) To flag the activity as critical, select the **Critical** check box. Critical activities are displayed with special icons in UIM.

9. Click **OK**.

The Create Activity dialog box closes and the activity appears as a box in the palette.

10. Repeat steps 3 through 9 for each activity you want to include in the process flow.

11. Click the **End** item in the **Palette** menu.

The cursor is replaced by crosshairs.

12. Click where you want the end item to appear in the palette. You can reposition the activity later if necessary.

The **End** icon appears in the palette.

13. Repeat the following steps for each transition in the flow, starting with the **Start** icon and ending with the **End** icon:

a. In the Flows area of the palette, click the **Next** item.

The cursor is replaced by crosshairs.

b. Position the crosshairs in the **Start** icon or an activity box until the icon or box is highlighted.

c. Drag to the next activity in the flow, and then click when the activity is highlighted.

An arrow connects the boxes in the palette.

Creating a Process Flow by Dragging and Dropping

You can create a process flow by dragging Task specifications to the **Process Flow** tab of the Process editor.

To create a process flow by dragging and dropping:

1. While in the Studio Design perspective, open or create a Process specification.

The Process specification editor appears.

2. Click the **Process Flow** tab.

3. In the Studio Projects editor, click and drag a Task specification into the **Process Flow** tab.

An activity is added to the process flow based on the Task specification. You can edit the activity to change its properties.

Related Topics

Editing A Process Flow

Creating a Process Flow in the Activities and Transitions Tabs

You can create a process flow by creating activities in the **Activities** tab and defining transitions in the **Transitions** tab.

To create a process flow in the **Activities** and **Transitions** tabs:

1. Open or create a Process specification.

2. Click the **Activities** tab.

3. In the Activities section, click **Add**.

   The Create Activity dialog box appears.

4. In the **Name** field, enter a name for the activity.

5. (Optional) In the **Display Name** field, enter a name for the activity that will be visible in UIM. If you do not enter a display name, the activity name is used instead.

6. In the **Task** field, do one of the following:

   To associate the activity with an existing Task specification:

   a. Click the **Select** button.

      The Select Task dialog box appears.

   b. Select a Task specification, and then click **OK**.

      The Select Task dialog box closes and the Create Activity dialog box displays the name of the task.

   To create and select a new Task specification:

   a. Click the **New** button.

      The Task Specification Wizard dialog box appears.

   b. Enter a name for the Task specification.

   c. (Optional) Enter or select a location for the Task specification.

   d. Click **OK**.

      The Task Specification Wizard dialog box closes and the Create Activity dialog box displays the name of the task.

7. (Optional) To flag the activity as critical, select the **Critical** check box. Critical activities are displayed with special icons in UIM.

8. Click **OK**.

   The Create Activity dialog box closes and the activity appears as a row in the **Activities** table. Its details are shown in the Activity Area to the right of the table. (Activities you create in the **Activities** tab are also visible in the **Process Flow** tab.)

9. Repeat steps 3 through 8 for each activity you want to include in the process flow.

10. Click the **Transitions** tab.

11. Click **Add** below the Transitions table.

    The Create Transitions Element dialog box appears.

12. Repeat the following steps for each transition in the flow, beginning with the **Start** icon and ending with the **End** icon:

   a. In the **From Activity** field, click **Select**.

      The Select From Activity dialog box appears.

   b. Select an activity, and then click **OK**.

      The Select From Activity dialog box closes and the activity appears in the **From Activity** field.

   c. In the **To Activity** field, click **Select**.

      The Select To Activity dialog box appears.

   d. Select an activity (or End), and then click **OK**.

      The Select To Activity dialog box closes and the activity appears in the **To Activity** field.

Editing A Process Flow

You can edit the activities and transitions in a process flow.

To edit activities:

1. In the **Activities** tab, select an activity.

   The activity details appear in the Activity area.

2. Edit the details as necessary. Your changes are effective immediately.

To edit transitions:

1. In the **Transitions** tab, select a transition.

   The transition details appear in the Transition area.

2. To replace an activity in the transition, click the **Select** button in the From Activity or To Activity area.

   The Select From Activity or Select To Activity dialog box appears. The list of activities is filtered to prevent you from making invalid selections.

3. Select an activity, and then click **OK**.

   The dialog box closes and the new activity appears in the transition.

Changing Palette Settings

You can change the appearance of the palette controls in the **Process Flow** tab in several ways.

1. Right-click in the heading of the **Activities** or **Transitions** section of the palette, and then select **Settings** from the menu that appears.

   The Palette Settings dialog box appears.

2. Do any combination of the following:

   • In the Font area, click **Change** and select a different font for the palette. Click **Restore Default** to revert to the original font.

   • In the Layout area, select an option for the arrangement of items in the palette.

   • In the Drawer Options area, select an option for how sections in the palette behave.

3. Click **OK**.

The dialog box closes and your changes take effect.

Process Editor

Use the Process editor to define process flows that you can include in Engineering Work Order and Business Interaction specifications.

When working with the Process editor, see the following topics:

- Process Flow Tab
- Activities Tab
- Transitions Tab

Process Flow Tab

Use the **Process Flow** tab to design process flows. You use a graphical palette to add activities and transitions between activities.

Section	Use
Canvas	Displays activities and transitions that you have defined for the process. A Start activity appears automatically.
	You can drag activities to reposition them. The lines representing transitions automatically adjust to reflect your changes.
	Double-click an activity to open the Task editor for the Task specification associated with the activity.
Palette	Displays tools for adding activities and transitions to the process.
	Click **Activity** to add an activity that you associate with a Task specification.
	Click **End** to add an End activity.
	Click **Next** to add a transition between activities.

Related Topics

Creating a Process Flow Graphically

Editing A Process Flow

Changing Palette Settings

Activities Tab

Use the **Activities** tab to define and view activities in the Process specification.

Section	Use
Activities	Lists the activities that have been defined for this process. The table includes activities that you define on this tab and those you define graphically in the **Process Flow** tab.
	Click **Add** to add an activity. Select an activity and click **Remove** to remove it.
Activity	Displays information about the activity selected in the Activities table.
	Click **Select** in the Task area to change the task associated with the activity. Click the **Task** link to go to the Task editor.

Related Topics

Creating a Process Flow in the Activities and Transitions Tabs

Editing A Process Flow

Transitions Tab

Use the **Transitions** tab to define and view transitions between activities in the Process specification.

Section	Use
Transitions	Lists the transitions that have been defined for this process. The table includes transitions that you define on this tab and those you define graphically in the **Process Flow** tab.
	Click **Add** to add a transition. Select a transition and click **Remove** to remove it.
Transition	Displays information about the transition selected in the Transitions table.
	Click **Select** in the From Activity or To Activity area to change the activity. Click the **From Activity** or **To Activity** link to go to the **Activities** tab.

Related Topics

Creating a Process Flow in the Activities and Transitions Tabs

Editing A Process Flow

Working with Task Specifications

Task specifications define units of work that you can associate with activities in engineering work orders. Task specifications can include Checklist specifications that define steps that must be completed to complete the task.

See "Task Specification Editor" for reference information about the tabs you use to define a Task specification. See "Defining Task Properties" for information about selecting a checklist and defining other properties.

Defining Task Properties

After you create a Task specification, you can specify its properties, including the task duration and a checklist. All of the properties are optional.

To specify task properties:

1. Go to the Task specification editor **Properties** tab.

2. In the **Duration (in days)** field, enter the estimated duration of the task.

3. In the **Allowed User Group** field, enter a user group name to restrict UIM users who can be assigned the task.

4. Select the **Is Milestone** check box if you want the task to serve as a milestone in UIM. Milestone activities are displayed as diamonds in Gantt charts.

5. In the **Checklist** field, click **Select**.

   The Select Checklist dialog box appears.

6. Select a checklist and click **OK**.

   The **Checklist** field is updated.

Relating Resource Specifications with Task Specifications

You can use the **Related Specifications** tab in the Task editor to relate resource specifications with Task specifications. In UIM, these relationships result in the creation of items in the **Actions** menu of Activity Workspace sections for activities based on the Task specification. The menu item takes UIM users directly to the New page for entity type and specification.

For example, you could relate the Cisco 3063 Logical Device specification to a Task specification in Design Studio. In UIM, users can create Cisco 3063 logical devices directly from the Activity Workspace section.

You can relate the following types of specifications with Task specifications:

- Connectivity
- Custom Network Address
- Custom Object
- Equipment
- Logical Device
- Logical Device Account
- Media Stream
- Property Location
- Party
- Physical Device
- Pipe
- Telephone Number

To relate resource specifications to Task specifications:

1. Go to the Task specification editor **Related Specifications** tab.

2. Click **Select**.

   The Select Dialog dialog box appears, displaying a list of specifications in the current cartridge project.

3. Do one of the following:

   • Select a specification, and then click **OK**.

   • Click **New**, and then create a new specification. See "Creating New Specifications" for more information.

   The specification you selected or created appears in the **Related Specifications** tab.

Task Specification Editor

Use the Task Specification editor to define Task specifications. When working with Task specifications, see the following topics:

• Specification Editor Characteristics Tab

• Task Specification Properties Tab

• Task Specification Editor Related Specifications Tab

• Specification Editor Rules Tab

• Specification Editor Layouts Tab

• Specification Editor Extends Tab

• Specification Editor Tags Tab

Task Specification Properties Tab

Use the Properties tab to define properties for the Task specification.

Section	Use
Duration (in days)	Displays the estimated duration of the task. This duration is used for charting and workflow planning in UIM.
Allowed User Group	Limits the UIM users who can be assigned this task to members of the specified user group.
Is Milestone	Determines whether the task serves as a milestone in UIM.
Checklist	Displays the checklist associated with the Task specification. Click **Select** to select or change the checklist.

Related Topics

Defining Task Properties

Task Specification Editor

Task Specification Editor Related Specifications Tab

Use the **Related Specifications** tab to relate a resource specification to the Task specification. A specification listed here becomes an item in the **Actions** menu in the Activity Workspace

section of Activity Details pages in UIM. Resource entities are not created automatically as the result of relationships defined in this tab.

Field	Use
Specification	Displays the name of the resource specification.
Cartridge	Displays the name of the cartridge project into which the specification is built.
Type	Displays the type of the specification, such as Service specification or Place specification.
Select	Click to select an existing specification or to create a new one.
Modify	Click to modify the relationship properties. The properties related to requirements or to quantity are not meaningful in this case because UIM entities are not created automatically as the result of relationships established in this tab.
Remove	Click to remove the related specification.

Related Topics

Relating Resource Specifications with Task Specifications

Task Specification Editor

Working with Checklist Specifications

You define Checklist specifications that you can associate with Task specifications. The Checklist specification defines the individual steps that must be completed to complete a task.

In UIM, all checklist items must be marked as complete before an activity can be completed.

When working with Checklist specifications, see the following topics:

- Creating a Checklist
- Checklist Specification Editor

Creating a Checklist

To create a checklist:

1. Repeat the following steps for each item you want to include in the checklist:

   a. Create a Checklist specification.

   b. In the **Properties** tab, click **Add**.

      The Checklist Item dialog box appears.

   c. Enter a description for the checklist item, and then click **OK**.

      The dialog box closes and the Checklist Items table displays the item you added.

2. (Optional) To adjust the order of the checklist items, select an item and click **Move Up** or **Move Down**.

3. (Optional) To remove an item from the checklist, select it and click **Remove**.

Checklist Specification Editor

Use the Checklist Specification editor to define steps to be completed sequentially as part of an activity. You associate Checklist specifications with Task specifications.

When working with Checklist specifications, see the following topics:

- Checklist Specification Properties Tab
- Specification Editor Rules Tab

Checklist Specification Properties Tab

Use the **Properties** tab to define checklist items.

Section	Use
Checklist Item	Displays a list of the items in the checklist.
	Click **Add** to add an item. Select items, and then click **Move Up** or **Move Down** to change the order of items.

Tagging Task and Resource Specifications for Bills of Material

In UIM, you can generate bills of materials (BOMs) for engineering work orders and business interactions. To enable this functionality, you apply the following tags to Task specifications and resource specifications:

- The **billable** tag applies to both Task specifications and resource specifications. When you apply this tag to a specification, entities based on it are included in BOMs created in UIM.

- The **billofmaterials** tag applies only to Task specifications. When you apply this tag to a specification, Activity Summary pages for activities based on this specification include an **Actions** menu item that enables you to create a BOM directly.

Generating cost data for BOMs requires the use of custom tags. For example, you can create a custom tag named **costreferenceid** that includes an ID for the task or resource. Generating cost data also requires extending UIM to retrieve data from external systems or from custom tables in the UIM database. See "Working with Tags" and *UIM Developer's Guide* for more information.

9

Working with Logical Device, Physical Device, and Equipment Specifications

You can model equipment in Oracle Communications Service Catalog and Design - Design Studio using several different methods. You can inventory all of your physical hardware resources down to the port level for asset-tracking purposes and you can model your network elements as logical devices for activation purposes.

When working with Equipment and Logical Device specifications, see the following topics:

- Working with Logical Device Specifications
- Working with Logical Device Configuration Specifications
- Working with Device Interface Specifications
- Working with Flow Interface Specifications
- Working with Logical Device Account Specifications
- Working with Logical Device Account Configuration Specifications
- Working with Physical Device Specifications
- Working with Equipment Specifications
- Working with Equipment Holder Specifications
- Working with Physical Port Specifications
- Working with Physical Connector Specifications

Working with Logical Device Specifications

A logical device represents a functional view of a set of resources. The logical device itself is not physical, but it can be supported by one or more physical resources that support it and act together logically to perform one or more functions.

In the telecommunications industry, logical devices are often called network elements, but the terms are not interchangeable. In Unified Inventory Management (UIM), a logical device can also be a non-intelligent device that does not qualify as a network element. Logical devices that are network elements are addressable and manageable and can be managed through an element management system (EMS). See *UIM Concepts* for information on relating Logical Device specifications to Device Interface specifications.

Logical devices can be supported by one hardware item like a desktop router or by many pieces of hardware such as:

- Central office switches
- Digital cross-connect systems (DCS)
- Digital subscriber line access multiplexers (DSLAM)
- Main distribution frames (MDF)

A logical device can support other logical devices to create a hierarchy. You create Logical Device specifications in the same manner as other types of specifications. See "Creating New Specifications" for more information.

When working with Logical Device specifications, see "Logical Device Specification Editor" for reference information about the tabs you use to define a Logical Device specification.

Logical Device Specification Editor

Use the Logical Device Specification editor to model logical devices. When working with the Logical Device Specification editor, see the following topics:

- Specification Editor Characteristics Tab
- Specification Editor Specification Properties Tab
- Logical Device Specification Editor Properties Tab
- Logical Device Specification Editor Logical Device Configurations Tab
- Specification Editor Related Specifications Tab
- Specification Editor Configuration Spec Usage Tab
- Specification Editor Rules Tab
- Specification Editor Layouts Tab
- Specification Editor Media Tab
- Specification Editor Extends Tab
- Specification Editor Tags Tab

Logical Device Specification Editor Properties Tab

Use the **Properties** tab to enter information about the logical device.

Field	Use
Vendor	Enter the vendor name of the logical device.
Model Number	Enter the model number of the logical device.
Part Number	Enter the part number of the logical device.

Related Topics

Logical Device Specification Editor

Logical Device Specification Editor Logical Device Configurations Tab

Use the **Logical Device Configurations** tab to enter information about the Logical Device Configuration specification.

Field	Use
Logical Device Configuration	Displays the name of the Logical Device Configuration specification.
Cartridge	Displays the name of the cartridge project into which the Logical Device Configuration specification is built.

Field	Use
Select	Click to select an existing Logical Device Configuration specification.
Open	Click to open the selected configuration in the Logical Device Configuration Specification editor.
Remove	Click to remove the Logical Device Configuration specification.
Add	Click to add a new Logical Device Configuration specification.

Related Topics

Logical Device Specification Editor

Logical Device Specification Editor Related Specifications Tab

Use the **Related Specifications** tab to define and review specification relationships. Only relationships with the entity types listed in this tab are meaningful by default in UIM. If you add specifications to the Others section, you must define custom rulesets that trigger actions or behavior based on those relationships.

Section	Use
Inventory Groups	Lists specifications of inventory groups to which logical devices based on this specification can belong.
Device Interfaces	Lists specifications of device interfaces that can be provided by logical devices based on this specification.
Roles	Lists roles to which logical devices based on this specification can be assigned.
Logical Device Accounts	Lists specifications of logical device accounts that can be associated with logical devices based on this specification.
Network Nodes	Lists specifications of network nodes that can represent logical devices based on this specification.
Logical Devices	Lists specifications of logical devices that can be children of logical devices based on this specification.
Others	Lists specifications of entities that have a customized relationship with entities based on this specification.

Related Topics

Defining Specification Relationships

Specification Editor Related Specifications Tab

Working with Logical Device Configuration Specifications

The Logical Device Configuration specification captures the details about the resources used by the logical device. A Logical Device Configuration specification can include configuration items. Configuration items can have characteristics and can also consume a resource.

You can associate only the following specifications to the Logical Device Configuration specification:

- Custom network address
- Custom object
- Device interface

When working with Logical Device Configuration specifications, see the following topics:

- Adding Existing Configurations to a Logical Device Specification
- Adding New Configurations to a Logical Device Specification
- Logical Device Configuration Specification Editor

Adding New Configurations to a Logical Device Specification

You can add new configurations to a Logical Device specification. The logical device configuration and the Logical Device specification do not have to be in the same project.

To add new logical device configurations to a Logical Device specification:

1. Open a Logical Device Specification entity in the Logical Device Specification editor.

   See "Creating New Specifications" for more information.

2. Click the **Logical Device Configurations** tab.

3. Click **Add**.

   The Logical Device Configuration Specification Wizard appears.

4. In the **Project** field, select the name of the project to which the new specification should be added.

5. In the **Name** field, enter a name for the new specification.

   This is the name that will appear in UIM.

6. (Optional) Select a location.

   By default, Design Studio saves the entity to your default workspace location. You can enter a folder name in the **Folder** field or select a location different from the system-provided default. To select a different location:

   a. Click the **Folder** field **Browse** button.

   b. Navigate to the directory in which to save the entity.

   c. Click **OK**.

7. Click **Finish**.

   The logical device configuration you added appears in the **Logical Device Configurations** tab.

8. From the **File** menu, select **Save**.

Related Topics

Adding Existing Configurations to a Logical Device Specification

Adding Configuration Items

Logical Device Configuration Specification Editor

Logical Device Configuration Specification Editor

Use the Logical Device Configuration Specification editor to model Logical Device configurations.

When working with the Logical Device Configuration Specification editor, see the following topics:

- Configuration Specification Editor Details Tab
- Configuration Specification Editor Layouts Tab
- Configuration Specification Editor Rules Tab
- Logical Device Configuration Specification Editor Logical Device Specs Tab
- Specification Editor Tags Tab

Logical Device Configuration Specification Editor Logical Device Specs Tab

Use the **Logical Device Specs** tab to select, add, and remove the Logical Device specifications that use the Logical Device Configuration specifications. This tab identifies the Logical Device specifications that use the selected Logical Device Configuration specification. You must use this tab to relate a Logical Device specification to its Logical Device Configuration specification only when the Logical Device specification and Logical Device Configuration specification need to be in separate cartridges and the Logical Device specification can exist without the Logical Device Configuration specification. If both the Logical Device specification and Logical Device Configuration specification are in the same cartridge, make the association on the Logical Device specification.

Field	Use
Logical Device Configuration	Displays the name of the Logical Device specification.
Cartridge	Displays the name of the cartridge project into which the Logical Device specification is built.
Select	Click to select an existing Logical Device specification.
Open	Click to open the selected specification in the Logical Device Specification editor.
Remove	Click to remove a Logical Device specification.
Add	Click to add a new Logical Device specification.

Related Topics

Adding Existing Configurations to a Logical Device Specification

Adding Configuration Items

Logical Device Configuration Specification Editor

Adding Existing Configurations to a Logical Device Specification

You can add existing configurations to a Logical Device specification. The Logical Device configuration and the Logical Device specification do not have to be in the same project.

To add an existing Logical Device Configuration to a Logical Device specification:

1. Open a Logical Device Specification entity in the Logical Device Specification editor.

   See "Creating New Specifications" for more information.

2. Click the **Logical Device Configurations** tab.

3. Click **Select**.

   The Add Entities dialog box appears.

4. Select the configuration and click **OK**.

   The logical device configuration you selected appears in the **Logical Device Configurations** tab.

5. From the **File** menu, select **Save**.

Related Topics

Adding Existing Configurations to a Logical Device Specification

Adding Configuration Items

Logical Device Configuration Specification Editor

Working with Device Interface Specifications

Logical devices often provide device interfaces. A device interface represents an access point into the device. These device interfaces may be for connectivity, power, timing, or any other means of interaction with the device.

You use Logical Device and Device Interface specifications to define the various types of logical devices and interfaces in your inventory.

You create Device Interface specifications in the same manner as you create other types of specifications. See "Creating New Specifications" for more information.

You relate Logical Device specifications to Device Interface specifications on the **Related Specifications** tab in the Logical Device Specification editor.

When working with Device Interface specifications, see the following topics:

- About Rate Codes
- Device Interface Specification Editor

About Rate Codes

A rate code is an industry-recognized form of identification for transmission signals, or the speed at which data flows from one point to another, through some type of logical or physical medium. For example, a DS1 rate code refers to a transmission rate of 1.544 megabits per second (Mb/s) for T-Carrier technology.

You can associate a device interface specification with a rate code; the rate code will be applied to all new device interfaces created from the specification. The rate code on a device interface determines the technology and transmission rate the interface can support to terminate connectivity.

There are two types of validations associated with rate codes. First, Design Studio creates a problem marker if you attempt to associate a device interface specification with an incompatible rate code when parent-child relationships between the device interface specifications are defined.

The bit rate defined for a rate code associated with a child-level device interface cannot exceed a bit rate of the rate code defined at the parent level. For example, you cannot define a parent entity with a DS1 rate code (1.544 Mb/s) and define the child entity with a DS3 rate code (44.736 Mb/s) because the rate code associated with the child device interface has a bit rate that is higher than the bit rate for the rate code associated with the parent.

Additionally, Design Studio ensures that the sum of the bit rates defined for all child entities does not exceed the bit rate of the parent. For example, you cannot define a parent entity with a DS3 rate code (44.736 Mb/s) and define more than 28 child entities with DS1 rate codes (1.544 Mb/s), as the product of 29 and 1.544 exceeds 44.736, the M/bs defined for DS3.

Second, if you change the rate code associated with a device interface specification in a previously deployed cartridge in which device interface instances have been created in UIM, UIM generates a deployment error upon subsequent deployments if:

- You changed the rate code from an existing value to a different value. For example, you cannot change the rate code value from **DS3** to **DS1**.

- You deleted an existing value and left the **Rate Code** field blank. For example, you cannot delete the **DS3** value and leave the **Rate Code** field blank.

The error message appears in the Environment perspective Console view.

Related Topics

Device Interface Specification Editor Properties Tab

Device Interface Specification Editor

Use the Device Interface Specification editor to model Device Interface specifications.

When working with the Device Interface Specification editor, see the following topics:

- Specification Editor Characteristics Tab

- Specification Editor Specification Properties Tab

- Device Interface Specification Editor Properties Tab

- Specification Editor Related Specifications Tab

- Specification Editor Configuration Spec Usage Tab

- Specification Editor Rules Tab

- Specification Editor Layouts Tab

- Specification Editor Media Tab

- Specification Editor Extends Tab

- Specification Editor Tags Tab

Device Interface Specification Editor Properties Tab

Use the Device Interface Specification editor **Properties** tab to associate a rate code to the device interface.

> **Note:**
>
> You must import the ora_uim_basetechnologies base cartridge and add the ora_uim_basetechnologies base cartridge as a dependency to your cartridge project to have access to the delivered set of rate codes.

Field	Use
Display Name	Enter the name that appears in Design Studio editors and in UIM. Design Studio supports multiple languages for this field. The field adjacent to **Display Name** displays your list of languages. You can define a display name for any language you select from the list. If your preferences are set up to work in one language only, the system displays only the **[default]** option. See "Defining Language Preferences" for more information.
Rate Code	Displays the rate code of the device interface. Click **Select** to access a set of available rate codes. If this field is populated, you can click the **Rate Code** link to review the attributes of the rate code.
Clear	Click to remove the selection in the **Rate Code** field.
Select	Click to select a rate code to associate with the device interface specification. Rate codes are available only if you have imported the ora_uim_basetechnologies base cartridge and added the ora_uim_basetechnologies base cartridge as a dependency to the project in which the device interface specification is saved.

Related Topics

About Rate Codes

Device Interface Specification Editor Related Specifications Tab

Use the **Related Specifications** tab to define and review specification relationships. Only relationships with the entity types listed in this tab are meaningful by default in UIM. If you add specifications to the Others section, you must define custom rulesets that trigger actions or behavior based on those relationships.

Section	Use
Device Interfaces	Lists the specifications of device interfaces that can be sub-device interfaces of device interfaces based on this specification.

Section	Use
Roles	Lists roles to which entities based on this Device Interface specification can be assigned.
Logical Devices	Lists specifications of logical devices that can provide device interfaces based on this specification.
Network Nodes	Lists specifications of network nodes that can represent device interfaces based on this specification.
Others	Lists specifications of entities that have a customized relationship with entities based on this specification.

Related Topics

Defining Specification Relationships

Specification Editor Related Specifications Tab

Working with Flow Interface Specifications

Flow interfaces partition media interfaces (device interfaces at the top of their hierarchies) into virtual channels based on bit rate. Flow interfaces are used with flow identifiers (such as VLAN IDs) to trace the path of services through the device interfaces and connectivities in multipoint and point-to-point service arrangements.

Flow interfaces terminate packet connectivity only. They specify the termination type of the connectivities terminated on their parent device interfaces. There are four termination types defined by Flow Interface specifications:

- **Access**. Indicates that the purpose of an interface is to terminate connectivity that provides access to a service provider network, such as Ethernet UNI connectivity.

- **Internetwork**. Indicates that the purpose of an interface is to terminate connectivity that interconnects two service provider networks, such as Ethernet E-NNI connectivity.

- **Trunk**. Indicates that the purpose of an interface is to terminate connectivity that connects equipment and devices in the same network, such as Ethernet I-NNI connectivity.

- **Unknown**. Indicates that the purpose of the interface is unknown. Used to support scenarios not covered by the Access, Internetwork, and Trunk termination types.

Flow interfaces are similar to sub-device interfaces, but have configurations that capture their attributes.

When working with Flow Interface specifications, see the following topics:

- Flow Interface Specification Editor
- Working with Flow Interface Configuration Specifications

Flow Interface Specification Editor

Use the Flow Interface Specification editor to model flow interfaces. When working with the Flow Interface Specification editor, see the following topics:

- Specification Editor Characteristics Tab

Flow Interface Specification Editor Flow Interface Configuration Tab

Use the **Flow Interface Configurations** tab to enter information about the Flow Interface Configuration specification. Only one Flow Interface Configuration specification can be associated to a Flow Interface specification.

Field	Use
Flow Interface Configuration	Displays the name of the Flow Interface Configuration specification.
Cartridge	Displays the name of the cartridge project into which the Flow Interface Configuration specification is built.
Select	Click to select an existing Flow Interface Configuration specification.
Open	Click to open the selected configuration in the Flow Interface Configuration Specification editor.
Remove	Click to remove the Flow Interface Configuration specification.
Add	Click to add a new Flow Interface Configuration specification.

Related Topics

Flow Interface Specification Editor

Flow Interface Specification Editor Properties Tab

Use the **Properties** tab to enter information about the Flow Interface specification.

Field	Use
Display Name	Enter the specification name as it should be displayed.

Field	Use
Technology	Select the technology. Only packet technologies are valid. Available by default are: • **Ethernet** • **ATM** • **Frame Relay** • **MPLS** These technologies are supplied in the ora_uim_basetechnologies cartridge. You can edit the specifications but you cannot create new ones.
Termination Type	Select the termination type: • **Access** • **Trunk** • **Internetwork** • **Unknown** The **Termination Type** and **Termination Packet Rider** values interact. If you select a **Termination Type** value, **Termination Packet Rider** check box is deselected. If you select the **Termination Packet Rider** check box, the **Termination Type** list becomes unavailable.

Related Topics

Flow Interface Specification Editor

Technology Editor

Working with Flow Interface Configuration Specifications

Flow interface configurations can include references to flow identifiers (such as VLAN IDs) that trace the path of services through the device interfaces and connectivities in multipoint and point-to-point service arrangements.

A Flow interface configuration is created automatically when you create a flow interface. As with other entities and entity configurations, you specify the Flow Interface Configuration specification in the Flow Interface specification. Unlike other entities, however, Flow Interface specifications can be associated with only one configuration specification.

When working with Flow Interface Configuration specifications, see the following topics:

• Working with Configurations
• Flow Interface Configuration Specification Editor

Flow Interface Configuration Specification Editor

Use the Flow Interface Configuration Specification editor to model flow interface configurations.

When working with the Flow Interface Configuration Specification editor, see the following topics:

• Configuration Specification Editor Details Tab
• Configuration Specification Editor Layouts Tab

- Configuration Specification Editor Rules Tab
- Flow Interface Configuration Specification Editor Flow Interface Specs Tab
- Specification Editor Tags Tab

Flow Interface Configuration Specification Editor Flow Interface Specs Tab

Use the **Flow Interface Specs** tab to select, add, and remove the Flow Interface specifications that use this Flow Interface Configuration specification. A Flow Interface specification can be associated with only one Flow Interface Configuration specification, but a Flow Interface Configuration specification can be associated with multiple Flow Interface specifications.

You must use this tab to relate a Flow Interface specification to its Flow Interface Configuration specification only when the Flow Interface specification and Flow Interface Configuration specification are in separate cartridges and the Flow Interface specification can exist without the Flow Interface Configuration specification.

If both the Flow Interface specification and Flow Interface Configuration specification are in the same cartridge, make the association from the Flow Interface specification.

Field	Use
Flow Interface Configuration	Displays the name of the Flow Interface specification.
Cartridge	Displays the name of the cartridge project into which the Flow Interface specification is built.
Select	Click to select an existing Flow Interface specification.
Open	Click to open the selected specification in the Flow Interface Specification editor.
Remove	Click to remove a Flow Interface specification.
Add	Click to add a new Flow Interface specification.

Related Topics

Flow Interface Specification Editor

Adding Configuration Items

Working with Logical Device Account Specifications

Logical device accounts are a special type of network address that are hosted or managed by a logical device. For a service provider, a logical device account could be a management account, such as a login name, for configuring a logical device. You use Logical Device Account specifications to define these accounts in your inventory. The information captured in a Logical Device Account specification depends on the account that you are modeling. For example, you might need to add characteristics for subscriber information such as a login name, mailbox, or accounting record.

You create Logical Device Account specifications in the same manner as you create other types of specifications. See "Creating New Specifications" for more information.

See "Logical Device Account Specification Editor" for reference information about the tabs you use to define a Logical Device Account specification.

Logical Device Account Specification Editor

Use the Logical Device Account Specification editor to model special types of network address that are hosted or managed by a logical device.

When working with the Logical Device Account Specification, see the following topics:

- Specification Editor Characteristics Tab

- Specification Editor Specification Properties Tab

- Logical Device Account Specification Editor Logical Device Account Configuration Tab

- Specification Editor Related Specifications Tab

- Specification Editor Configuration Spec Usage Tab

- Specification Editor Rules Tab

- Specification Editor Layouts Tab

- Specification Editor Media Tab

- Specification Editor Extends Tab

- Specification Editor Tags Tab

Logical Device Account Specification Editor Logical Device Account Configuration Tab

Use the **Logical Device Account Configurations** tab to enter information about the Logical Device Account Configuration specification.

Field	Use
Logical Device Account Configuration	Displays the name of the Logical Device Account Configuration specification.
Cartridge	Displays the name of the cartridge project into which the Logical Device Configuration specification is built.
Select	Click to select an existing Logical Device Account Configuration specification.
Open	Click to open the selected configuration in the Logical Device Account Configuration Specification editor.
Remove	Click to remove the Logical Device Account Configuration specification.
Add	Click to add a new Logical Device Account Configuration specification.

Related Topics

Logical Device Account Specification Editor

Working with Logical Device Account Configuration Specifications

The Logical Device Account Configuration specification captures the details about the resources used by the logical device account. A Logical Device Account Configuration specification can include configuration items. Configuration items can have characteristics and can also consume resources.

You can assign the following types of specifications as specification options to the Logical Device Account Configuration specification:

• Custom network address

• Custom object

• Telephone number

You can include all reference-enabled specification types as references in logical device account configuration items.

When working with Logical Device Account Configuration specifications, see the following topics:

• Adding Existing Configurations to a Logical Device Account Specification

• Adding New Configurations to a Logical Device Account Specification

• Logical Device Account Configuration Specification Editor

Adding Existing Configurations to a Logical Device Account Specification

You can add existing configurations to a Logical Device Account specification. The Logical Device Account configuration and the Logical Device Account specification do not have to be in the same project.

To add an existing Logical Device Account Configuration to a Logical Device Account specification:

1. Open a Logical Device Account Specification entity in the Logical Device Account Specification editor.

   See "Creating New Specifications" for more information.

2. Click the **Logical Device Account Configurations** tab.

3. Click **Select**.

   The Add Entities dialog box appears.

4. Select the configuration and click **OK**.

   The logical device account configuration you selected appears in the **Logical Device Account Configurations** tab.

5. From the **File** menu, select **Save**.

Related Topics

Adding New Configurations to a Logical Device Account Specification

Adding Configuration Items

Logical Device Account Configuration Specification Editor

Adding New Configurations to a Logical Device Account Specification

You can add new configurations to a Logical Device Account specification. The logical device account configuration and the Logical Device Account specification do not have to be in the same project.

To add new logical device account configurations to a Logical Device Account specification:

1. Open a Logical Device Account Specification entity in the Logical Device Specification editor.

    See "Creating New Specifications" for more information.

2. Click the **Logical Device Account Configurations** tab.

3. Click **Add**.

    The Logical Device Account Configuration Specification Wizard appears.

4. In the **Project** field, select the name of the project to which the new specification should be added.

5. In the **Name** field, enter a name for the new specification.

    This is the name that will appear in UIM.

6. (Optional) Select a location.

    By default, Design Studio saves the entity to your default workspace location. You can enter a folder name in the **Folder** field or select a location different from the system-provided default. To select a different location:

    a. Click the **Folder** field **Browse** button.

    b. Navigate to the directory in which to save the entity.

    c. Click **OK**.

7. Click **Finish**.

    The logical device account configuration you added appears in the **Logical Device Account Configurations** tab.

8. From the **File** menu, select **Save**.

Related Topics

Adding Existing Configurations to a Logical Device Account Specification

Adding Configuration Items

Logical Device Account Configuration Specification Editor

Logical Device Account Configuration Specification Editor

Use the Logical Device Account Configuration Specification editor to model Logical Device Account configurations.

When working with the Logical Device Account Configuration Specification editor, see the following topics:

*   Configuration Specification Editor Details Tab

*   Configuration Specification Editor Layouts Tab

- Configuration Specification Editor Rules Tab
- Logical Device Account Configuration Specification Editor Logical Device Account Specs Tab
- Specification Editor Tags Tab

Logical Device Account Configuration Specification Editor Logical Device Account Specs Tab

Use the **Logical Device Account Specs** tab to select, add, and remove the Logical Device Account specifications that use the Logical Device Account Configuration specifications. This tab identifies the Logical Device Account specifications that use the selected Logical Device Account Configuration specification. You must use this tab to relate a Logical Device Account specification to its Logical Device Account Configuration specification only when the Logical Device Account specification and Logical Device Account Configuration specification need to be in separate cartridges and the Logical Device Account specification can exist without the Logical Device Account Configuration specification. If both the Logical Device Account specification and Logical Device Account Configuration specification are in the same cartridge, make the association on the Logical Device Account specification.

Field	Use
Logical Device Account Configuration	Displays the name of the Logical Device Account specification.
Cartridge	Displays the name of the cartridge project into which the Logical Device Account specification is built.
Select	Click to select an existing Logical Device Account specification.
Open	Click to open the selected specification in the Logical Device Account Specification editor.
Remove	Click to remove a Logical Device Account specification.
Add	Click to add a new Logical Device Account specification.

Related Topics

Adding Existing Configurations to a Logical Device Specification

Adding Configuration Items

Logical Device Configuration Specification Editor

Working with Physical Device Specifications

A physical device is a collection of hardware resources that have a common function in the network. Physical devices are the counterpart of logical devices. They are aggregations of hardware, which can include other physical devices, equipment, physical ports, and physical connectors. In UIM, you can map a physical device to its corresponding logical device. You can also map the ports and connectors in a physical device to the device interfaces in a logical device.

You create Physical Device specifications in the same manner as you create other types of specifications. See "Creating New Specifications" for more information.

When working with physical devices, see the following topics:

- About Physical Device Specification Ports and Connectors
- Physical Device Specification Editor

About Physical Device Specification Ports and Connectors

In Design Studio, you can include Physical Port and Physical Connector specifications in the **Related Specifications** tab of a Physical Device specification. When you create the physical device in UIM, instances of the ports and connectors are created automatically. The minimum quantity that you set governs the number of ports and connectors that are automatically added. The maximum quantity limits the number of ports and connectors that can be added. The minimum and maximum values are typically the same for ports or connectors of a physical device. See "Defining Specification Relationships" for instructions about adding related specifications.

> **Note:**
>
> When you include a physical port or physical connector in a Physical Device specification, you should set the minimum and maximum quantities to the same value. Ports and connectors are fixed parts of a physical device.

Related Topics

Working with Logical Device Specifications

Working with Device Interface Specifications

Physical Device Specification Editor

Physical Device Specification Editor

Use the Physical Device Specification editor to model collections of hardware resources that have a common function in the network.

When working with the Physical Device Specification editor, see the following topics:

- Specification Editor Characteristics Tab
- Specification Editor Specification Properties Tab
- Physical Device Specification Editor Related Specifications Tab
- Specification Editor Configuration Spec Usage Tab
- Specification Editor Rules Tab
- Specification Editor Layouts Tab
- Specification Editor Media Tab
- Specification Editor Extends Tab
- Specification Editor Tags Tab

Physical Device Specification Editor Related Specifications Tab

Use the **Related Specifications** tab to define and review specification relationships. Only relationships with the entity types listed in this tab are meaningful by default in UIM. If you add specifications to the Others section, you must define custom rulesets that trigger actions or behavior based on those relationships.

Section	Use
Inventory Groups	Lists the specifications of inventory groups to which physical devices based on this specification can belong.
Roles	Lists roles to which entities based on this Physical Device specification can be assigned.
Physical Connectors	Lists specifications of physical connectors that can be provided by physical devices based on this specification.
Network Nodes	Lists specifications of network nodes that can represent physical devices based on this specification.
Physical Ports	Lists specifications of physical ports that can be provided by physical devices based on this specification.
Others	Lists specifications of entities that have a customized relationship with entities based on this specification.

Related Topics

Defining Specification Relationships

Specification Editor Related Specifications Tab

Working with Equipment Specifications

Equipment specifications represent physical items of hardware. Modules and cards that occupy equipment holders are examples of equipment. But Equipment specifications can also model more complex devices such as shelves or racks. You can also use Equipment specifications for self-contained, independent devices such as routers or desk-top modules. You define the composition of the Equipment specification in the following ways:

- In the **Visualization** tab of the Equipment Specification editor.

- By relating physical ports, connectors, or equipment holder specifications to the Equipment specification.

When working with Equipment specifications, see the following topics:

- About Equipment Specification Ports, Connectors, and Equipment Holders

- Defining Equipment Specification Properties

- Configuring Equipment Specifications in the Visualization Tab

- Defining Visualization Tab Item Elements

- Equipment Specification Editor

About Equipment Specification Ports, Connectors, and Equipment Holders

You can configure an Equipment specification so that instances of the specification automatically include physical ports, physical connectors, and equipment holders. If you include Physical Port, Physical Connector, or Equipment Holder specifications in the **Related Specifications** tab of an Equipment specification, instances of the ports, connectors, or holders are created automatically when you create instances of the equipment.

See "Defining Specification Relationships" for instructions about adding related specifications.

> **Note:**
>
> When you include a physical port or physical connector in an Equipment specification, you should set the minimum and maximum quantities to the same value. Ports and connectors are fixed parts of equipment.

Defining Equipment Specification Properties

When you define Equipment specifications, you can specify its properties, including its equipment category.

To define Equipment specification properties:

1. Create a new Equipment specification or navigate to the editor of an existing one.

   See "Creating New Specifications" for more information.

2. In the Equipment Specification editor, click the **Properties** tab.

3. (Optional) In **Equipment Category**, select **CARD**, **SHELF**, or **RACK**.

   The **Visualization** tab is empty for Equipment specifications that have not been assigned to a category. For example, if you are configuring a chassis, you can define its arrangement of slots and cards.

4. (For the **CARD** category only) In **Required Holders**, select the number of holders required for instances of this specification.

   This number defines the number of equipment holders (slots) the card occupies. For example, if you set the value to **2**, the card requires two contiguous slots. This requirement is enforced in both Design Studio and UIM.

5. (Optional) In the **Vendor**, **Model Number**, and **Part Number** fields, enter appropriate information.

6. From the **File** menu, select **Save**.

Related Topics

Configuring Equipment Specifications in the Visualization Tab

About Equipment Specification Ports, Connectors, and Equipment Holders

Equipment Specification Editor

Configuring Equipment Specifications in the Visualization Tab

You use the Equipment Specification editor **Visualization** tab to configure an Equipment specification that has been assigned to the card, shelf, or rack category. If you configure a rack to have shelves and cards, the shelves and cards are created automatically when you create an instance of the rack specification.

When configuring an Equipment specification on the Visualization tab, see the following topics:

- Configuring a Card
- Configuring a Shelf
- Configuring a Rack

Configuring a Card

A card is an equipment category to which you assign an Equipment specification. When you configure a card specification, you assign a template that determines the card's orientation. You can choose a vertical or a horizontal orientation.

> **Note:**
>
> You must configure a Card specification in the **Visualization** tab before it can be added to shelves.

To configure a card specification:

1. Create a new Equipment specification and assign it to the card category, or navigate to the editor of an existing card specification.

   See "Creating New Specifications" for more information.

2. In the Equipment Specification editor, click the **Visualization** tab.

   The **Visualization** tab displays the **Default Cards** subtab in the **Palettes** tab.

3. From the **Default Cards** area, drag a card template to the canvas.

4. Select a card in the canvas, then enter information about it in the information area below the **Palettes** area.

   You may need to make the **Visualization** tab larger to see the information area. See "Defining Visualization Tab Item Elements" for more information.

5. From the **File** menu, select **Save**.

Related Topics

Configuring Equipment Specifications in the Visualization Tab

Equipment Specification Editor

Configuring a Shelf

A shelf is an equipment category to which you assign an Equipment specification. You add cards or empty slots to the shelf. When you add a card, you specify the slot that it should use. If the card requires more than one slot, the shelf must have the appropriate number of

contiguous slots available. For example, if the card requires two slots, the shelf must have at least two contiguous slots available.

You can include card carriers in a shelf. Card carriers are subdivisions of spaces in the shelf that enable you to add additional cards. Card carriers are not physical items, but rather a way to divide the shelf in the visualization to accommodate varying numbers of cards. When you add a card carrier, you specify the number of slots in the **slotCount** element. When you configure a shelf specification, you define the shelf arrangement by choosing a template or an existing shelf.

To configure a shelf:

1. Create a new Equipment specification and assign it to the shelf category, or navigate to the editor of an existing shelf specification.

   See "Creating New Specifications" for more information.

2. In the Equipment Specification editor, click the **Visualization** tab.

   The **Visualization** tab displays four subtabs in the **Palettes** tab.

3. Do one of the following:

   • From the **Default Shelves** area, drag a shelf template to the canvas.

   • To start from an existing shelf, click the **Shelves** tab and drag an already configured shelf to the canvas. The shelf includes any slots or cards defined in its Equipment specification.

4. (Optional) Drag the card carrier template from the **Default Shelves** area to the desired location in the shelf template.

   The card carrier template is the template that is not surrounded by a heavy black line.

5. (Optional) Click the **Empty Slots** tab and drag an item to the desired location in the shelf template or card carrier within the shelf template.

6. (Optional) Add cards to the shelf configuration.

   To add a card:

   a. Click the **Cards** tab and drag an item to the desired location in the shelf template or card carrier within the shelf template.

      The Select Slot Specification dialog box appears.

   b. Select a slot specification and click **OK**.

      The card appears in the visualization. If the card requires more than one slot, the card graphic is shown in one slot. The other required slots are shaded and marked as occupied.

7. Enter information about items in the shelf in the information area below the **Palettes** area.

   You may need to make the **Visualization** tab larger to see the information area. See "Defining Visualization Tab Item Elements" for more information.

8. (Optional) Right-click a slot or card in the canvas area and select **Remove Item** to remove slots or cards.

9. From the **File** menu, select **Save**.

Related Topics

Configuring Equipment Specifications in the Visualization Tab

Equipment Specification Editor

Configuring a Rack

A rack is an equipment category to which you assign an Equipment specification. A rack includes one or more shelves. You can include any of the shelves that have already been defined in the workspace.

To configure a rack:

1. Create a new Equipment specification and assign it to the Rack category, or navigate to the editor of an existing rack specification.

   See "Creating New Specifications" for more information.

2. In the Equipment Specification editor, click the **Visualization** tab.

   The **Visualization** tab displays the **Shelves** subtab in the **Palettes** tab.

3. From the **Shelves** tab, drag one of the available shelves to the canvas.

4. (Optional) Add additional shelves, as needed.

5. Enter information about items in the shelves in the information area below the **Palettes** area.

   You may need to make the **Visualization** tab larger to see the information area. See "Defining Visualization Tab Item Elements" for more information.

6. From the **File** menu, select **Save**.

Related Topics

Configuring Equipment Specifications in the Visualization Tab

Equipment Specification Editor

Defining Visualization Tab Item Elements

You can define information about shelves, empty slots, cards, and card carriers in the Equipment Specification editor **Visualization** tab. The information is in the form of name-value element pairs.

To enter elements for items in the **Visualization** tab:

1. Open an Equipment specification in the Equipment Specification editor.

2. Click the **Visualization** tab.

3. In the canvas, click a card, card carrier, or empty slot to select it.

   To select a shelf, click its perimeter. The selected item is highlighted in the canvas and information about it appears in the information area.

4. Enter or select values for the relevant elements.

   The elements you can specify depend on the item selected in the canvas. See the following topics for information about the **slotNumber** and **nativeEMSName** elements:

   • Numbering Slots Automatically

   • Numbering Slots Individually

   • Assigning Native EMS Names Automatically to Slots

   • Assigning Native EMS Names Individually to Slots

5. From the **File** menu, select **Save**.

Related Topics

Working with Equipment Specifications

Equipment Specification Editor

Numbering Slots Automatically

You can automatically number all occupied slots. When you automatically number slots, Design Studio assigns integers beginning with **1**, overwriting existing slot numbers.

To number slots automatically:

1. Open an Equipment specification in the Equipment Specification editor.

2. Click the **Visualization** tab.

3. In the canvas area, click an occupied slot.

   The selected slot is highlighted in the canvas, and information about it appears in the information area.

4. In the canvas, click the **Auto Numbering** icon in the toolbar.

   Design Studio numbers all the occupied slots, beginning with **1**.

5. Click **OK** in the confirmation dialog box.

6. From the **File** menu, select **Save**.

Related Topics

Defining Visualization Tab Item Elements

Equipment Specification Editor

Numbering Slots Individually

You can specify slot numbers individually and assign any alphanumeric value.

To number slots individually:

1. Open an Equipment specification in the Equipment Specification editor.

2. Click the **Visualization** tab.

3. In the canvas area, click an occupied slot.

   The selected slot is highlighted in the canvas, and information about it appears in the information area.

4. In the information area, enter a value for the selected slot in the **slotNumber** field.

5. From the **File** menu, select **Save**.

Related Topics

Defining Visualization Tab Item Elements

Equipment Specification Editor

Assigning Native EMS Names Individually to Slots

You can assign alphanumeric names to slots by using the **nativeEMSName** data element. You can use this element as a network-facing slot name that is independent of the slot number.

To assign names individually:

1. Open an Equipment specification in the Equipment Specification editor.

2. Click the **Visualization** tab.

3. In the canvas area, click an occupied slot.

   The selected slot is highlighted in the canvas, and information about it appears in the information area.

4. In the information area, enter a value for the selected slot in the **nativeEMSName** field.

5. From the **File** menu, select **Save**.

Related Topics

Defining Visualization Tab Item Elements

Equipment Specification Editor

Assigning Native EMS Names Automatically to Slots

You can assign alphanumeric names to slots by using the **nativeEMSName** element. You can use this element as a network-facing slot name that is independent of the slot number.

You can assign names automatically to all occupied slots, beginning with a value that you select. If the starting value ends with an alphabetic character, the names increment by appending an integer to the value, beginning with **0**. If the value ends with an integer, the names increment starting at that number.

To assign names automatically:

1. Open an Equipment specification in the Equipment Specification editor.

2. Click the **Visualization** tab.

3. In the canvas area, click an occupied slot.

   The selected slot is highlighted in the canvas, and information about it appears in the information area.

4. In the canvas, click the **Native EMS Naming** button in the toolbar.

   The Enter NativeEMSName dialog box appears.

5. Enter a starting value and click **OK**.

6. From the **File** menu, select **Save**.

Related Topics

Defining Visualization Tab Item Elements

Equipment Specification Editor

Equipment Specification Editor

Use the Equipment Specification editor to model physical items of hardware.

When working with the Equipment Specification editor, see the following topics:

- Specification Editor Characteristics Tab
- Specification Editor Specification Properties Tab
- Equipment Specification Editor Properties Tab
- Equipment Specification Editor Visualization Tab
- Equipment Specification Editor Related Specifications Tab
- Specification Editor Configuration Spec Usage Tab
- Specification Editor Rules Tab
- Specification Editor Layouts Tab
- Specification Editor Media Tab
- Specification Editor Extends Tab
- Specification Editor Tags Tab

Equipment Specification Editor Properties Tab

Use the **Properties** tab to define an Equipment category and enter information about the equipment.

Field	Use
Equipment Category	Select a category for the equipment. You can select CARD, SHELF, or RACK.
Required Holders	Select the number of holders required for instances of this specification. This field is applicable to the CARD category only.
Vendor	Lets you enter the name of the vendor of the equipment.
Model Number	Enter the model number of the equipment.
Part Number	Enter the part number of the equipment.

Related Topics

Defining Equipment Specification Properties

Equipment Specification Editor

Equipment Specification Editor Visualization Tab

Use the **Visualization** tab to configure an Equipment specification that has been assigned to a Card, Shelf, or Rack category.

Field	Use
Palettes	Use the templates on this tab to define the basic structure of the equipment. The **Palettes** tab contains subtabs that depend on whether the Equipment specification is defined as a card, a rack, or a shelf.
Hierarchy	View Equipment configuration in a tree view. The tree view reflects the configuration in the canvas, so it updates as you add new items to the visualization. When you select an item in the canvas, the corresponding item in the tree view is highlighted; when you select an item in the tree view, the corresponding item in the canvas is highlighted.
Canvas	Configure the equipment by dragging items from the Palettes tab.
Default Cards	Displays the default selection of card templates. This subtab appears if the Equipment specification is defined as a card.
Default Shelves	Displays the default selection of shelf templates. This subtab appears if the Equipment specification is defined as a shelf.
Shelves	Displays a list of the shelves (Equipment specifications in the Shelf category) that have been defined in the workspace. This subtab appears if the Equipment specification is defined as a shelf.
Cards	Displays a list of the cards (Equipment specifications in the Card category) that have been defined in the workspace. This subtab appears if the Equipment specification is defined as a shelf.
Empty Slots	Displays a list of the slots (Equipment Holder specifications) that have been defined in the workspace. This subtab appears if the Equipment specification is defined as a shelf.
Shelves	Displays a list of the shelves (Equipment specifications in the Shelf category) that have been defined in the workspace. This subtab appears if the Equipment specification is defined as a rack.

Related Topics

Configuring Equipment Specifications in the Visualization Tab

Defining Visualization Tab Item Elements

Equipment Specification Editor

Equipment Specification Editor Related Specifications Tab

Use the **Related Specifications** tab to define and review specification relationships. Only relationships with the entity types listed in this tab are meaningful by default in UIM. If you add specifications to the Others section, you must define custom rulesets that trigger actions or behavior based on those relationships.

Section	Use
Inventory Groups	Lists the specifications of inventory groups to which equipment based on this specification can belong.
Roles	Lists roles to which entities based on this Equipment specification can be assigned.
Physical Connectors	Lists specifications of physical connectors that can be provided by equipment based on this specification.
Network Nodes	Lists specifications of network nodes that can represent equipment based on this specification.
Physical Ports	Lists specifications of physical ports that can be provided by equipment based on this specification.
Equipment Holders	Lists specifications of equipment holders that can be provided by equipment based on this specification.
Others	Lists specifications of entities that have a customized relationship with entities based on this specification.

Related Topics

Defining Specification Relationships

Specification Editor Related Specifications Tab

Working with Equipment Holder Specifications

An Equipment Holder specification defines a slot into which cards can be installed. Equipment holders are provided by equipment and can in turn contain other equipment. For example, a LAN card can be installed in a slot that is installed in a shelf. An equipment holder cannot exist on its own. It must always be provided by equipment.

You create Equipment Holder specifications in the same manner as you create other types of specifications. See "Creating New Specifications" for more information.

You can configure an Equipment specification so that instances of the specification automatically include physical ports, physical connectors, and equipment holders. See "About Equipment Specification Ports, Connectors, and Equipment Holders" for more information.

You can configure Equipment Holder specifications so that slots based on those specifications can contain only cards based on particular specifications. If you establish a parent-to-child relationship between an Equipment Holder specification and one or more Card specifications, UIM limits which cards a slot can contain. See "Defining Specification Relationships" for information about establishing these relationships.

See "Equipment Holder Specification Editor" for reference information about the tabs you use to define an Equipment Holder specification.

Equipment Holder Specification Editor

Use the Equipment Holder Specification editor to model Equipment Holder specifications.

When working with the Equipment Holder Specification editor, see the following topics:

- Specification Editor Characteristics Tab
- Specification Editor Specification Properties Tab
- Specification Editor Related Specifications Tab
- Specification Editor Configuration Spec Usage Tab
- Specification Editor Rules Tab
- Specification Editor Layouts Tab
- Specification Editor Media Tab
- Specification Editor Extends Tab
- Specification Editor Tags Tab

Working with Physical Port Specifications

A Physical Port specification defines a point of entry for communication. A physical port is where communication begins or ends on a physical device or unit of equipment. Unlike a physical connector, a physical port performs basic processing, such as reading transmission data. A physical port cannot exist on its own. It must be provided by either a physical device or an equipment.

You can configure a Physical Device specification or an Equipment specification to create physical port instances automatically when you create a physical device or equipment instance. See and "About Physical Device Specification Ports and Connectors" and "About Equipment Specification Ports, Connectors, and Equipment Holders" for more information.

You create Physical Port specifications in the same manner as you create other types of specifications. See "Creating New Specifications" for more information.

See "Physical Port Specification Editor" for reference information about the tabs you use to define a Physical Port specification.

Physical Port Specification Editor

Use the Physical Port Specification editor to model points of entry for communication.

When working with the Physical Port Specification editor, see the following topics:

- Specification Editor Characteristics Tab
- Specification Editor Specification Properties Tab
- Physical Port Specification Editor Related Specifications Tab
- Specification Editor Configuration Spec Usage Tab
- Specification Editor Rules Tab
- Specification Editor Layouts Tab

- • [Specification Editor Media Tab](#)

- • [Specification Editor Extends Tab](#)

- • [Specification Editor Tags Tab](#)

Physical Port Specification Editor Related Specifications Tab

Use the **Related Specifications** tab to define and review specification relationships. Only relationships with the entity types listed in this tab are meaningful by default in UIM. If you add specifications to the Others section, you must define custom rulesets that trigger actions or behavior based on those relationships.

Section	Use
Physical Devices	Lists the specifications of physical devices that can provide physical ports based on this specification.
Roles	Lists roles to which entities based on this Physical Port specification can be assigned.
Equipment	Lists specifications of Equipment entities that can provide physical ports based on this specification.
Others	Lists specifications of entities that have a customized relationship with entities based on this specification.

Related Topics

[Defining Specification Relationships](#)

[Specification Editor Related Specifications Tab](#)

Working with Physical Connector Specifications

You use Physical Connector specifications to model hardware used to physically link or connect hardware units for the transmission of signals or power. Unlike physical ports, physical connectors have no built-in intelligence and they simply conduct a signal.

You can configure a Physical Device specification or an Equipment specification to create physical connector instances automatically when you create a physical device or equipment instance. A physical connector cannot exist on its own. It must be provided by either a physical device or equipment. See "[About Physical Device Specification Ports and Connectors](#)" and "[About Equipment Specification Ports, Connectors, and Equipment Holders](#)" for more information.

You create Physical Connector specifications in the same manner as you create other types of specifications. See "[Creating New Specifications](#)" for more information.

See "[Physical Connector Specification Editor](#)" for reference information about the tabs you use to define a Physical Connector specification.

Physical Connector Specification Editor

Use the Physical Connector Specification editor to model hardware used to physically link or connect hardware units for the transmission of signals or power.

When working with the Physical Connector Specification editor, see the following topics:

- Specification Editor Characteristics Tab
- Specification Editor Specification Properties Tab
- Specification Editor Related Specifications Tab
- Specification Editor Configuration Spec Usage Tab
- Specification Editor Rules Tab
- Specification Editor Layouts Tab
- Specification Editor Media Tab
- Specification Editor Extends Tab
- Specification Editor Tags Tab

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Working with Network Specifications

In Oracle Communications Unified Inventory Management (UIM), a network represents a collection of other related entities, such as equipment, logical devices, and other networks.

You define Network specifications to model various types of networks based on topology and technology. In addition to the Network specification itself, you can define two related types of specifications:

- Network Node specifications define specific nodes in the network. In UIM, you can associate network nodes with other entities, such as logical devices, device interfaces, flow interfaces, equipment, places, and parties.

- Network Edge specifications define connections between nodes in the network. In UIM, you can associate network edges with Connectivity entities and Pipe entities that represent connections between entities represented as nodes.

When working with Network specifications, see the following topics:

- Working with Network Specifications
- Working with Network Configuration Specifications
- Working with Network Node Specifications
- Working with Network Edge Specifications
- Working with Diagram Specifications

Working with Network Specifications

You use a Network specification to define a network as a whole. There are many different types of networks that you can model with Network specifications:

- ATM network
- Ethernet VLAN
- Frame Relay network

You can add characteristics to capture information that is specific to the type of network described by the specification.

In UIM, you create an instance of a network from a network specification, then you build a topological view of the network, its nodes, and its edges. You build the network by adding nodes and edges and then associating resources to them.

You create Network specifications in the same manner as you create other types of specifications. See "Creating New Specifications" for more information.

See "Network Specification Editor" for reference information about the tabs you use to define a Network specification.

Defining the Network Type and Technology

When you create a Network specification, you must select a network type and a technology. The network type is not displayed in Network entities in UIM, but is used to configure the network.

There are three types of network, defined by selecting a value for the **Entity Type** data element:

- Use the **Network** type for physical and logical transport networks, such as SDH, Frame Relay, MetroE, or MPLS.

- Use the **Service Network** type for networks that provide a unified view of a service that delivers packet connectivity. Service networks include service locations, network access connectivity, and supporting virtual networks. Network specifications of this type require that you associate a Network Configuration specification.

- Use the **Packet Virtual Network** (PVN) type for virtual networks, such as Ethernet Virtual Circuits (EVCs), that support packet-based services. A PVN can include flow interfaces, packet network connectivity, and cross connects. Network specifications of this type require a Network Configuration specification.

The network type and the network technology (defined by selecting a value for the **Technology** data element) are interdependent:

- The **Undefined** technology is available for **Network** and **Service Network** types.

- Packet technologies, such as **ATM**, **Frame Relay**, **MPLS** and **Ethernet**, are available for **Packet Virtual Network** and **Service Network** types.

- All other technologies are available for the **Network** type.

To define the network type and technology:

1. Open a Network Specification entity in the Network Specification editor.

   See "Creating New Specifications" for information about creating new Network specifications.

2. Click the **Network Properties** tab.

3. In the **Entity Type** field, select a network type.

4. In the **Technology** field, click **Select**.

   The Select Technology dialog box appears. Only the technologies applicable to the **Entity Type** value are included.

5. Select a technology and click **OK**.

   The **Technology** field is updated.

6. From the **File** menu, select **Save**.

Related Topics

Network Specifications Editor Network Properties Tab

Adding Configuration Items

Network Specification Editor

Network Specification Editor

Use the Network Specification editor to model Network specifications.

When working with the Network Specification editor, see the following topics:

- Specification Editor Characteristics Tab
- Specification Editor Specification Properties Tab
- Network Specifications Editor Network Properties Tab
- Network Specifications Editor Network Configurations Tab
- Specification Editor Related Specifications Tab
- Specification Editor Configuration Spec Usage Tab
- Specification Editor Rules Tab
- Specification Editor Layouts Tab
- Specification Editor Media Tab
- Specification Editor Extends Tab
- Specification Editor Tags Tab

Network Specifications Editor Network Properties Tab

Use the **Network Properties** tab to enter network properties.

Field	Use
Technology	Select the technology for this Network specification. The **Technology** and **Entity Type** data elements are dependent on each other. • The **Undefined** technology is available for **Network** and **Service Network** types. • Packet technologies, such as **ATM**, **Frame Relay**, **MPLS** and **Ethernet**, are available for **Packet Virtual Network** and **Service Network** types. • All other technologies are available for the **Network** type. The technology is set to **Undefined** by default.
Entity Type	Select the entity type for this Network specification. The **Technology** and **Entity Type** data elements are dependent on each other. • The **Service Network** types can use the **Undefined** technology and packet technologies, such as **ATM**, **Frame Relay**, **MPLS** and **Ethernet**. • The **Packet Virtual Network** type can use packet technologies, such as **ATM**, **Frame Relay**, **MPLS** and **Ethernet**. • The **Network** type can use the **Undefined** technology as well as all other non-packet technologies. The entity type is set to **Network** by default.

Related Topics

Defining the Network Type and Technology

Network Specifications Editor Network Configurations Tab

Use the **Network Configurations** tab to select, add, and remove a network configuration.

Field	Use
Network Configuration	Displays the name of the Network Configuration specification.
Cartridge	Displays the name of the cartridge project into which the Network Configuration specification is built.
Select	Click to select an existing Network Configuration.
Open	Click to open the selected configuration in the Network Configuration Specification editor.
Remove	Click to remove a Network Configuration.
Add	Click to add a new Network Configuration. See "Adding Existing Configurations to a Network Specification" for more information.

Related Topics

Network Specification Editor

Working with Network Specifications

Network Specification Editor Related Specifications Tab

Use the **Related Specifications** tab to define and review specification relationships. Only relationships with the entity types listed in this tab are meaningful by default in UIM. If you add specifications to the Others section, you must define custom rulesets that trigger actions or behavior based on those relationships.

Section	Use
Network Edges	Lists specifications of network edges that can be included in networks based on this specification.
Network Nodes	Lists specifications of network nodes that can be included in networks based on this specification.
Roles	Lists roles to which entities based on this Network specification can be assigned.
Others	Lists specifications of entities that have a customized relationship with entities based on this specification.

Related Topics

Defining Specification Relationships

Specification Editor Related Specifications Tab

Working with Network Configuration Specifications

Network Configuration specifications capture the details about the resources used by the network. As these details can change frequently, network configurations provide a versioning capability that enables the management of changes to the facts about the network over time. As the facts about a network change over time, new versions of the network configuration can be created.

In UIM, packet virtual networks and service networks rely on the versioning capabilities of network configurations to manage changes. For this reason, a network configuration is created automatically when you create a Network entity based on a specification with the network type of Packet Virtual Network or Service Network. To support this behavior, you must associate one Network Configuration specification with each Service Network and Packet Virtual Network specification you create.

You can associate Custom Network Address, Custom Object, and Logical Device specifications to the Network Configuration specification.

When working with Network Configuration specifications, see the following topics:

- Adding Existing Configurations to a Network Specification
- Adding New Configurations to a Network Specification
- Network Configuration Specification Editor

Adding Existing Configurations to a Network Specification

You can add existing network configurations to a Network specification. The network configuration and the Network specification do not have to be in the same project.

To add an existing network configuration to a Network specification:

1. Open a Network Specification entity in the Network Specification editor.

   See "Creating New Specifications" for information about creating new Network specifications.

2. Click the **Network Configurations** tab.

3. Click **Select**.

   The Add Entity dialog box appears.

4. Select the network configuration and click **OK**.

   The Network Configuration specification is added to the Network specification's **Network Configurations** tab.

5. From the **File** menu, select **Save**.

Related Topics

Adding New Configurations to a Network Specification

Adding Configuration Items

Network Configuration Specification Editor

Adding New Configurations to a Network Specification

You can add new network configurations to a Network specification. The network configuration and the Network specification do not have to be in the same project.

To add a new network configuration to a Network specification:

1. Open a Network Specification entity in the Network Specification editor.

   See "Creating New Specifications" for information about creating new Network specifications.

2. Click the **Network Configurations** tab.

3. Click **Add**.

   The Network Configuration Specification Wizard appears.

4. In the **Project** field, select the name of the project to which the new specification should be added.

5. In the **Name** field, enter a name for the new specification.

   This is the name that will appear in UIM.

6. (Optional) Select a location.

   By default, Design Studio saves the entity to your default workspace location. You can enter a folder name in the **Folder** field or select a location different from the system-provided default. To select a different location:

   a. Click the **Folder** field **Browse** button.

   b. Navigate to the directory in which to save the entity.

   c. Click **OK**.

7. Click **Finish**.

   The Network Configuration specification is added to the Network specification's **Network Configurations** tab.

8. From the **File** menu, select **Save**.

Related Topics

Adding Existing Configurations to a Network Specification

Adding Configuration Items

Network Configuration Specification Editor

Network Configuration Specification Editor

Use the Network Configuration Specification editor to capture the details about the resources used by the network.

When working with the Network Configuration Specification editor, see the following topics:

- Configuration Specification Editor Details Tab
- Configuration Specification Editor Specification Options Subtab
- Configuration Specification Editor Layouts Tab
- Configuration Specification Editor Rules Tab

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- • Network Configuration Specification Editor Network Specs Tab
- • Specification Editor Tags Tab

Network Configuration Specification Editor Network Specs Tab

Use the **Network Specs** tab to select, add, and remove the Network specifications that use the Network Configuration specifications. This tab identifies the Network specifications that use the selected Network Configuration specification. You must use this tab to relate a Network specification to its Network Configuration specification only when the Network specification and Network Configuration specification need to be in separate cartridges, and the Network specification can exist without the Network Configuration specification. If both the Network specification and Network Configuration specification are in the same cartridge, make the association on the Network specification.

Field	Use
Network Specification	Displays the name of the Network specification.
Cartridge	Displays the name of the cartridge project into which the Network specification is built.
Select	Click to select an existing Network specification.
Open	Click to open the selected specification in the Network Specification editor.
Remove	Click to remove a Network specification.
Add	Click to add a new Network specification.

Related Topics

Adding Existing Configurations to a Network Specification

Adding New Configurations to a Network Specification

Network Configuration Specification Editor

Working with Network Node Specifications

You use Network Node specifications to define nodes for the various Network specifications in your inventory. When you add a network node to a network, you can associate a resource to a node. In UIM, nodes and the resources that they represent are modeled separately. This strategy gives you the flexibility required to keep your inventory up to date as equipment changes. A network can consist of nodes that represent a variety of different entities, or no entity at all.

You create Network Node specifications in the same manner as you create other types of specifications. See "Creating New Specifications" for more information.

When working with Network Node specifications, see the following topics:

- • About Network Node Entity Type Limitations
- • Network Node Specification Editor

About Network Node Entity Type Limitations

You can limit the kinds of entities that a network node can represent. UIM uses the list of specifications with which a Network Node specification has relationships to restrict the entity

types to which a node instance can be associated. If a relationship exists between a Network Node specification and a specification of any of the entity types a network node can represent, UIM allows the network node instance to be associated only with instances of the related specifications.

If a Network Node specification does not include any relationships to the entity types a network node can represent, then UIM allows node instances to be associated with any of the allowable entity types. See "Defining Specification Relationships" for more information about relationships.

Related Topics

Working with Network Node Specifications

Network Node Specification Editor

Use the Network Node Specification editor to define nodes for the various Network specifications in your inventory.

When working with the Network Node Specification editor, see the following topics:

- Specification Editor Characteristics Tab
- Specification Editor Specification Properties Tab
- Network Node Specification Editor Related Specifications Tab
- Specification Editor Rules Tab
- Specification Editor Layouts Tab
- Specification Editor Media Tab
- Specification Editor Extends Tab
- Specification Editor Tags Tab

Network Node Specification Editor Related Specifications Tab

Use the **Related Specifications** tab to define and review specification relationships. Only relationships with the entity types listed in this tab are meaningful by default in UIM. If you add specifications to the Others section, you must define custom rulesets that trigger actions or behavior based on those relationships.

Section	Use
Other Supported Entities	Lists specifications of entities that network nodes based on this specification can represent. Network nodes can represent Custom Network Address, Custom Object, Device Interface, Equipment, Logical Device, Network, Physical Device, and Physical Port entities.
Roles	Lists roles to which entities based on this Network Node specification can be assigned.
Others	Lists specifications of entities that have a customized relationship with entities based on this specification.

Related Topics

Defining Specification Relationships

Specification Editor Related Specifications Tab

Working with Network Edge Specifications

A Network Edge specification describes the behavior and attributes of the edges that connect nodes in a network. You create different Network Edge specifications for the different kinds of edges in your inventory.

You can associate a network edge to one or more pipes if the connectivity is known. You can leave the network edge unassociated if the connectivity is not known, or if the reachability is through a dynamic route in another network. A network edge can also be associated to one or more custom object instances that define a type of connectivity not available in the default model.

You create Network Edge specifications in the same manner as you create other types of specifications. See "Creating New Specifications" for more information.

When working with Network Edge specifications, see the following topics:

• About Network Edge Entity Type Limitations

• Network Edge Specification Editor

About Network Edge Entity Type Limitations

By relating Pipe specifications and Custom Object specifications to a Network Edge specification, you can restrict the types of pipes and custom objects that can be represented by a Network Edge specification.

If no relationship exists between the Network Edge specification and pipe or custom object specification, then UIM does not limit the entity a network edge may represent to any specification.

Related Topics

Working with Network Edge Specifications

Network Edge Specification Editor

Use Network Edge Specification editor to describe the behavior and attributes of the edges that connect nodes in a network.

When working with the Network Edge Specification editor, see the following topics:

• Specification Editor Characteristics Tab

• Specification Editor Specification Properties Tab

• Network Edge Specification Editor Related Specifications Tab

• Specification Editor Rules Tab

• Specification Editor Layouts Tab

• Specification Editor Media Tab

- Specification Editor Extends Tab
- Specification Editor Tags Tab

Network Edge Specification Editor Related Specifications Tab

Use the **Related Specifications** tab to define and review specification relationships. Only relationships with the entity types listed in this tab are meaningful by default in UIM. If you add specifications to the Others section, you must define custom rulesets that trigger actions or behavior based on those relationships.

Section	Use
Custom Objects	Lists specifications of custom objects that network edges based on this specification can represent.
Networks	Lists specifications of networks to which network nodes based on this specification can belong.
Pipes	Lists specifications of pipes that network edges based on this specification can represent.
Others	Lists specifications of entities that have a customized relationship with entities based on this specification.

Related Topics

Defining Specification Relationships

Specification Editor Related Specifications Tab

Working with Diagram Specifications

Diagram Specifications filter the related specifications, which are displayed in the UIM Diagram Pallet. You can create a diagram template that helps in displaying all the devices in the Planning Diagram page in the runtime application.

You can perform the following tasks on the Diagram Specification:

- Create a new Diagram Specification. To create a new Diagram Specification, you need to add the following dependency cartridges:
  - ora_uim_model
  - ora_uim_basetechnologies
  - ora_uim_basetags
- Add **diagramnetwork** tag to the newly created Diagram Specification, which helps to display the specification in runtime application
- Add base project to the specification
- Add related specifications to control the specification drop-down list in the runtime application
- Add required rules to the specification

Create Diagram Specification

To create capacity types:

1. From the **Studio** menu, select **New**, then select **Inventory**, then select **Resources**, then select **Diagram Specification**.

    The Diagram Specification Wizard appears. An icon for the specification type appears in the upper-right corner.

2. In the **Project** field, select the name of the project to which the new diagram specification should be added.

3. In the **Name** field, enter a name for the capacity type.

    This is the name that will appear in UIM.

4. (Optional) Select a location.

    By default, Design Studio saves the entity to your default workspace location. You can enter a folder name in the **Folder** field or select a location different from the system-provided default. To select a different location:

    a. Click the **Folder** field **Browse** button.

    b. Navigate to the directory in which to save the entity.

    c. Click **OK**.

5. Click **Finish**.

    Design Studio creates the diagram specification and displays the information in Diagram Specification editor.

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Working with Connectivity Specifications

In Oracle Communications Unified Inventory Management, you can represent connectivity in your network with Connectivity entities. Connectivity entities provide built-in support for a variety of technologies and can be customized to suit your business needs.

You can create Connectivity specifications for three types of Connectivity entities:

- Multiplexed Connectivity entities support technologies such as E-Carrier, T-Carrier, J-Carrier, SDH, and SONET, and WDM.

- Packet Connectivity entities support technologies such as Ethernet, Frame Relay, ATM, and MPLS.

- Service Connectivity entities represent the connectivities that delivers services to end customers. Service connectivity consumes other types of connectivity and resources, but cannot be consumed itself.

The specifications for the three connectivity types include different default characteristics. In UIM, you see a different set of tabs in Connectivity Summary pages depending on the connectivity type.

You can also use Pipe entities to model connectivity. For example, pipes are recommended for modeling physical connectivity such as ducts and cables. Because pipe entities do not require end locations and terminations, they can also be useful in situations in which you do not need to model all the details of a connectivity. See "Working with Pipe and Capacity Specifications" for more information.

Pipe entities and Connectivity entities are not mutually exclusive: you can include them both in the same network. For example, pipes can enable channelized connectivity.

When working with Connectivity specifications, see the following topics:

- Connectivity Specification Editor
- Working with Connectivity Signal Termination Point Specifications
- Working with Flow Identifier Specifications

Connectivity Specification Editor

Use the Connectivity Specification editor to model connectivities.

When working with the Connectivity Specification editor, see the following topics:

- Specification Editor Characteristics Tab
- Specification Editor Specification Properties Tab
- Connectivity Specification Editor Connectivity Properties Tab
- Specification Editor Related Specifications Tab
- Specification Editor Configuration Spec Usage Tab
- Specification Editor Rules Tab
- Specification Editor Layouts Tab

- [Specification Editor Tags Tab](#)
- [Specification Editor Extends Tab](#)

Connectivity Specification Editor Connectivity Properties Tab

Use the **Connectivity Properties** tab to define the properties of Connectivity specifications.

Field	Use
Connectivity Classification	Select one of the following to set the connectivity type: • **Multiplexed** • **Packet** • **Service** Along with the value for **Entity Type**, the **Connectivity Classification** selection drives UIM functionality for entities based on this specification.
Entity Type	For **Multiplexed** and **Service** connectivity types, displays the predefined entity type (**Channelized Connectivity** or **Service Connectivity**). For Packet connectivity, select one of the following entity types, which determines what role the entity plays in a packet network: • **Ethernet UNI Connectivity** • **Ethernet I-NNI Connectivity** • **Ethernet E-NNI Connectivity** • **Packet Network Access Connectivity** (network access connectivity for ATM, Frame Relay, and other non-Ethernet technologies) • **Packet Network Connectivity** (network connectivity for ATM, Frame Relay, and other non-Ethernet technologies) Along with the value for **Connectivity Classification**, the **Entity Type** selection determines UIM functionality for entities based on this specification.
Technology	Displays the technology type or types assigned to the connectivity. Use the **Select** or **Add** button to create a technology that applies to the connectivity. The technology you select must be valid for the connectivity type. For Service Connectivity specifications, the technology must be set to **Undefined**.
Service Connectivity Controlled	For service connectivities only. If enabled, connectivities based on this specification can be created only as a part of a service configuration.
Open	Click to open the editor for the selected technology. The editor opens in a new tab.
Add	Not used
Remove	Click to remove the selected technology.
Select	Click to open a dialog box in which you select from the technologies that are valid for this combination of connectivity type and entity type.

Working with Connectivity Signal Termination Point Specifications

Connectivity Signal Termination Point specifications define the multiplexing options for a channelized transmission facility. Connectivity Signal Termination Point specifications are related hierarchically to other Connectivity Signal Termination Point specifications (and Processing Signal specifications, for SONET and SDH).

A number of Connectivity Signal Termination Point specifications are included in the ora_uim_basetechnologies cartridge. These signals include Synchronous Digital Hierarchy (SDH), Synchronous Optical Network (SONET), E-Carrier, T-Carrier, and J-Carrier technologies.

For more information about Connectivity Signal Termination Point specifications, see *UIM Concepts*, *UIM Cartridge Guide*, and *UIM Information Model Reference*.

When working with Connectivity Signal Termination Point specifications, see the following topics:

- Connectivity Signal Termination Point Specification Editor
- Rate Code Editor
- Technology Editor
- Connectivity Function Editor
- Processing Signal Specification Editor

Connectivity Signal Termination Point Specification Editor

Use the Connectivity Signal Termination Point Specification editor to review the connectivity signal structures that UIM uses to determine the multiplexing options for channelizing entities. These signal structures are read-only.

See *UIM Concepts* and *UIM Information Model Reference* for more information about signal structures.

When working with the Connectivity Signal Termination Point Specification editor, see the following topics:

- Connectivity Signal Termination Point Specification Editor Properties Tab
- Connectivity Signal Termination Point Specification Editor Child Signal Relationships Tab

Connectivity Signal Termination Point Specification Editor Properties Tab

Use the **Properties** tab to review details about a Connectivity Signal Termination Point specification, including its type and rate code. This information is read-only.

Field	Use
Display Name	Enter the name that appears in Design Studio editors and in UIM.
	Design Studio supports multiple languages for this field. The field adjacent to **Display Name** displays your list of languages. You can define a display name for any language you select from the list.
	If your preferences are set to use one language only, the system displays only the **[default]** option. See "Defining Language Preferences" for more information.
Name	Displays the name of the connectivity signal specification.
Termination Point Signal Type	Displays the type of the signal. Values are: • **PACKET**: Signal type used in packet technologies such as Ethernet, ATM, Frame Relay, and MPLS. • **SYNCHRONOUS_TRANSPORT_MODULE** (STM): Signal type used in the SDH technology. • **CONTAINER**: Signal type used in the SDH technology. • **OPTICAL_CARRIER** (OC): Signal type used in the SONET technology. • **SYNCHRONOUS_TRANSPORT_SIGNAL** (STS): A signal type used in the SONET technology. • **SYNCHRONOUS_PAYLOAD_ENVELOPE** (SPE): A signal type used in the SONET technology. • **PDH_SIGNAL**: Plesiochronous Digital Hierarchy (PDH) signal. Applicable to T-Carrier, E-Carrier, and J-Carrier signals.
Transmission Signal Type	Displays the physical nature of the transmission signal, such as Optical or Electrical.
Rate Code	Displays the rate code that identifies the technology and bit rate for the signal.
Valid for Facility	Indicates whether the signal can be mapped to a connectivity through the associated rate code.

Connectivity Signal Termination Point Specification Editor Child Signal Relationships Tab

Use the **Child Signal Relationships** tab to review details about the hierarchical relationships of a Connectivity Signal Termination Point specification. See *UIM Concepts* and *UIM Information Model Reference* for more information about these relationships.

This tab is relevant only for channelized (non-packet) Connectivity Signal Termination Point specifications.

Field	Use
Supports Child Signals	Lists child signals that can be enabled by the signal defined by this specification. (The supported signals are sometimes called riders.) For example, a VT-6 SPE channel signal can support (enable) a T-Carrier DS2 transmission facility.
Aligns to Child Signals	Lists child signals that are not located in a fixed position within an SDH or SONET frame signal. For example, in the SONET technology, a VT-1.5 processing signal aligns to a VT-1.5 SPE signal termination point.
Maps to Child Signals	Lists child signals that are mapped to this signal with the same rate. For example, in the SDH technology, a VC-2 processing signal maps to a C-2 signal termination point.
Multiplexes to Child Signals	Lists child signals into which this signal can be multiplexed. For example, in the SDH technology, a TUG-2 processing signal multiplexes to four TU-11 processing signals.

Rate Code Editor

You use the Rate Code editor to review information about the system-provided rate codes in Design Studio for Inventory. Rate codes are associated to Connectivity Signal Termination Point specifications and Processing Signal specifications to define the technology and transmission bit rate of the signals.

See *UIM Concepts*, *UIM Cartridge Guide*, and *UIM Information Model Reference* for more information.

Field	Use
Name	Displays the rate code designation as an acronym or mnemonic, and which describes a technology-specific transmission rate for a signal, service, connectivity, transmission facility, or device interface. For example, a SONET technology STS-192 signal that operates at a transmission rate of 9,953.230 Mb/s can be referred to as **STS192**. A device interface that supports an STS-192 signal termination can be described as supporting the **STS192** rate code.
Description	Displays additional information about the rate code, when necessary.
Nominal Bit Rate	Displays the transmission bit rate associated with the rate code.
Unit of Measure	Displays the unit of measure of the nominal bit rate.
Connectivity Function	Displays the connectivity function associated with the rate code.

Field	Use
Technology	Displays the technologies that the rate code supports. Examples of communication technologies include: • **Ethernet** • **SDH** • **Frame Relay** • **T-Carrier** A set of technologies is supplied in the ora_uim_basetechnologies cartridge.

Related Topics

Connectivity Function Editor

Technology Editor

Device Interface Specification Editor Properties Tab

Technology Editor

Use the Technology editor to review the signal technologies that are applicable to connectivity and devices. A selection of Technology specifications is included in the ora_uim_basetechnologies cartridge. You cannot create Technology specifications yourself.

See *UIM Concepts*, *UIM Cartridge Guide*, and *UIM Information Model Reference* for more information.

Field	Use
Name	Displays the name of the technology, such as **SONET**, **SDH**, **Ethernet**, and so on.
Description	Describes the associated technology. A technology provides specific kinds of capabilities and is bound by specific types of standards, requirements, behaviors, information, and impact across the business and the use of the technology.

Related Topics

About Rate Codes

Connectivity Function Editor

Use the Connectivity Function editor to create and view connectivity functions. A connectivity function represents how a connectivity is used. There are two types of connectivity functions:

• The Facility connectivity function applies to connectivity facilities inventoried by the service provider. For example, the T1 connectivity function signifies that the connectivity is a T-Carrier transmission facility operating at a DS1 rate. Facility functions are always associated with rate codes. Predefined Facility connectivity functions are included in the ora_uim_basetechnologies cartridge. You cannot create connectivity functions of this type.

• The Service connectivity function applies to service connectivity and is not associated to a rate code. For example, you can assign the connectivity VPN to a VPN service connectivity

> or VOIP to a VOIP service connectivity. Predefined Service connectivity functions are included in the ora_uim_basetechnologies cartridge. You can also create connectivity functions of this type.

The rate codes delivered with Design Studio for Inventory have one associated connectivity function. You can extend Design Studio for Inventory to include additional connectivity functions. See *UIM Developer's Guide* for more information about extending the application.

See *UIM Concepts* and *UIM Information Model Reference* for more information.

Field	Use
Name	Displays the name of the connectivity function.
Description	Describes the connectivity function.
Category	Displays **Service** or **Facility**. When you create a connectivity function, **Service** is displayed by default.

Related Topics

About Rate Codes

Processing Signal Specification Editor

Use the Processing Signal Specification editor to review the processing signal specification information delivered with Design Studio for Inventory.

Processing Signal specifications define processing signals in the signal structure for a SONET or SDH transmission facility. Processing signals multiplex to, align with, or map to other signals in a SONET or SDH signal structure, but they are not facility or channel signals, because they are not directly associated with a channelized connectivity or channel.

Processing signal specifications are provided in the ora_uim_basetechnologies cartridge. These specifications are associated with Connectivity Signal Termination Point specifications to form the connectivity signal architecture for the SONET and SDH technologies. For information about the signal specifications in the ora_uim_basetechnologies cartridge, including the specification relationships, see *UIM Information Model Reference*.

When working with the Processing Signal Specification editor, see the following topics:

- Processing Signal Specification Editor Details Tab
- Processing Signal Specification Editor Child Signal Relationships Tab

Processing Signal Specification Editor Details Tab

Use the **Details** tab to review details about a Processing Signal specification, including its type and rate code. This information is read-only.

Field	Use
Name	Displays the name of the processing signal specification.
Transmission Signal Type	Displays the physical nature of the transmission signal, such as **Optical** or **Electrical**.

Field	Use
Processing Signal Type	Displays the name of the processing signal. Processing signal types for SDH are: • **ADMINISTRATIVE_UNIT_GROUP** (AUG): Groups a set of Administrative Unit (AU) signals. • **ADMINISTRATIVE_UNIT** (AU): A pointer with alignment to a Virtual Container (VC) signal. • **TRIBUTARY_UNIT_GROUP** (TUG): Groups a set of Tributary Unit (TU) signals in the STM-1 frame signal. • **TRIBUTARY_UNIT** (TU): A pointer with alignment to a Virtual Container (VC) signal in the STM-1 frame signal. • **VIRTUAL_CONTAINER** (VC): Adapts (maps to) a Container (C) signal. Processing signal types for SONET are: • **VIRTUAL_TRIBUTARY_GROUP** (VTG): Groups a set of Virtual Tributary (VT) signals within the STS-1 frame signal. • **VIRTUAL_TRIBUTARY** (VT): A pointer with alignment to a Synchronous Payload Envelope (SPE) signal within the STS-1 frame signal. • **SYNCHRONOUS_TRANSPORT_SIGNAL** (STS): A pointer with alignment to a Synchronous Payload Envelope (SPE) signal.
Rate Code	Displays the rate code that identifies the technology and bit rate for the processing signal.

Processing Signal Specification Editor Child Signal Relationships Tab

Use the **Child Signal Relationships** tab to review details about the hierarchical relationships of a Processing Signal specification. See *UIM Concepts* and *UIM Information Model* for more information about these relationships.

Field	Use
Supports Child Signals	Lists child signals that can be enabled by the signal defined by this specification. (The supported signals are sometimes called riders.) For example, a VT-6 SPE channel signal can support (enable) a T-Carrier DS2 transmission facility.
Aligns to Child Signals	Lists child signals that are not located in a fixed position within an SDH or SONET frame signal. For example, in the SONET technology, a VT-1.5 processing signal aligns to a VT-1.5 SPE signal termination point.
Maps to Child Signals	Lists child signals that are mapped into this signal with the same rate. For example, in the SDH technology, a VC-2 processing signal maps to a C-2 signal termination point.
Multiplexes to Child Signals	Lists child signals into which this signal can be multiplexed. For example, in the SDH technology, a TUG-2 processing signal multiplexes to four TU-11 signals processing signals.

Working with Flow Identifier Specifications

The various packet connectivity technologies have a variety of ways of identifying network traffic to make it visible to only the appropriate devices. By isolating network traffic in this way, the same physical or infrastructure network can support multiple virtual networks. For example, the Ethernet technology uses VLAN IDs (or *tags*) for this purpose. Similarly, ATM uses VPI and VCI; Frame Relay uses DLCI; and MPLS uses VPLS IDs. In UIM, you use flow identifiers to represent these various types of network addresses.

You can define Flow Identifier specifications to fit your business and technological requirements. UIM provides a number of Flow Identifier specifications in the Ethernet reference cartridge.

When working with Flow Identifier specifications, see the following topics:

- Flow Identifier Specification Editor

Flow Identifier Specification Editor

Use the Flow Identifier Specification editor to model flow identifiers. When working with the Flow Identifier Specification editor, see the following topics:

- Specification Editor Characteristics Tab
- Specification Editor Specification Properties Tab
- Flow Identifier Specification Editor Properties Tab
- Specification Editor Related Specifications Tab
- Specification Editor Configuration Spec Usage Tab
- Specification Editor Rules Tab
- Specification Editor Layouts Tab
- Specification Editor Extends Tab
- Specification Editor Tags Tab

Flow Identifier Specification Editor Properties Tab

Use the **Properties** tab to enter information about the Flow Identifier specification.

Field	Use
Technology	Click **Select** to select the technology that applies to the flow identifier. Only packet technologies are available.

Field	Use
Provider Managed	Select if this specification represents a provider-managed flow identifier.
	In UIM, provider-managed flow identifiers are grouped into network address domains and resource pools from which they can be assigned. For example, an SP-VLANID is a provider-managed flow identifier.
	Unmanaged flow identifiers are not managed by service provers. They are typically received on an order and referenced with a service location on the service. For example, a CE-VLANID is unmanaged by the service provider.
	A number of Flow Identifier specifications are provided in the Ethernet reference cartridge.
	The identifier value must be unique across all flow identifiers associated with the same network address domain.
Stacking Level	Enter a stacking level for flow identifiers based on this specification. The stacking level is used in UIM to implement Q-in-Q stacking. Flow identifiers with lower stacking level values can be stacked within flow identifiers with higher values.
	Q-in-Q stacking enables VLAN IDs to be encapsulated (*stacked*) within each other to allow customer traffic with the same VLAN ID to travel safely through the same service provider network.
	Stacking levels are oriented from the customer site looking into the service provider network. A CE-VLANID is level 0 and an SP-VLAIND is level 1.
	Stacking levels are used in packet technologies other than Ethernet. For example, stacking levels support VPIs (virtual path identifiers) and VCIs (virtual channel identifiers) for ATM and DLCIs (data link connection identifiers) for Frame Relay.
Identifier Value Type	Select **Numeric** or **Alphanumeric**.
Untagged	For Ethernet flow identifiers, select to indicate that the specification can be used to create untagged flow identifiers. Untagged flow identifiers allow untagged frames to pass through an interface.
	Note: If this check box is selected, the specification can be used to create both tagged and untagged flow identifiers. If the check box is not selected, the specification can be used to create only tagged flow identifiers.
	Untagged flow identifiers must be named Untagged and cannot have an identifier. Otherwise, the identifier is required.

Field	Use
Minimum Identifier Value	Flow Identifier specifications include an **Identifier** characteristic. UIM users can use this characteristic to define a numeric tag that identifies data as it flows through the network. UIM users can create ranges of flow identifiers. Enter a minimum value to specify the lower boundary of ranges. If you enter a **Minimum Identifier Value**, you must also enter a **Maximum Identifier Value**.
Maximum Identifier Value	Flow Identifier specifications include an **Identifier** characteristic. UIM users can use this characteristic to define a numeric tag that identifies data as it flows through the network. UIM users can create ranges of flow identifiers. Enter a maximum value to specify the upper boundary of ranges. If you enter a **Maximum Identifier Value**, you must also enter a **Minimum Identifier Value**.

12
Working with Pipe and Capacity Specifications

Pipes are the fundamental entities that underlay the connectivity functionality in UIM. They are generic and are designed to be as flexible as possible.

> **Note:**
>
> Most common telecommunications connectivity scenarios can be implemented by using Connectivity entities, which are extensions of Pipe entities. Connectivity entities include more advanced functionality than pipes.

You can still implement solutions by using pipes directly, however. For example, pipes are recommended for modeling physical connectivity such as ducts and cables. Because pipe entities do not require end locations and terminations, they can also be useful in situations in which you do not need to model all the details of a connectivity.

If you previously modeled connectivity using pipes, you can continue to use those entities. Pipes and Connectivity entities can co-exist in the same inventory. Pipes can enable Connectivity entities and Connectivity entities can enable pipes.

When working with Pipe specifications, see the following topics:

- Working with Pipe Specifications
- Working with Pipe Configuration Specifications
- Working with Pipe Signal Termination Point Specifications
- Working with Pipe Termination Point Specifications
- Working with Capacity Types
- Working with Capacity Provided Specifications
- Working with Capacity Required Specifications
- Working with Measurement Types
- Working with Units of Measure

Working with Pipe Specifications

Pipes are a generalized representation of any kind of connectivity in the inventory. A pipe enables the transfer of information between two termination points. Both physical connectivity, such as cables, and logical connectivity, such as traffic flows, can be represented by pipes.

Pipes belong to the following categories:

- **Trails**: Pipes that are enabled by some other connectivity, such as another trail or a connection.
- **Connections**: Stand-alone, point-to-point pipes that can enable trails.

You use Pipe specifications to define both trails and connections. You use pipe termination points to define the end points of pipes. Pipe specifications can be used to model layered connectivity, such as a local loop that is enabled in the network by a series of interconnected cable pairs and cross-connects. Pipes can also be used to model hierarchical relationships of pipes. When you create a Pipe Termination Point specification, you can include characteristics for information you want to collect.

When working with Pipe specifications, see the following topics:

- About Pipe Models
- Configuring Pipe Specifications
- Adding Pipe Termination Point Specifications to a Pipe Specification
- Pipe Specification Editor

About Pipe Models

UIM supports three different pipe models. The models are defined by how a pipe provides other pipes and by the way the capacity is structured. Path analysis and other processes are designed to support these models.

> **Note:**
>
> Pipe models other than those described in this section are not supported by path analysis.

When you define Pipe specifications, you should keep these models in mind. For example, if you are defining a specification for a TDM facility, you must consider that it has a signal structure but does not have any child pipes.

The following pipe models are supported in UIM:

- **Cable/Pair Model**: A parent pipe represents a copper or fiber cable that provides child pipes to represent twisted pairs or fiber strands. The cable pipe is configured in the following way:

    - Minimum and maximum quantities for the child pipes are identical, so they are created automatically when the parent pipe is created in UIM.

    - No capacity is required or provided.

    - No signal structure is present.

- **Packet Facility Model**: Supports Layer 2 links, such as ATM, Frame Relay and Ethernet. Facility pipes provide capacity in bulk to pipes that they enable. This capacity can be consumed completely by one pipe or in smaller quantities by multiple pipes. The facility pipe can enable any number of pipes if its maximum capacity and usage percentage are not exceeded.

> **✎ Note:**
>
> The packet model is directly supported by Connectivity entities. Except in backward compatibility scenarios, you should use Connectivity entities to model packet connectivity.

Pipes based on the packet facility model are configured as follows:

– No signal structure is defined.

– The capacity required reflects the capacity that the pipe must be enabled by another pipe.

– The capacity provided is the total capacity provided by the facility.

– No child pipes are defined.

• **TDM Facility Model**: Supports channelized technologies, such as TDM/PDH and SONET/SDH. Facility pipes provide channels that are used to enable service trails. A signal structure is associated with the facility pipe to define the pipe's capacity and channelization.

> **✎ Note:**
>
> The TDM model is directly supported by Connectivity entities. Except in backward compatibility scenarios, you should use Connectivity entities to model TDM connectivity.

A TDM facility pipe is structured in the following way:

– The capacity required is the capacity that is required when enabled by another pipe.

– The pipe includes a signal structure that defines the pipe's capacity provided and how the signal is channelized. Channels are created either automatically or as needed in UIM depending on how the signal structure is organized.

– No child pipes are defined.

See *UIM Concepts* for more information about pipes.

Related Topics

Configuring Pipe Specifications

Adding Pipe Termination Point Specifications to a Pipe Specification

Pipe Specification Editor

Working with Pipe Specifications

Configuring Pipe Specifications

In UIM, you can describe where the pipe terminates in general terms (a network) or at a high level of specificity (on a particular sub-interface). This section provides the procedure on how to configure a Pipe specification.

To configure a Pipe specification:

1. Create a new Pipe specification or navigate to the editor of an existing one.

   See "Creating New Specifications" for more information.

2. In the Pipe Specification editor, click the **Capacities Required** tab.

3. Do one of the following:

   • Click **Select** to select an existing Capacity Required specification. The Add Entities dialog box appears, listing all available Capacity Required specifications.

   • Click **Add** to create a new Capacity Required specification. See "Creating New Specifications" for more information.

4. (Optional) If this Pipe specification is associated with a signal structure, click the **Signal Structure** tab and do one of the following:

   • Click **Select** to select an existing Pipe Signal Termination Point specification. The Pipe Signal Termination Point Specification dialog box appears, listing all available Pipe Signal Termination Point specifications.

   • Click **Signal Structure** to create a new Signal Termination specification. See "Creating New Specifications" for information about creating a new Pipe Signal Termination Point specification. When you have completed working on the new specification, return to the editor of the original Pipe Signal Termination Point specification.

   The specification that you selected or created is displayed in the **Signal Structure** tab. The number of child signals is also displayed.

5. (Optional) If the Specification is not associated with a signal structure, click the **Capacity Provided** tab and do one of the following:

   • Click **Select** to select an existing Capacity Provided specification. The Add Entities dialog box appears, listing all available Capacity Provided specifications.

   • Click **Add** to create a new Capacity Provided specification. See "Creating New Specifications" to create the specification. When you have completed working on the new specification, return to the editor of the original Pipe specification.

   The specification you selected or created appears in the **Capacities Provided** tab.

6. From the **File** menu, select **Save**.

Related Topics

About Pipe Models

Adding Pipe Termination Point Specifications to a Pipe Specification

Pipe Specification Editor

Working with Pipe Specifications

Adding Pipe Termination Point Specifications to a Pipe Specification

You can add a Pipe Termination Point specification to a Pipe specification. A Pipe Termination Point specification is required only to add characteristics. You add the Pipe Termination Point specification by including it on the **Related Specifications** tab of the Pipe specification editor. See "Working with Pipe Termination Point Specifications" and "Defining Specification Relationships" for more information.

Related Topics

About Pipe Models

Pipe Specification Editor

Use the Pipe Specification editor to define trails and connections, to model layered connectivity, and to model hierarchical relationships of pipes.

When working with the Pipe Specification editor, see the following topics:

- Specification Editor Characteristics Tab

- Specification Editor Specification Properties Tab

- Pipe Specification Editor Pipe Configurations Tab

- Pipe Specification Editor Capacity Provided Tab

- Pipe Specification Editor Capacity Required Tab

- Pipe Specification Editor Signal Structure Tab

- Pipe Specification Editor Related Specifications Tab

- Specification Editor Configuration Spec Usage Tab

- Specification Editor Rules Tab

- Specification Editor Layouts Tab

- Specification Editor Media Tab

- Specification Editor Extends Tab

- Specification Editor Tags Tab

Pipe Specification Editor Pipe Configurations Tab

Use the **Pipe Configurations** tab to select, add, and remove a pipe configuration.

Field	Use
Pipe Configuration	Displays the name of the Pipe Configuration specification.
Cartridge	Displays the name of the cartridge project into which the Pipe Configuration specification is built.
Select	Click to select an existing pipe configuration.
Open	Click to open the selected configuration in the Pipe Configuration Specification editor.
Remove	Click to remove a pipe configuration.
Add	Click to add a new pipe configuration. See "Adding a Configuration to a Pipe Specification" for more information.

Related Topics

Configuring Pipe Specifications

Adding Pipe Termination Point Specifications to a Pipe Specification

Pipe Specification Editor Capacity Provided Tab

Use the **Capacity Provided** tab to create a new Capacity Provided specification or select an existing one.

Field	Use
Capacity Provided	Displays the selected Capacity Provided specification.
Select	Click to select an existing Capacity Provided specification.
Open	Click to open the selected specification in the Capacity Provided Specification editor.
Remove	Click to remove a Capacity Provided specification.
Add	Click to create a new Capacity Provided specification.

Related Topics

Configuring Pipe Specifications

Adding Pipe Termination Point Specifications to a Pipe Specification

Pipe Specification Editor

About Pipe Models

Pipe Specification Editor Capacity Required Tab

Use the **Capacity Required** tab to create a new Capacity Required specification or select an existing one.

Field	Use
Capacity Required	Displays the selected Capacity Required specification.
Select	Click to select an existing Capacity Required specification.
Open	Click to open the selected specification in the Capacity Required Specification editor.
Remove	Click to remove a Capacity Required specification.
Add	Click to create a new Capacity Required specification.

Related Topics

Configuring Pipe Specifications

Adding Pipe Termination Point Specifications to a Pipe Specification

Pipe Specification Editor

About Pipe Models

Pipe Specification Editor Signal Structure Tab

Use the **Signal Structure** tab to create a new Pipe Signal Termination Point specification or select an existing one.

Field	Use
Signal Structure	Displays the name of the selected Pipe Signal Termination Point specification. Click this link to create and associate a new Pipe Signal Termination Point specification.
Select	Click to select an existing Pipe Signal Termination Point specification.
Clear	Click to remove a previously selected Pipe Signal Termination Point specification.

Related Topics

Configuring Pipe Specifications

Adding Pipe Termination Point Specifications to a Pipe Specification

Pipe Specification Editor

About Pipe Models

Pipe Specification Editor Related Specifications Tab

Use the **Related Specifications** tab to define and review specification relationships. Only relationships with the entity types listed in this tab are meaningful by default in UIM. If you add specifications to the Others section, you must define custom rulesets that trigger actions or behavior based on those relationships.

Section	Use
Inventory Groups	Lists the specifications of inventory groups to which pipes based on this specification can belong.
Pipes	Lists specifications of pipes than can be provided by pipes based on this specification.
Roles	Lists roles to which entities based on this Pipe specification can be assigned.
Pipe Termination Points	Lists specifications of pipe termination points than can be provided by pipes based on this specification.
Others	Lists specifications of entities that have a customized relationship with entities based on this specification.

Related Topics

Defining Specification Relationships

Specification Editor Related Specifications Tab

Working with Pipe Configuration Specifications

A Pipe Configuration captures details about how a pipe is enabled and on what resources the pipe terminates.

When working with Pipe Configuration specifications, see the following topics:

- About Pipe Configuration Specifications
- Creating Pipe Configuration Specifications
- Adding a Configuration to a Pipe Specification
- Adding Configuration Items
- Place Configuration Specification Editor

About Pipe Configuration Specifications

A pipe configuration can include one instance of each of the following four types of configuration items:

- **Termination (Originating)**: Defines the kinds of resources on which the pipe's originating termination point can terminate. Associating a specification option with the configuration item limits the resources from which the pipe can originate to instances of the selected specifications.

- **Termination (Terminating)**: Defines the kinds of resources on which the pipe's terminating termination point can terminate. Associating a specification option with the configuration item limits the resources on which the pipe can terminate to instances of the selected specifications.

- **Transport**: Defines the kinds of pipes by which the pipe can be enabled. The pipe specifications that are selected as specification options for this item are used in Path Analysis to find the available pipe instances to enable the pipe in its end-to-end connectivity path.

- **Intermediate Node**: Defines a resource, such as logical device, through which the pipe's connectivity must route. This is a child configuration item that can be created under the Transport item. A specification option associated with this item is used in Path Analysis to find an instance of the specified resource through which the pipes that enable the configured pipe must be routed.

> **✎ Note:**
>
> Although Design Studio allows you to include more than one of each of these types of configuration items in a pipe configuration, doing so causes errors in UIM.

Creating Pipe Configuration Specifications

You can create a Pipe Configuration specification independently or create a new Pipe Configuration specification in the processing of adding it to a Pipe specification.

To create a Pipe Configuration specification:

1. Do one of the following:

- • If you are creating the Pipe Configuration specification independently, select **New** from the **Studio** menu, then select **Inventory**, then select **Resources**, then select **Pipe Configuration Specification**.

- • If you are creating a Pipe Configuration specification while adding it to a Pipe specification, click **Add** in the **Pipe Configurations** tab of the Pipe Specification editor.

2. In the **Project** field, select the name of the project to which the new Pipe Configuration specification should be added.

3. In the **Name** field, enter a name for the new Pipe Configuration specification.

   This is the name that appears in UIM.

4. (Optional) Select a location.

   By default, Design Studio saves the entity to your default workspace location. You can enter a folder name in the **Folder** field or select a location different from the system-provided default. To select a different location:

   a. Click the **Folder** field **Browse** button.

   b. Navigate to the directory in which to save the entity.

   c. Click **OK**.

5. Click **Finish**.

6. In the Pipe Configuration Specification editor, click the **Details** tab.

7. (Optional) Right-click in the **Details** tab data tree area and from the **Configuration Items** menu select **Add Termination (Originating)**, **Add Termination (Terminating)**, or **Add Transport** to add configuration items.

8. If you added a **Transport** configuration item, right-click the **Transport** configuration item, and then from the **Configuration Items** menu select **Add Intermediate Node**.

   For **Transport** configuration items, you must create an Intermediate Node child configuration item. Intermediate Node is the only required child configuration item.

9. (Optional) To limit the resources associated with configuration items to instances of particular specifications:

   a. Select a configuration item.

   b. In the **Specification Options** tab, add specifications for the valid resources.

      See "Configuration Specification Editor Specification Options Subtab" for more information.

10. From the **File** menu, select **Save**.

Related Topics

Adding a Configuration to a Pipe Specification

Place Configuration Specification Editor

Adding a Configuration to a Pipe Specification

You can add an already existing pipe configuration or create one in the process of adding it. The pipe configuration and the Pipe specification do not have to be in the same project.

To add a pipe configuration to a Pipe specification:

1. Create a new Pipe specification or navigate to the editor of an existing one.

See "Creating New Specifications" for more information.

2. In the Pipe Specification editor, click the **Pipe Configurations** tab and do one of the following:

   • Click **Select** to add an existing configuration. The Add Entities dialog box appears, listing the available specifications.

   • Click **Add** to create and add a new configuration. See "Creating Configuration Specifications" to create the configuration. When you have completed working on the new configuration, return to the Pipe Specification editor.

   The Pipe Configuration specification is added to the Pipe specification's **Pipe Configurations** tab.

3. From the **File** menu, select **Save**.

Related Topics

Creating Pipe Configuration Specifications

Pipe Configuration Specification Editor

Pipe Configuration Specification Editor

Use the Pipe Configuration Specification editor to capture details about how a pipe is enabled and on what resources the pipe terminates.

When working with the Pipe Configuration Specification editor, see the following topics:

• Configuration Specification Editor Details Tab

• Configuration Specification Editor Layouts Tab

• Configuration Specification Editor Rules Tab

• Pipe Configuration Specification Editor Pipe Specs Tab

• Specification Editor Tags Tab

Pipe Configuration Specification Editor Pipe Specs Tab

Use the **Pipe Specs** tab to select, add, and remove the Pipe specifications that use the Pipe Configuration specifications. This tab identifies the Pipe specifications that use the selected Pipe Configuration specification. You must use this tab to relate a Pipe specification to its Pipe Configuration specification only when the Pipe specification and Pipe Configuration specification need to be in separate cartridges, and the Pipe specification can exist without the Pipe Configuration specification. If both the Pipe specification and Pipe Configuration specification are in the same cartridge, make the association on the Pipe specification.

Field	Use
Pipe Specification	Displays the name of the Pipe specification.
Cartridge	Displays the name of the cartridge project into which the Pipe specification is built.
Select	Click to select an existing Pipe specification.
Open	Click to open the selected specification in the Pipe Specification editor.
Remove	Click to remove a Pipe specification.

Field	Use
Add	Click to add a new Pipe specification.

Working with Pipe Signal Termination Point Specifications

You use Pipe Signal Termination Point specifications to define signal structures. A signal structure defines a multiplexing hierarchy where data streams are separated into multiple lower data communication links. For example, a DS1 signal structure can define a 1.536 Mbps data stream as 24 DS0 signals, each supporting 64 Kbps. The signal structure defines the channel hierarchy for a pipe facility that supports time division multiplexing (TDM), such as a T1 or an E1 facility.

You create a hierarchy of Pipe Signal Termination Point specifications to define the signal structure. The highest-level Pipe Signal Termination Point specification in the hierarchy (the parent) represents a trail termination point (TTP). You associate this parent specification to a Capacity Provided specification to define the total bandwidth capacity provided by the signal structure.

The child Pipe Signal Termination Point specifications represent connection termination points (CTP). A signal structure can have multiple levels of child Pipe Signal Termination Point specifications, each representing a further breakdown of the data stream defined by the preceding specification in the hierarchy.

You associate the highest-level Pipe Signal Termination Point specification (the parent) of a signal structure to a Pipe specification to define the channel hierarchy and capacity provided by the pipe facility.

When working with Pipe Signal Termination Point specifications, see the following topics:

- Configuring Child Signal Termination Points
- Configuring Parent Signal Termination Points
- Pipe Signal Termination Point Specification Editor

About Child Signal Termination Points

A child signal termination point represents a child signal level in a signal structure, such as the DS0 signals in a DS1 signal structure. Although you can create the specifications in any order, it is generally a good practice to begin with the child signal termination points and then move to the parent. Having the child termination points already created makes it easier to create the parent termination points. When you configure a child Pipe Signal Termination Point specification, you define the capacity unit amount, unit of measure, and number of child signals.

You can optionally define compatible signals. These are Pipe Signal Termination Point specifications that define capacity unit amounts that the signal can support even though they are not an exact match for the main capacity unit amount. For example, you can configure, a SONET STS1 51.840 Mbps channel to support a DS3 facility at a rate of 44.736 Mbps in addition to an STS transmission facility of exactly 51.840 Mbps.

Related Topics

Configuring Child Signal Termination Points

Pipe Signal Termination Point Specification Editor

Configuring Child Signal Termination Points

To configure a child Pipe Signal Termination Point specification:

1. Create a new Pipe Signal Termination Point specification or navigate to the editor of an existing one.

   See "Creating New Specifications" for more information.

2. In the Pipe Signal Termination Point Specification editor, click the **Properties** tab.

3. In the **Capacity Unit Amount** field, enter an amount for the capacity.

   The value is relative to the selection in the **Unit of Measure** field. When you enter a value in the **Capacity Unit Amount** field, the **Capacity Provided** field is disabled. Capacity provided information is not required for child signal termination points.

4. In the **Unit of Measure** field, select a unit of measure relative to the **Capacity Unit Amount** field.

   See "Creating Units of Measure" for information about creating a new Unit of Measure.

5. In the **Number of Child Signals** field, select the appropriate value.

   For example, select **0** if this signal termination point will not have any child signal termination points. If the signal termination point will have children, this value will be greater than **0**. For example, in a SONET or SDH signal structure, there can be more than two levels of signal termination points.

6. From the **File** menu, select **Save**.

Related Topics

Pipe Signal Termination Point Specification Editor

Configuring Parent Signal Termination Points

Configuring Parent Signal Termination Points

You define the total bandwidth for the signal structure by relating a Capacity Provided specification to the highest-level Pipe Signal Termination Point specification in the structure. A parent signal termination point represents the top level of a signal structure, such as the DS1 signal in DS1 signal structure. You define the signal hierarchy below the parent signal termination point by selecting a succession of child termination point specifications.

To configure a parent Pipe Signal Termination Point specification:

1. Create a new Pipe Signal Termination Point specification or navigate to the editor of an existing one.

   See "Creating New Specifications" for more information.

2. In Pipe Signal Termination Point Specification editor, click the **Properties** tab.

3. In the **Capacity Provided** field, do one of the following:

   • Click **Capacity Provided** to create and model a new specification. See "Creating New Specifications" for more information. When you have completed working on the new Capacity Provided specification, return to the editor of the original Pipe Signal Termination Point specification.

   • Click **Select** to select an existing Capacity Provided specification.

- Click **Clear** to remove any previous selections.

The specification that you select or create is displayed in the **Capacity Provided** field, and the **Capacity Unit Amount** and **Unit of Measure** fields are disabled. This information is not required for parent signal termination points.

4. In the **Number of Child Signals** field, enter or select the appropriate number of signals.

For example, for a DS1 signal structure, enter **24**.

5. Click the **Signal Structure** tab.

6. Right-click the icon in the tab and do one of the following:

- Select **Select Child Signal** to select an existing Pipe Signal Termination Point specification.

- Select **Create New Child Signal** to create a new Pipe Signal Termination Point specification.

    See "Creating New Specifications" for information about creating a new Pipe Signal Termination Point specification. When you have completed working on the new specification, return to the editor of the original Pipe Signal Termination Point specification.

The specification that you select or create is displayed in the **Signal Structure** tab. The number of child signals is also displayed.

7. From the **File** menu, select **Save**.

Related Topics

Pipe Signal Termination Point Specification Editor

Configuring Child Signal Termination Points

Pipe Signal Termination Point Specification Editor

Use the Pipe Signal Termination Point Specification editor to define signal structures.

When working with the Pipe Signal Termination Point Specification editor, see the following topics:

- Specification Editor Characteristics Tab

- Specification Editor Specification Properties Tab

- Pipe Signal Termination Point Specification Editor Signal Structure Tab

- Pipe Signal Termination Point Specification Editor Properties Tab

- Pipe Signal Termination Point Specification Editor Compatible Signals Tab

- Specification Editor Specification Properties Tab

- Specification Editor Rules Tab

- Specification Editor Layouts Tab

- Specification Editor Media Tab

- Specification Editor Extends Tab

- Specification Editor Tags Tab

Pipe Signal Termination Point Specification Editor Signal Structure Tab

Use the **Signal Structure** tab to create a new Pipe Signal Termination Point specification or select an existing one.

Field	Use
Select Child Signal	Right-click the specification box and select this option to add an existing Pipe Signal Termination Point specification.
Create New Child Signal	Right-click the specification box and select this option to create a new Pipe Signal Termination Point specification.

Related Topics

Configuring Child Signal Termination Points

Configuring Parent Signal Termination Points

Pipe Signal Termination Point Specification Editor

Pipe Signal Termination Point Specification Editor Properties Tab

Use the **Properties** tab to define the capacity unit amount, unit of measure, and number of child signals.

Field	Use
Capacity Provided	Displays the name of the selected Capacity Provided specification.
New	Click to create a new Capacity Provided specification.
Select	Click to select an existing Capacity Provided specification.
Clear	Click to remove a Capacity Provided specification.
Capacity Unit Amount	Enter a value relative to the selection in the Unit of Measure field. When you enter a value in the Capacity Unit Amount field, the Capacity Provided area is removed from the tab. Capacity provided information is not required for child signal termination points.
Unit of Measure	Click **New** to create a new unit of measure or click **Select** to use an existing one.
Number of Child Signals	Define this value as 0 if the signal termination point will not have any child signal termination points. Define this value as greater than 0 if the signal termination point will have children.

Related Topics

Configuring Child Signal Termination Points

Configuring Parent Signal Termination Points

Pipe Signal Termination Point Specification Editor

Pipe Signal Termination Point Specification Editor Compatible Signals Tab

You use the **Compatible Signals** tab to select Pipe Signal Termination Point specifications that include compatible capacity unit amounts. These are capacities that the signal can support even though they are not an exact match for the main capacity unit amount. For example, you can configure a SONET STS1 51.840 Mbps channel to support a DS3 facility at a rate of 44.736 Mbps in addition to an STS transmission facility of exactly 51.840 Mbps.

Field	Use
Supports Signals	Displays all supported Pipe Signal Termination Point specifications.
Supported By Signals	Displays all Pipe Signal Termination Point specifications that are supported by the selected specification.
Select	Click to select and add an existing Pipe Signal Termination Point specification.
Open	Click to open the selected Signal Termination Point in the Pipe Signal Termination Point Specification editor.
Remove	Click to remove the selected Pipe Signal Termination Point specification.
Add	Click to create and add a new Pipe Signal Termination Point specification.

Working with Pipe Termination Point Specifications

You can include Pipe Termination Point specifications in a Pipe specification. When you create a Pipe Termination Point specification, you can include characteristics for information you want to collect. Pipe Termination Point specifications enable you to include characteristics on the termination points of a pipe and to add behaviors through rulesets. A pipe termination point identifies where one end of a pipe terminates. If you use pipe termination points, each pipe must have two, one for each end.

Defining Pipe Termination Point specifications is necessary only to add characteristics to capture specific information about the termination point.

The application creates pipe termination points without a specification if there is no Pipe Termination Point specification associated with the Pipe specification. See "Adding Pipe Termination Point Specifications to a Pipe Specification" for more information.

You create Pipe Termination Point specifications in the same manner as you create other types of specifications. See "Creating New Specifications" for more information.

See "Pipe Termination Point Specification Editor" for reference information about the tabs you use to define a Pipe Termination Point specification.

Pipe Termination Point Specification Editor

Use the Pipe Termination Point Specification editor to identify where one end of a pipe terminates, to include characteristics on the termination points of a pipe, and to add behaviors through rulesets.

When working with the Pipe Termination Point Specification editor, see the following topics:

- Specification Editor Characteristics Tab
- Specification Editor Specification Properties Tab
- Pipe Termination Point Specification Editor Related Specifications Tab
- Specification Editor Rules Tab
- Specification Editor Layouts Tab
- Specification Editor Media Tab
- Specification Editor Extends Tab
- Specification Editor Tags Tab

Pipe Termination Point Specification Editor Related Specifications Tab

Use the **Related Specifications** tab to define and review specification relationships. Only relationships with the entity types listed in this tab are meaningful by default in UIM. If you add specifications to the Others section, you must define custom rulesets that trigger actions or behavior based on those relationships.

Section	Use
Inventory Groups	Lists the specifications of inventory groups to which pipe termination points based on this specification can belong.
Pipes	Lists specifications of pipes than provide pipe termination points based on this specification.
Others	Lists specifications of entities that have a customized relationship with entities based on this specification.

Related Topics

Defining Specification Relationships

Specification Editor Related Specifications Tab

Working with Capacity Types

In UIM, you can define various types of capacity and how they are measured. You can also define how an entity provides or requires capacity in terms of its capacity type and the amount it provides. Capacity types define the kind of capacity that an entity provides or consumes. You associate a measurement type to a capacity type to specify how the capacity is measured. See "Working with Measurement Types" for more information.

When working with capacity types, see the following topics:

- Creating Capacity Types
- Configuring Capacity Types
- Capacity Type Editor

Creating Capacity Types

You create capacity types to define the kind of capacity that an entity provides or consumes.

To create capacity types:

1. From the **Studio** menu, select **New**, then select **Inventory**, then select **Resources**, then select **Capacity Type**.

   The Model Entity Wizard appears. An icon for the specification type appears in the upper-right corner.

2. In the **Project** field, select the name of the project to which the new capacity type should be added.

3. In the **Name** field, enter a name for the capacity type.

   This is the name that will appear in UIM.

4. (Optional) Select a location.

   By default, Design Studio saves the entity to your default workspace location. You can enter a folder name in the **Folder** field or select a location different from the system-provided default. To select a different location:

   a. Click the **Folder** field **Browse** button.

   b. Navigate to the directory in which to save the entity.

   c. Click **OK**.

5. Click **Finish**.

   Design Studio creates the capacity type and displays the information in Capacity Type editor.

   Related Topics

   Capacity Type Editor

   Configuring Capacity Types

Configuring Capacity Types

You associate a measurement type to a capacity type to specify how the capacity is measured.

To configure a capacity type:

1. Create a new capacity type or navigate to the editor of an existing one.

   See "Creating Capacity Types" for more information.

2. In the Capacity Type editor **Properties** tab, enter a name for the capacity type in the **Name** field.

3. In the **Measurement Type** area, do one of the following:

   • Click **Select** to select an existing measurement type. The Measurement Type dialog box appears, listing all available measurement types.

   • Click the **Measurement Type** link to create and add a new measurement type. See "Creating Measurement Types" for information about creating a new measurement type.

   The measurement type you select or create is displayed in the **Measurement Type** field.

4. In the **Description** field, enter a description of the capacity type.

5. From the **File** menu, select **Save**.

Related Topics

Capacity Type Editor

Capacity Type Editor

Use the Capacity Type editor to define the kind of capacity that an entity provides or consumes.

When working with the Capacity Type editor, see the following topics:

- Capacity Type Properties Tab
- Specification Editor Tags Tab

Capacity Type Properties Tab

Use the **Properties** tab to define the kind of capacity that an entity provides or consumes.

Field	Use
Name	Enter a name for the capacity type.
Measurement Type	Displays the name of the measurement type. Click the link to create a new measurement type.
Select	Click to select an existing measurement type.
Clear	Click to remove the measurement type.
Description	Enter a description for the capacity type.

Related Topics

Creating Capacity Types

Configuring Capacity Types

Working with Capacity Provided Specifications

Capacity Provided specifications define the maximum capacity an entity can provide to other entities that can consume the capacity, such as the maximum bandwidth capacity provided by a pipe. An entity can offer multiple types of capacity, so its specification can have relationships to multiple Capacity Provided specifications.

An entity specification can be related to only one Capacity Provided specification of a given capacity type, however. Capacity types are required to create Capacity Provided specifications. UIM supports defining capacity provided for pipes and signal termination points. See "Working with Capacity Types" for more information.

When working with Capacity Provided specifications, see the following topics:

- Configuring Capacity Provided Specifications
- Capacity Provided Specification Editor

Configuring Capacity Provided Specifications

You associate Capacity Provided specifications to specifications of entities that offer capacity through the capacity framework.

To configure a Capacity Provided specification:

1. Create a new Capacity Provided specification or navigate to the editor of an existing one.

   See "Creating New Specifications" for more information.

2. In the Capacity Provided editor, click the **Properties** tab.

3. In the **Capacity Type** field, do one of the following:

   • Click **Capacity Type** to create and add a new capacity type. See "Creating Capacity Types" for more information.

   • Click **Select** to select an existing capacity type. The Capacity Type dialog box appears, listing all available capacity types.

   • Click **Clear** to remove a previous selection.

4. In the **Total Amount** field, enter the amount of the capacity provided.

5. In the **Unit of Measure** field, do one of the following:

   • Click **Unit of Measure** to create and add a new unit of measure. See "Creating Units of Measure" for more information.

   • Click **Select** to select an existing unit of measure. The Unit of Measure dialog box appears, listing all available units of measure.

   • Click **Clear** to remove a previous selection.

6. In the **Consumable Percentage** field, enter the percentage of the total amount that can be consumed.

7. From the **File** menu, select **Save**.

Related Topics

Capacity Provided Specification Editor

Capacity Provided Specification Editor

Use the Capacity Provided Specification editor to define the capacity an entity offers in terms of a total amount and a consumable percentage.

When working with the Capacity Provided Specification editor, see the following topics:

• Specification Editor Specification Properties Tab

• Capacity Provided Specification Editor Properties Tab

• Specification Editor Related Specifications Tab

• Specification Editor Rules Tab

• Specification Editor Media Tab

• Specification Editor Tags Tab

Capacity Provided Specification Editor Properties Tab

Use the **Properties** tab to create a new capacity type or select an existing one.

Field	Use
Capacity Type	Determines the type of capacity offered, defined by a capacity type. Do one of the following: - Click **Capacity Type** to create a new capacity type. - Click **Select** to select from existing capacity types. - Click **Clear** to remove a previous selection.
Clear	Click to remove a new capacity type.
Total Amount	Enter the amount of the capacity type that an entity can provide.
Unit of Measure	Select the units by which the total amount is measured, defined by a Unit of Measure specification. Do one of the following: - Click the link to create a new unit of measure. - Click **Select** to select from existing units of measure. - Click **Clear** to remove a previous selection.
Consumable Percentage	Select the percentage of the total amount that can be consumed. A consumable percentage over 100% indicates that the capacity can be oversubscribed.

Related Topics

Configuring Capacity Provided Specifications

Capacity Provided Specification Editor

Working with Capacity Required Specifications

Capacity Required specifications define the amount of capacity entities require when they consume a type of capacity.

An entity can require multiple types of capacity, so its specification can have relationships to multiple Capacity Required specifications. An entity specification can be related to only one Capacity Required specification of a given capacity type, however. Capacity types are required to create Capacity Required specifications. See "Working with Capacity Types" for more information.

When working with Capacity Required specifications, see the following topics:

- Configuring Capacity Required Specifications

- Capacity Required Specification Editor

Configuring Capacity Required Specifications

You associate Capacity Required specifications to specifications of entities that offer capacity through the capacity framework.

To configure a Capacity Required specification:

1. Create a new Capacity Required specification or navigate to the editor of an existing one.

   See "Creating New Specifications" for more information.

2. In the Capacity Required Specification editor, click the **Properties** tab.

3. In the **Capacity Type** field, do one of the following:

   - Click **Capacity Type** to create and add a new capacity type. See "Creating Capacity Types" for more information.

   - Click **Select** to select an existing capacity type. The Capacity Type dialog box appears, listing all available capacity types.

   - Click **Clear** to remove any previous selections.

4. In the **Total Amount** field, enter the total capacity provided.

5. In the **Unit of Measure** field, do one of the following:

   - Click **Unit of Measure** to create and add a new unit of measure. See "Creating Units of Measure" for more information.

   - Click **Select** to select an existing unit of measure. The Unit of Measure dialog box appears, listing all available units of measure.

   - Click **Clear** to remove a previous selection.

6. In the **Consumable Percentage** field, enter the percentage of the total amount that can be consumed.

7. From the **File** menu, select **Save**.

Related Topics

Capacity Required Specification Editor

Capacity Required Specification Editor

Use the Capacity Required Specification editor to define the capacity that an entity requires.

When working with the Capacity Required Specification editor, see the following topics:

- Specification Editor Specification Properties Tab
- Capacity Required Specification Editor Properties Tab
- Specification Editor Related Specifications Tab
- Specification Editor Rules Tab
- Specification Editor Layouts Tab
- Specification Editor Media Tab
- Specification Editor Tags Tab

Capacity Required Specification Editor Properties Tab

Use the **Properties** tab to create a new capacity type or select an existing one.

Field	Use
Capacity Type	Determines the type of capacity offered, defined by a capacity type. Do one of the following: • Click **Capacity Type** to create a new capacity type. • Click **Select** to select from existing capacity types. • Click **Clear** to remove a previous selection.
Required Amount	Enter the amount of the capacity type that an entity requires.
Unit of Measure	Select the units by which the total amount is measured, defined by a Unit of Measure specification. Do one of the following: • Click the link to create a new unit of measure. • Click **Select** to select from existing units of measure. • Click **Clear** to remove a previous selection.
Quantity	Specify the quantity of the required amount. Typically, this value is set to 1. If the capacity required must be consumed as a set of units, such as channels provided by a facility pipe, set the **Quantity** to the number of units required. The capacity required of each unit is equal to the value set in the **Required Amount** field. The total amount of capacity required is equal to the value defined in the Required Amount field times the value defined in the **Quantity** field.

Related Topics

Configuring Capacity Required Specifications

Capacity Required Specification Editor

Working with Measurement Types

A measurement type classifies related groups of units of measure. For example, a bit rate measurement type classifies units of measure such as bits per second (bps), kilobits per second (kbps), and so on. Other possible measurement types include weight and amperage. Measurement types and units of measure are required to create capacity types. See "Working with Capacity Types" for more information.

When working with measurement types, see the following topics:

• Creating Measurement Types

• Measurement Types Editor

Creating Measurement Types

You create measurement types to classify related groups of units of measure.

To create measurement types:

1. From the **Studio** menu, select **New**, then select **Inventory**, then select **Resources**, then select **Measurement Type**.

   The Model Entity Wizard appears. An icon for the specification type appears in the upper-right corner.

2. In the **Project** field, select the name of the project to which the new measurement type should be added.

3. In the **Name** field, enter a name for the measurement type.

   This is the name that will appear in UIM.

4. (Optional) Select a location.

   By default, Design Studio saves the entity to your default workspace location. You can enter a folder name in the **Folder** field or select a location different from the system-provided default. To select a different location:

   a. Click the **Folder** field **Browse** button.

   b. Navigate to the directory in which to save the entity.

   c. Click **OK**.

5. Click **Finish**.

   Design Studio creates the measurement type and displays its information in the Measurement Type editor.

Related Topics

Measurement Types Editor

Measurement Types Editor

Use the Measurement Types editor to model related groups of units of measure.

When working with measurement types, see the following topics:

- Measurement Type Properties Tab
- Specification Editor Tags Tab

Measurement Type Properties Tab

Use the **Properties** tab to name and describe related groups of units of measure.

Field	Use
Name	Enter a name for the specification.
Description	Enter a description for the specification. This field is optional.

Related Topics

Creating Measurement Types

Working with Units of Measure

Units of measure define the units used to measure a type of capacity in UIM. A unit of measure is a quantity or increment by which something is divided, counted, or described. For example, Kbps is a unit that measures a bit rate.

When working with units of measure, see the following topics:

- Creating Units of Measure
- Configuring Units of Measure
- Inventory Unit of Measure Editor

Creating Units of Measure

You create units of measure to define the units used to measure capacity in UIM.

To create a unit of measure:

1. From the **Studio** menu, select **New**, then select **Inventory**, then select **Resources**, then select **Unit of Measure**.

   The Model Entity Wizard appears. An icon for the specification type appears in the upper-right corner.

2. In the **Project** field, select the name of the project to which the new unit of measure should be added.

3. In the **Name** field, enter a name for the unit of measure.

   This is the name that will appear in UIM.

4. (Optional) Select a location.

   By default, Design Studio saves the entity to your default workspace location. You can enter a folder name in the **Folder** field or select a location different from the system-provided default. To select a different location:

   a. Click the **Folder** field **Browse** button.

   b. Navigate to the directory in which to save the entity.

   c. Click **OK**.

5. Click **Finish**.

   Design Studio creates the unit of measure and displays the information on the **Properties** tab.

Related Topics

Configuring Units of Measure

Inventory Unit of Measure Editor

Configuring Units of Measure

After you have created a unit of measure, you must configure its properties.

To configure unit of measure properties:

1. Create a new unit of measure or navigate to the editor of an existing one.

   See "Creating Units of Measure" for more information.

   The Unit of Measure editor appears, displaying the **Properties** tab.

2. In the **Name** field, enter a name that identifies the unit of measure.

3. In the **Display Unit Value** field, enter the value that you want to be displayed in UIM menus and lists.

4. In the **Type of Measurement** area, click **Select** and select a measurement type.

   The Selection Dialog dialog box appears. See "Creating Measurement Types" to create a new measurement type.

5. Select a measurement type, then click **OK**.

   The measurement type that you selected is displayed in the **Type of Measurement** field. Click the **Type of Measurement** link to open the measurement type in the Measurement Type editor.

6. In the **Description** field of the **Conversion** area, enter a description of the conversion required to convert this unit of measure to the base unit of measure.

7. In the **Conversion Factor** field, enter the multiple used to convert this unit of measure to the base unit of measure.

8. In the main **Description** field, enter a description of this unit of measure.

9. From the **File** menu, select **Save**.

Related Topics

Creating Units of Measure

Inventory Unit of Measure Editor

Inventory Unit of Measure Editor

Use the Inventory Unit of Measure editor to model the units used to measure capacity in UIM.

When working with the Inventory Unit of Measure editor, see the following topics:

- Inventory Unit of Measure Properties Tab
- Specification Editor Tags Tab

Inventory Unit of Measure Properties Tab

Use the **Properties** tab to model the units used to measure capacity in UIM.

Field	Use
Name	Enter the name of the unit.

Field	Use
Display Unit Value	Enter the text to be displayed in menus and lists for this unit of measure. This is usually a shortened version of the name.
Type of Measurement	Specify the measurement type to which this unit of measure belongs. You specify this property by selecting or creating a measurement type.
Conversion Description	Enter a description of the conversion required to convert this unit of measure to the base unit of measure.
Conversion Factor	A multiplier used to convert a unit of measure to another unit of measure. For example, for a Mbps unit of measure, you could enter 1000000 as the conversion factor to bps. **Note:** Use a conversion factor that converts to the same base unit of measure for all units of measure for any given measurement type.
Description	Enter a description of this unit of measure.

Related Topics

Creating Units of Measure

Configuring Units of Measure

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Working with Telephone Number, Custom Network Address, and Custom Object Specifications

In Oracle Communications Unified Inventory Management (UIM), you use Telephone Number specifications to define the types of telephone numbers that your inventory includes and how they are managed in the business process, Custom Network Address specifications to define a network address that is not modeled by default in UIM, and Custom Object specifications to define entities that do not fit into one of the pre-defined categories in UIM.

When working with Telephone Number, Custom Network Address, and Custom Object specifications, see the following topics:

- Working with Telephone Number Specifications
- Working with Custom Network Address Specifications
- Working with Custom Object Specifications

Working with Telephone Number Specifications

You use Telephone Number specifications to define the types of telephone numbers that your inventory includes and how they are managed in the business process. A Telephone Number specification is a blueprint for the various kinds of telephone numbers you might use. In addition to the standard aspects of a specification, you need to define how telephone numbers based on the specification are formatted for display and storage.

You create Telephone Number specifications in the same manner as you create other types of specifications. See "Creating New Specifications" for more information.

See "Telephone Number Specification Editor" for reference information about the tabs you use to define a Telephone Number specification.

Telephone Number Specification Editor

Use Telephone Number Specification editor to define the types of telephone numbers included in your inventory.

When working with the Telephone Number Specification editor, see the following topics:

- Specification Editor Characteristics Tab
- Specification Editor Specification Properties Tab
- Telephone Number Specification Editor Related Specifications Tab
- Specification Editor Configuration Spec Usage Tab
- Specification Editor Rules Tab
- Specification Editor Layouts Tab
- Specification Editor Media Tab

- Specification Editor Extends Tab
- Specification Editor Tags Tab

Telephone Number Specification Editor Related Specifications Tab

Use the **Related Specifications** tab to define and review related specifications. Only relationships with the entity types listed in this tab are meaningful by default in UIM. If you add specifications to the Others section, you must define custom rulesets that trigger actions or behavior based on those relationships.

Section	Use
Inventory Groups	Lists the specifications of inventory groups to which custom network addresses based on this specification can belong.
Others	Lists specifications of entities that have a customized relationship with entities based on this specification.

Related Topics

Defining Specification Relationships

Specification Editor Related Specifications Tab

Working with Custom Network Address Specifications

A network address is a name, label, or number identifying a location in storage or a device in a system or network. You use a Custom Network Address specifications to define a network address that is not modeled by default in UIM. The network addresses that are modeled by default in the UIM framework are telephone numbers and logical device accounts. See "Working with Telephone Number Specifications" and "Working with Logical Device Account Specifications" for more information.

You create Custom Network Address specifications in the same manner as you create other types of specifications. See "Creating New Specifications" for more information.

See "Custom Network Address Specification Editor" for reference information about the tabs you use to define a Custom Network Address specification.

Custom Network Address Specification Editor

Use the Custom Network Address Specification editor to define network addresses that are not modeled by default in UIM.

When working with the Custom Network Address Specification editor, see the following topics:

- Specification Editor Characteristics Tab
- Specification Editor Specification Properties Tab
- Custom Network Address Specification Editor Related Specifications Tab
- Specification Editor Configuration Spec Usage Tab
- Specification Editor Rules Tab
- Specification Editor Layouts Tab

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- [Specification Editor Media Tab](#)
- [Specification Editor Extends Tab](#)
- [Specification Editor Tags Tab](#)

Custom Network Address Specification Editor Related Specifications Tab

Use the **Related Specifications** tab to define and review related specifications. Only relationships with the entity types listed in this tab are meaningful by default in UIM. If you add specifications to the Others section, you must define custom rulesets that trigger actions or behavior based on those relationships.

Section	Use
Inventory Groups	Lists the specifications of inventory groups to which custom network addresses based on this specification can belong.
Network Nodes	Lists specifications of network nodes that can represent custom network addresses based on this specification.
Others	Lists specifications of entities that have a customized relationship with entities based on this specification.

Related Topics

[Defining Specification Relationships](#)

[Specification Editor Related Specifications Tab](#)

Working with Custom Object Specifications

You use Custom Object specifications to define entities that do not fit into one of the predefined categories in UIM. Custom Object specifications enable you to extend the inventory model without having to create a custom schema or redeploy UIM.

All of the standard features of specifications, such as characteristics, relationships, and rules are available for custom objects. UIM manages the life cycle of custom objects the same way it manages other entities. Custom objects can also be included in involvement relationships. See "[Working with Involvement Specifications](#)" for more information.

You create Custom Object specifications in the same manner as you create other types of specifications. See "[Creating New Specifications](#)" for more information.

See "[Custom Object Specification Editor](#)" for reference information about the tabs you use to define a Custom Object specification.

Custom Object Specification Editor

Use Custom Object Specification editor to define entities that do not fit into one of the predefined categories in UIM.

When working with the Custom Object Specification editor, see the following topics:

- [Specification Editor Characteristics Tab](#)
- [Specification Editor Specification Properties Tab](#)

Custom Object Editor Related Specifications Tab

Use the **Related Specifications** tab to define and review specification relationships. Only relationships with the entity types listed in this tab are meaningful by default in UIM. If you add specifications to the Others section, you must define custom rulesets that trigger actions or behavior based on those relationships.

Section	Use
Inventory Groups	Lists the specifications of inventory groups to which custom objects based on this specification can belong.
Roles	Defines the roles to which custom objects based on this specification can be assigned.
Network Nodes	Lists specifications of network nodes that can represent custom objects based on this specification.
Network Edges	Lists specifications of network edges that can represent custom objects based on this specification.
Others	Lists specifications of entities that have a customized relationship with entities based on this specification.

Related Topics

Defining Specification Relationships

Specification Editor Related Specifications Tab

14

Working with Inventory Group, and Involvement Specifications

In Oracle Communications Unified Inventory Management (UIM), you use Inventory Group specifications to organize and correlate entities in the inventory, and you use Involvement specifications to define associations between entities that are not related in the inventory model.

When working with Business Interaction, Inventory Group, and Involvement specifications, see the following topics:

- Working with Inventory Group Specifications
- Working with Involvement Specifications

Working with Inventory Group Specifications

You use Inventory Group specifications to organize and correlate entities in the inventory. You can define inventory groups to organize entities based on criteria such as geographic area, serving area, billing area, IP address pool, and so forth.

For example, an inventory group containing locations and telephone numbers enables you to specify the telephone numbers that can be selected from a specific serving area.

You create Inventory Group specifications in the same manner as you create other types of specifications. See "Creating New Specifications" for more information.

See "Inventory Group Specification Editor" for reference information about the tabs you use to define an Inventory Group specification.

Inventory Group Specification Editor

Use the Inventory Group Specifications editor to organize and correlate entities in the inventory.

When working with the Inventory Group Specifications editor, see the following topics:

- Specification Editor Characteristics Tab
- Specification Editor Specification Properties Tab
- Inventory Group Specification Editor Related Specifications Tab
- Specification Editor Configuration Spec Usage Tab
- Specification Editor Rules Tab
- Specification Editor Layouts Tab
- Specification Editor Media Tab
- Specification Editor Extends Tab
- Specification Editor Tags Tab

Inventory Group Specification Editor Related Specifications Tab

Use the **Related Specifications** tab to define and review specification relationships. Only relationships with the entity types listed in this tab are meaningful by default in UIM. If you add specifications to the Others section, you must define custom rulesets that trigger actions or behavior based on those relationships.

Section	Use
Inventory Groups	Lists inventory groups that can be children of inventory groups based on this specification.
Others	Lists specifications of entities that have a customized relationship with entities based on this specification.

Related Topics

Defining Specification Relationships

Specification Editor Related Specifications Tab

Working with Involvement Specifications

Involvement specifications enable you to define associations between entities for relationships that are not currently supported in UIM. The Involvement specifications that you create enable you to capture characteristics on the relationship and to specify the roles played by the entities participating in the involvement. In order to give the relationship behaviors, you must use rulesets and extension points.

For example, you can use involvements to establish associations involving custom objects. See "Working with Custom Object Specifications" for information about custom objects. By definition, custom objects have no implicit relationships with other entities, so you can use involvements to associate them to other entities.

Two resources can be preconfigured using the **PreconfigureSpec** Involvement specification (provided by Oracle). Preconfigured resources share the same life cycle in that when one of the resources is reserved or assigned to a service or resource, the other is automatically reserved or assigned with it. This behavior applies only to involvements created using the PreconfigureSpec specification. This specification does not appear in Design Studio; rather, it is installed in UIM as base data.

You create and configure an Involvement specification in the same way that you do most other types of specifications. See "Working with Specifications" for more information.

When working with Involvement specifications, see "Involvement Specification Editor" for more information.

Involvement Specification Editor

Use the Involvement Specification editor to define associations between entities that are not related in the inventory model.

When working with the Involvement Specification editor, see the following topics:

- Specification Editor Characteristics Tab
- Specification Editor Specification Properties Tab

- Specification Editor Related Specifications Tab
- Specification Editor Rules Tab
- Specification Editor Layouts Tab
- Specification Editor Media Tab
- Specification Editor Extends Tab

15

Working with IP Address Resource Extension Specifications

You use IP Address Resource Extension specifications to model content for IP address management. IP Address Resource Extension specifications represent networks, subnets, and IP addresses for both IPv4 and IPv6 address management.

When you define IP Address Resource Extension specifications, you can add characteristics to supplement the default data elements. See "About IP Address Resource Extensions" for more information.

When working with IP Address Resource Extension specifications, see "IP Address Resource Extension Specification Editor" for reference information about the tabs you use to define an IP Address Resource Extension specification.

About IP Address Resource Extensions

You create IP Address Resource Extension specifications by extending inventory entities. See "Extending Predefined Specifications" for more information.

When extending an IP resource entity, you select an IP resource type of:

- IPv4Network
- IPv4Subnet
- IPv4Address
- IPv6Network
- IPv6Subnet
- IPv6Address

UIM also provides the following base specifications in the ora_uim_basespecifications cartridge. If IP resources are not extended through the IP address resource extension specifications and deployed into UIM, the base specifications are deployed into UIM by default.

- IPv4NetworkBase
- IPv4SubnetBase
- IPv4AddressBase
- IPv6NetworkBase
- IPv6SubnetBase
- IPv6AddressBase

The IPv4NetworkBase and IPv6NetworkBase base specifications define a unique set of characteristics that pertain to an IPv4 and IPv6 network respectively. The IPv4Network and IPv6Network resource extension specifications define the same unique set of characteristics, but also provide the ability to extend the specification by adding custom characteristics. Both types of specifications (base and resource extension) are used to define IPv4Subnet and IPv6Subnet entities in UIM.

> **Note:**
>
> Both IP networks and IP subnets are defined in the UIM database as IPv4Subnet or IPv6Subnet entities, but are differentiated with the **isIPNetwork** boolean attribute; when set to **true**, the entity is an IP network, and when set to **false**, the entity is an IP subnet.

The IPv4SubnetBase and IPv6SubnetBase base specifications define a unique set of characteristics that pertain to an IPv4 and IPv6 subnet respectively. The IPv4Subnet and IPv6Subnet resource extension specifications define the same unique set of characteristics, but also provide the ability to extend the specification by adding custom characteristics. Both types of specifications (base and resource extension) are used to define IPv4Subnet and IPv6Subnet entities in UIM.

The IPv4AddressBase and IPv6AddressBase base specifications define a unique set of characteristics that pertain to an IPv4 and IPv6 address respectively. The IPv4Address and IPv6Address resource extension specifications define the same unique set of characteristics, but also provide the ability to extend the specification by adding custom characteristics. Both types of specifications (base and resource extension) are used to define IPv4Address and IPv6Address entities in UIM.

IP Address Resource Extension Specification Editor

You use the IP Address Resource Extension Specification editor to extend the predefined IP Address Resource specification for IPv4 and IPv6 networks, subnets, and IP addresses. When working with the IP Address Resource Extension Specification editor, see the following topics:

- Specification Editor Characteristics Tab
- Specification Editor Layouts Tab
- Specification Editor Rules Tab
- Specification Editor Related Specifications Tab
- Specification Editor Configuration Spec Usage Tab
- Specification Editor Extends Tab

16
Working with Network Address Domain Specifications

In Oracle Communications Unified Inventory Management (UIM) network address domains define a context for the uniqueness of network addresses. For example, you can use network address domain to define private routing domains for IP addresses.

In UIM, you can use network address domains with the following entities:

- Flow identifiers
- IP subnets
- Telephone numbers

Network Address Domain entities are based on specifications that you define in Oracle Communications Service Catalog and Design - Design Studio. When you define a Network Address Domain specification, you define which entity type it covers. Predefined specifications are included in some reference cartridges. For example, the Carrier Ethernet cartridge includes a specification for VLAN domains.

When working with Network Address Domain specifications, see the following topics:

- Network Address Domain Specification Editor

Network Address Domain Specification Editor

Use the Network Domain Specification editor to model Network Address Domain specifications.

When working with the Network Specification editor, see the following topics:

- Specification Editor Characteristics Tab
- Specification Editor Specification Properties Tab
- Network Address Domain Properties Tab
- Specification Editor Rules Tab
- Specification Editor Layouts Tab
- Specification Editor Media Tab
- Specification Editor Tags Tab

Network Address Domain Properties Tab

Use the **Network Properties** tab to enter network properties.

Field	Use
Network Address Type	Determines the entity types to which the network address domain applies. Select from the following: • **IP Subnet** • **Flow Identifier** • **Telephone Number**

17
Working with Media Stream Specifications

You use Media Stream specifications to model content such as audio or video media delivered over cable, satellite, radio, or streaming IP. Media Stream specifications represent provisional or subscription video services such as tiered services and a la carte packages.

When you define Media Stream specifications, you can add characteristics to supplement the default data elements.

You create Media Stream specifications in the same manner as you create other types of specifications. See "Creating New Specifications" for more information.

When working with Media Stream specifications, see "Media Stream Specification Editor" for reference information about the tabs you use to define a Media Stream specification.

Media Stream Specification Editor

You use the Media Stream Specification editor to model media streams. When working with the Media Stream Specification editor, see the following topics:

- Specification Editor Characteristics Tab
- Specification Editor Specification Properties Tab
- Specification Editor Related Specifications Tab
- Specification Editor Configuration Spec Usage Tab
- Specification Editor Rules Tab
- Specification Editor Layouts Tab
- Specification Editor Media Tab
- Specification Editor Extends Tab
- Specification Editor Tags Tab

18

Working with Sequence and Entity Identification Specifications

In Oracle Communications Service Catalog and Design - Design Studio, you can customize business entity identification generation using Entity Identification specifications. You can use Sequence specifications to customize the sequence of an ID for an entity, by defining the maximum, minimum and increment values for the sequence.

Additionally, you can define and use Sequence specifications independent of Entity Identification specifications. You can create sequence specifications to define sequences used in custom logic (in rulesets and extension points) that you write to generate numeric identifiers.

When working with Entity Identification and Sequence specifications, see the following topics:

- Working with Entity Identification Specifications
- Working with Sequence Specifications

Working with Entity Identification Specifications

Using Design Studio, you can configure business entities so that when instances are created in Oracle Communications Unified Inventory Management (UIM), the entity IDs are generated automatically. By default, the ID is a numeric sequence number. You can also customize the ID generation by defining an Entity Identification specification and associating it to an entity specification.

Entity Identification specifications enable you to define alphanumeric prefixes and suffixes, which are added to numeric sequence values to form ID values for entities.

An Entity Identification specification must be associated with a Sequence specification. The Sequence specification defines the minimum, maximum, and increment values that UIM uses to generate the numeric sequence value segment of the entity ID. See "Working with Sequence Specifications" for more information.

You can associate an Entity Identification specification to one or multiple entity specifications to define how UIM creates entity IDs when you create an entity using those specifications.

When working with Entity Identification specifications, see the following topics:

- Configuring an Entity Identification Specification
- Entity Identification Specification Editor

Configuring an Entity Identification Specification

After you create an Entity Identification specification, you must configure it.

To configure an entity identification specification:

1. Open an existing Entity Identification or create a new Entity Identification specification.

   See "Creating New Specifications" for more information.

2. In the Entity Identification Specification editor, click the **Specification Properties** tab.

---

3. Enter the start date, end date, and description.

4. Click the **Properties** tab.

5. (Optional) In the **Prefix** field, enter an alphanumeric sequence of characters to append to the beginning of the numeric sequence of the ID value.

6. (Optional) In the **Suffix** field, enter an alphanumeric sequence of characters to append to the end of the numeric sequence of the ID value.

7. Do any one of the following:

   • Click **Sequence Specification** to create a new Sequence specification.

   • Click **Select** to select an existing Sequence specification.

   • Click **Clear** to remove a previously associated Sequence specification.

8. From the **File** menu, select **Save**.

Related Topics

Entity Identification Specification Editor

Entity Identification Specification Editor

Use the Entity Identification Specification editor to define how ID values are created for an entity when the ID is generated automatically.

When working with the Entity Identification Specification editor, see the following topics:

• Specification Editor Specification Properties Tab

• Entity Identification Specification Editor Properties Tab

Entity Identification Specification Editor Properties Tab

Use the **Properties** tab to create, select, and remove a Sequence specification. This tab also enables you to specify a prefix or a suffix for an entity specification.

Field	Use
Prefix	Specify an alphanumeric sequence of characters to append to the beginning of the numeric sequence of the ID value.
Suffix	Specify an alphanumeric sequence of characters to append to the end of the numeric sequence of the ID value.
Sequence specification	Displays the name of the Sequence specification. Click to create a new Sequence specification.
Select	Click to select an existing Sequence specification.
Clear	Click to remove the association of Sequence specification.

Related Topics

Configuring an Entity Identification Specification

Entity Identification Specification Editor

Working with Sequence Specifications

You use Sequence specifications with Entity Identification specifications to customize the sequence of an ID for an entity, by defining the maximum, minimum and increment values for the sequence.

Additionally, you can define and use Sequence specifications independent of Entity Identification specifications. You can create sequence specifications to define sequences used in custom logic (in rulesets and extension points) that you write to generate numeric identifiers. For example, you can create sequence specifications for serial numbers or connection IDs. See *UIM Developer's Guide* for more information.

When working with Sequence specifications, see the following topics:

- Configuring a Sequence Specification
- Sequence Specification Editor

Configuring a Sequence Specification

After you create a sequence specification, you must configure it.

To configure a sequence specification:

1. Open an existing Sequence specification or create a new Sequence specification.

   See "Creating New Specifications" for more information.

2. In the Sequence Specification editor, click the **Specification Properties** tab.

3. Enter the start date, end date, and description.

4. Click the **Properties** tab.

5. Enter the minimum value, maximum value, and increment value.

6. From the **File** menu, select **Save**.

Related Topics

Sequence Specification Editor

Sequence Specification Editor

Use the Sequence Specification editor to customize the sequence of an ID for an entity.

When working with the Sequence Specification editor, see the following topics:

- Specification Editor Specification Properties Tab
- Sequence Specification Editor Properties Tab
- Specification Editor Media Tab

Sequence Specification Editor Properties Tab

Use the **Properties** tab to set a minimum, maximum, and an increment value for a sequence.

Field	Use
Minimum Value	Enter a minimum value for the sequence.
Maximum Value	Enter a maximum value for the sequence. Retain the default value **0** to define the sequence value as unbounded.
Increment Value	Enter an increment value for the sequence.

Related Topics

Configuring a Sequence Specification

Sequence Specification Editor

19
Working with Rulesets and Extension Points

In Oracle Communications Unified Inventory Management (UIM), rulesets and extension points are used to extend or customize UIM behavior at run time. Rulesets contain application business logic, and extension points define where in the application (which methods on classes) rulesets can be run.

For example, if you are working with related specifications, you can add rulesets that automatically create entity instances from a child specification when an instance of the entity is created from a parent specification.

You can create combinations of rulesets and extension points and apply the combinations to UIM specifications so a ruleset runs at the associated extension point if it is acting on an entity created from one of the specifications. See "Associating Specification-Based Extension Points to Rulesets" for more information.

You can also create combinations of rulesets and extension points that apply globally. In this scenario, the ruleset always runs at the associated extension point (for all specifications). See "Associating Global Extension Points with Rulesets" for more information.

When working with rulesets and extension points, see the following topics:

- Working with Rulesets
- Working with Extension Points
- Working with Ruleset Extension Points

Working with Rulesets

You use rulesets to control actions on certain entities at certain times and when conditions are met. You code business logic in a ruleset and you can run a ruleset at multiple extension points. For example, you might define a ruleset to make a telephone number field's edit mask to be ### - ### - #### at creation time for all telephone numbers based on the North American Telephone Number specification.

You use rulesets to extend and customize UIM by associating an extension point to a ruleset. Rulesets provide a capability to modify the business logic at run time.

When working with rulesets, see the following topics:

- Creating Rulesets
- Configuring Rulesets
- Ruleset Editor

Creating Rulesets

You create rulesets to control actions on entities at specific times and under specific conditions.

To create a ruleset:

1. From the **Studio** menu, select **New**, then select **Inventory**, then select **Administration**, and then select **Ruleset**.

The Ruleset Wizard dialog box appears.

2. From the **Project** drop-down list, select the project where the entity is to reside.

3. In the **Name** field, enter the name of the ruleset.

> **Note:**
>
> For a ruleset entity, the text editor forces you to enter all capitals. Use underscores for readability, such as MY_RULE_SET.

4. (Optional) Select a location for the new ruleset.

   By default, Oracle Communications Service Catalog and Design - Design Studio saves the entity to your default workspace location. You can enter a folder name in the **Folder** field or select a location different from the system-provided default. To select a different location:

   a. Click the **Folder** field **Browse** button.

   b. Navigate to the directory in which to save the entity.

   c. Click **OK**.

5. Click **Finish**.

Related Topics

Configuring Rulesets

Ruleset Editor

Configuring Rulesets

After you create a ruleset, you must configure it.

To configure a ruleset:

1. Open an existing ruleset or create a new one.

   See "Creating Rulesets" for more information.

2. Click the **Run Extension Language** list arrow and select **DROOLS** or **GROOVY**, depending on which extension language you plan to use.

3. Click **Edit Drools Code** or click **Edit Groovy Code**, depending on which extension language you plan to use.

   An empty DRL or GROOVY file opens.

> **Note:**
>
> Oracle recommends that you download the Drools or Groovy text editor and configure Design Studio to use the editor. The text editors can catch syntax errors that can be corrected as you write the ruleset, rather than waiting to catch the errors at compilation.

4. Write the ruleset.

   See *UIM Developer's Guide* for detailed information about writing a ruleset.

5. From the **File** menu select **Save**, then close the DRL or GROOVY file.

6. From the **File** select **Save** again to save the ruleset.

Ruleset Editor

Use the Ruleset editor to create and configure rulesets.

When using the Ruleset editor to create or configure a ruleset, see the following topics:

• Ruleset Editor Code Tab

• Ruleset Editor Realization Tab

Ruleset Editor Code Tab

Use the Ruleset editor **Code** tab to create rulesets in a DRL or GROOVY file.

Field	Use
Run Extension Language	Click to select which extension language to run at runtime. Your choices are DROOLS or GROOVY.
Edit Drools Code	Click to write a ruleset in a DRL file.
Edit Groovy Code	Click to write a ruleset in a GROOVY file.

Related Topics

Working with Rulesets

Creating Rulesets

Configuring Rulesets

Ruleset Editor

Ruleset Editor Realization Tab

Use the Ruleset editor **Realization** tab to associate rulesets with a conceptual model service action.

Field	Use
Realizes	Click to open the selected service action in the Action editor.
Select	Associates the ruleset with a conceptual model service action. To select from the available conceptual model service actions, there must be a dependency defined between your Inventory cartridge project and the Model project in which your conceptual model is saved. See "Managing Project Dependencies" for more information.

Related Topics

Working with Conceptual Models

Working with Rulesets

Creating Rulesets

Configuring Rulesets

Working with Extension Points

An extension point represents a method on a Java class where a ruleset can be run. These methods can be extended by associating an executable ruleset to the extension point.

When working with extension points, see the following topics:

- About Extension Points
- Creating Extension Points
- Configuring Extension Points
- Associating Specification-Based Extension Points to Rulesets
- Associating Global Extension Points with Rulesets
- Extension Point Editor

About Extension Points

An extension point represents a method on a Java class where a ruleset can be run. These methods can be extended by associating an executable ruleset to the extension point. UIM provides several extension points, and a way for you to create new extension points.

There are two types of extension points that you can create in Design Studio:

- Specification-based extension points define methods where an associated ruleset can be run, but only when working with entities created from specific specifications.
- Global extension points define methods where an associated ruleset can be run, and which do not pertain to any particular specification. Rulesets associated with global extension points are triggered by all specifications.

Related Topics

Creating Extension Points

Configuring Extension Points

Associating Specification-Based Extension Points to Rulesets

Associating Global Extension Points with Rulesets

Creating Extension Points

An extension point represents a method on a Java class where a ruleset can be run. These methods can be extended by associating an executable ruleset to the extension point.

To create an extension point:

1. From the **Studio** menu, select **New**, then select **Inventory**, then select **Administration**, and then select **Extension Point**.

   The Extension Point Wizard dialog box appears.

2. From the **Project** drop-down list, select the project where the entity is to reside.

3. In the **Name** field, enter the name of the extension point.

4. (Optional) Select a location for the new extension point.

By default, Design Studio saves the entity to your default workspace location. You can enter a folder name in the **Folder** field or select a location different from the system-provided default. To select a different location:

    a. Click the **Folder** field **Browse** button.

    b. Navigate to the directory in which to save the entity.

    c. Click **OK**.

5. Click **Finish**.

Related Topics

About Extension Points

Configuring Extension Points

Extension Point Editor

Configuring Extension Points

After you create an extension point, you must configure it. When you configure an extension point in Design Studio, the data you enter is saved to the cartridge.

To configure an extension point:

1. Open an existing Extension Point entity or create a new one.

See "Creating Extension Points" for more information.

2. In the **Point Name** field, enter the name of the extension point.

Oracle recommends the point name be represented as ClassName_methodName. Eclipse does not allow a period in a text field, so the standard notation of ClassName.methodName cannot be entered.

3. In the **Description** field, enter a brief description of the extension point.

The description describes the method defined by the point name.

4. (Optional) Select **Global** if the extension point will not be associated with a specific specification type (or with a specific set of specifications).

5. In the **Signature** field, enter the signature of the method defined by the point name.

- The signature includes the return value, method name, and all parameters.

- The signature requires that all objects be fully qualified.

- The signature must be an abstract interface.

- Signatures that define arrays must use the notation of "[]" to represent the array of objects. The notation of "..." to represent an array of objects is not recognized by the AspectJ framework.

- Signatures that define an array of objects as a parameter must contain the keyword transient. The AspectJ framework requires this keyword to retrieve the extension point.

6. From the **File** menu, select **Save**.

7. Create an **aop.xml** file and define the extension point within the file.

See *UIM Developer's Guide* for more information on creating the **aop.xml** file.

Related Topics

Associating Specification-Based Extension Points to Rulesets

You can create combinations of rulesets and extension points and associate the combinations to UIM specifications so that a ruleset runs at the associated extension point only if it is acting on an entity created from one of the associated specifications.

To associate specification-based extension points to rulesets:

1. Create and configure a ruleset.

   See "Working with Rulesets" for more information.

2. Create an extension point.

   See "Creating Extension Points" for more information.

3. Create and configure enabled extension points for one or multiple specification classes.

   See "Working with Enabled Extension Points" for more information.

4. Create and configure a ruleset extension point.

   See "Working with Ruleset Extension Points" for more information.

After you associate a specification-based extension point to a ruleset, you associate the ruleset extension point to a specific instance of a specification in Design Studio. See "Associating Specification-Based Ruleset Extension Points to Specifications" for more information.

Working with Enabled Extension Points

An enabled extension point identifies the specification entity class on which a specification-based extension point can be used. You must create an enabled extension point for each type of entity specification for which you use the extension point. For example, if you plan to use an extension point on equipment specifications and logical device specifications, you must create two enabled extension points for the extension point; one that identifies the EquipmentSpecification class, and one that identifies the LogicalDeviceSpecification class.

When working with enabled extension points, see the following topics:

- Creating Enabled Extension Points
- Configuring Enabled Extension Points
- Enabled Extension Point Editor

Creating Enabled Extension Points

An enabled extension point associates a Java class entity specification to an extension point. You can create an enabled extension point in Design Studio.

To create an enabled extension point:

1. From the **Studio** menu, select **New**, then select **Inventory**, then select **Administration**, and then select **Enabled Extension Point**.

    The Enabled Extension Point Wizard dialog box appears.

2. From the **Project** drop-down list, select the project where the entity is to reside.

3. In the **Name** field, enter the name of the enabled extension point.

4. (Optional) Select a location for the new enabled extension point.

    By default, Design Studio saves the entity to your default workspace location. You can enter a folder name in the **Folder** field or select a location different from the system-provided default. To select a different location:

    a. Click the **Folder** field **Browse** button.

    b. Navigate to the directory in which to save the entity.

    c. Click **OK**.

5. Click **Finish**.

    Related Topics

    Configuring Enabled Extension Points

    Enabled Extension Point Editor

Configuring Enabled Extension Points

After you create an enabled extension point, you must configure it.

To configure an enabled extension point:

1. In the Solution view, double-click an enabled extension point.

    The Enabled Extension Point editor appears.

2. From the **Specification Class Name** list, select a Java class for the specification.

    When configuring an enabled extension point for a configuration specification, you must select the **InventoryConfigurationSpec** Java class, which enables the **Configuration Version Instance Type** field to identify the configurable entity.

    See "Enabled Extension Point Editor" for more information.

3. (Optional) If you selected **InventoryConfigurationSpec** from the **Specification Class Name** list and you want to enable the extension point for a specific configurable entity, select a configuration version Java DAO class from the **Configuration Version Instance Type** list. If you do not select a class, all configurable entities are enabled.

    See "Enabled Extension Point Editor" for more information.

4. In the **Point** field, select an existing extension point or create a new one.

    See "Creating Enabled Extension Points" for more information.

    Related Topics

    Enabled Extension Point Editor

Enabled Extension Point Editor

Use to define the specification entity class on which a specification-based extension point can be used.

Field	Use
Specification Class Name	Select the fully qualified entity specification Java class.
	Nearly all Inventory entities are recognizable by their Java class name. For example, the Telephone Number Specification entity appears in the list as **oracle.communications.inventory.api.entity.TelephoneNumberSpecification**, and the Equipment Specification entity appears in the list as **oracle.communcations.inventory.api.entity.EquipmentSpecification**.
	The only exceptions to this recognizable naming convention are the configuration specifications, which are:
	• Flow Interface Configuration specification
	• Logical Device Configuration specification
	• Logical Device Account Configuration specification
	• Network Configuration specification
	• Pipe Configuration specification
	• Place Configuration specification
	• Service Configuration specification
	To enable an extension point for a configuration specification, you must select the **oracle.communications.inventory.api.entity.InventoryConfigurationSpec** class, which enables the **Configuration Version Instance Type** list.
Configuration Version Instance Type	The **Configuration Version Instance Type** list is enabled only when you select **oracle.communications.inventory.api.entity.InventoryConfigurationSpec** from the **Specification Class Name** field.
	(Optional) To enable an extension point for a specific entity configuration specification, select the configuration version DAO class for the configurable entity, which is recognizable by its Java class name. For example, the Logical Device Configuration specification entity appears in the list as **oracle.communications.platform.entity.impl.LogicalDeviceConfigurationVersionDAO**, and the Service Configuration specification entity appears in the list as **oracle.communications.platform.entity.impl.ServiceConfigurationVersionDAO**.
	If enabled, and you do not select a value for **Configuration Version Instance Type**, the extension point is enabled for all entity configuration specifications.
Point	Displays the name of the selected extension point. Click **Point** to create a new extension point.
Select	Click to select an existing extension point.
Clear	Click to remove a previously selected extension point.

Related Topics

Configuring Enabled Extension Points

Associating Specification-Based Extension Points to Rulesets

Associating Global Extension Points with Rulesets

You can create combinations of global extension points and ruleset associations if you want rulesets to run at the associated extension point for all specifications.

To associate global extension points to rulesets:

1. Create and configure a ruleset.

   See "Working with Rulesets" for more information.

2. Create an extension point.

   See "Creating Extension Points" for more information.

3. Create and configure a ruleset extension point.

   See "Working with Ruleset Extension Points" for more information.

Extension Point Editor

Use the Extension Point editor to define point names, descriptions, and method signatures for extension points.

Field	Use
Point Name	Enter a name for the extension point.
Description	Enter a description for the extension point.
Global	Select if the extension point will not be associated with a specific specification type (or with a specific set of specifications).
Signature	Define a method signature for an extension point.

Related Topics

Configuring Enabled Extension Points

Associating Specification-Based Extension Points to Rulesets

Associating Global Extension Points with Rulesets

Working with Ruleset Extension Points

A ruleset extension point associates a ruleset with an extension point and defines whether the ruleset runs before, after, or instead of the method defined by the extension point.

To define an ruleset extension point, see the following:

- About Ruleset Extension Points
- Creating Ruleset Extension Points
- Configuring Ruleset Extension Points
- Associating Specification-Based Ruleset Extension Points to Specifications
- Ruleset Extension Point Editor
- Ruleset Extension Point-Global Editor

About Ruleset Extension Points

A ruleset extension point associates a ruleset with an extension point and defines whether the ruleset runs before, after, or instead of the method defined by the extension point.

There are two types of ruleset extension points, and the type determines which of the two Ruleset Extension Point editors you use.

- Specification-based ruleset extension points associate a ruleset with a specification-based extension point. You use the "Ruleset Extension Point Editor" when configuring these types of ruleset extension points.

- Global ruleset extension points associate a ruleset with a global extension point. You use the "Ruleset Extension Point-Global Editor" when configuring these types of ruleset extension points.

Related Topics

Creating Ruleset Extension Points

Configuring Ruleset Extension Points

Working with Extension Points

Creating Ruleset Extension Points

The ruleset extension point associates an extension point to a ruleset, and defines the placement of the ruleset.

To create a ruleset extension point:

1. From the **Studio** menu, select **New**, then select **Inventory**, then select **Administration**, and then do one of the following:

    - Select **Ruleset Extension Point** to associate a ruleset with a specification-based extension point.

    - Select **Ruleset Extension Point-Global** to associate a ruleset with a global extension point.

    Depending on your selection, the Ruleset Extension Point Wizard or Ruleset Extension Point-Global Wizard appears.

2. From the **Project** drop-down list, select the project where the entity is to reside.

3. In the **Name** field, enter the name of the ruleset extension point.

4. (Optional) Select a location for the new ruleset extension point.

    By default, Design Studio saves the entity to your default workspace location. You can enter a folder name in the **Folder** field or select a location different from the system-provided default. To select a different location:

    a. Click the **Folder** field **Browse** button.

    b. Navigate to the directory in which to save the entity.

    c. Click **OK**.

5. Click **Finish**.

Related Topics

Configuring Ruleset Extension Points

Ruleset Extension Point Editor

Ruleset Extension Point-Global Editor

Configuring Ruleset Extension Points

After you create a ruleset extension point, you must configure it.

To configure a ruleset extension point:

1. Open an existing ruleset extension point or create a new one.

    See "Creating Ruleset Extension Points" for more information.

2. In the **Ruleset** field, do one of the following:

    *   Click **Ruleset** to create a new ruleset. See "Creating Rulesets" for more information.

    *   Click **Select** to select an existing ruleset. The Ruleset dialog box appears, displaying all available rulesets.

3. In the **Point** field, do one of the following:

    *   Click **Point** to create a new extension point. See "Creating Extension Points" for more information.

    *   Click **Select** to select an existing extension point. The Extension Point dialog box appears, displaying all available extension points. The list displays only those extension points that are applicable to the type of ruleset extension point. For example, if you are configuring the ruleset in the Ruleset Extension Point-Global editor, only those extension points defined as global appear in the list. See "Working with Extension Points" for more information.

4. In the **Placement** field, define whether the ruleset runs before, after, or instead of the method defined by the extension point.

    See "Ruleset Extension Point Editor"or "Ruleset Extension Point-Global Editor" for more information about this field.

5. From the **File** menu, select **Save**.

Associating Specification-Based Ruleset Extension Points to Specifications

Ruleset extension points must be associated with an instance of a specification in order to run. This is not applicable to global ruleset extension points (rulesets at a global extension point can run without being associated to a specification).

To associate specification-based ruleset extension points to specifications:

1. Navigate to the editor of an existing specification to which you want to associate a ruleset extension point.

2. Click the **Rules** tab.

3. Do one of the following:

    *   Click **Select** to select an existing ruleset extension point.

    *   Click **Add** to create and select a new ruleset extension point. See "Creating Ruleset Extension Points" for more information. When you have completed working on the new

ruleset extension point, return to the editor of the specification to which you want to associate this ruleset.

- Select a ruleset extension point in the table and click **Open** to view the ruleset extension point in the Ruleset Extension Point editor.

- Select a ruleset extension point in the table and click **Remove** to delete the association.

4. From the **File** menu, select **Save**.

See *UIM Developer's Guide* for more information.

Ruleset Extension Point Editor

Use to associate a ruleset with a specification-based extension point, and to define the custom code placement.

Field	Use
Ruleset	Do one of the following: • Click **Ruleset** to create a new ruleset. • Click **Select** to select an existing ruleset. • Click **Clear** to remove a previously selected ruleset.
Point	Do one of the following: • Click **Point** to create a new specification-based extension point. • Click **Select** to select an existing specification-based extension point. • Click **Clear** to remove a previously selected specification-based extension point. See "Working with Extension Points" for more information.
Placement	Define whether the ruleset runs before, after, or instead of the method defined by the extension point. • Select **Before** to run the ruleset before the method specified by the signature. For an extension point of type call, the custom code is weaved before the call to the method. For an extension point of type execution, the custom code is weaved within the method before the first line of executable code. • Select **After** to run the ruleset after the method specified by the signature. For an extension point of type call, the custom code is weaved after the call to the method. For an extension point of type execution, the custom code is weaved within the method after the last line of executable code. • Select **Instead** to run the ruleset instead of the method specified by the signature. For an extension point of type call, the custom code is weaved in place of the call to the method. For an extension point of type execution, the custom code is weaved within the method in place of the executable code.

Related Topics

Configuring Ruleset Extension Points

Associating Specification-Based Extension Points to Rulesets

Ruleset Extension Point-Global Editor

Use to associate a ruleset with a global extension point, and to define the custom code placement.

Field	Use
Ruleset	Do one of the following: • Click **Ruleset** to create a new ruleset. See "Creating Ruleset Extension Points" for more information. • Click **Select** to select an existing ruleset. The Ruleset dialog box appears, displaying all available rulesets. • Click **Clear** to remove a previously selected ruleset.
Point	Do one of the following: • Click **Point** to create a new global extension point. See "Creating Extension Points" for more information. • Click **Select** to select an existing global extension point. The Extension Point dialog box appears, displaying all available global extension points. • Click **Clear** to remove a previously selected extension points. See "Working with Extension Points" for more information.
Placement	Define whether the ruleset runs before, after, or instead of the method defined by the global extension point. • Select **Before** to run the ruleset before the method specified by the signature. For an extension point of type call, the custom code is weaved before the call to the method. For an extension point of type execution, the custom code is weaved within the method before the first line of executable code. • Select **After** to run the ruleset after the method specified by the signature. For an extension point of type call, the custom code is weaved after the call to the method. For an extension point of type execution, the custom code is weaved within the method after the last line of executable code. • Select **Instead** to run the ruleset instead of the method specified by the signature. For an extension point of type call, the custom code is weaved in place of the call to the method. For an extension point of type execution, the custom code is weaved within the method in place of the executable code.

Related Topics

Associating Global Extension Points with Rulesets

Configuring Ruleset Extension Points

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Managing and Extending Cartridge Packs and Cartridges

Oracle Communications Service Catalog and Design - Design Studio packages project information into cartridges that can be deployed into Oracle Communications Unified Inventory Management (UIM). Cartridges can contain small amounts of data, such as one specification, or can be large collections of many specifications.

Cartridges can be developed by customers, systems integrators, Professional Services staff, and third-party vendors. In addition, Oracle provides cartridge packs, which are packages of one or more cartridges that model inventory for a particular technology.

When managing and extending cartridge packs and cartridge projects, see the following topics:

- About Cartridge Packs and Cartridges
- Extending Cartridge Packs and Cartridges
- Working with UIM Cartridge Projects

About Cartridge Packs and Cartridges

A cartridge is an application component delivered with a product, cartridge pack, or solution. Cartridges are typically packaged in a JAR format. Cartridge packs are packages of cartridges developed by Oracle.

Technology Pack	Description
Base cartridges	Provide basic content required by many other cartridges and cartridge packs. Delivered in the core UIM package and installed at the following location: *UIM_Home***/cartridges/base** folder See *UIM Cartridge Guide* for more information.
Sample cartridges	Include sample specifications, extensions, rulesets, and code. You can use them as a reference or as a starting point for your own development. Installed at the following location: *UIM_Home***/cartridges/sample** folder
Product cartridge packs	Separately licensed products developed and supported by Oracle Communications to model inventory for specific technology domains, such as Consumer VoIP or MPLS L3 VPNs. Available on the Oracle software delivery website.

You can install cartridge packs without modification into UIM. This is usually the case for base cartridges. Cartridge packs include multiple cartridges, and these cartridges may have dependencies on each other. In this case, they must be installed in a particular order. See *UIM Installation Guide*, the UIM online Help, and the guides for individual product cartridge packs for more information about installation.

You can also extend cartridge packs and cartridges. See "Extending Cartridge Packs and Cartridges" for more information.

Extending Cartridge Packs and Cartridges

You can extend cartridge packs and cartridges to include new specifications, characteristics, and rulesets. You can also introduce new behaviors into the model provided by a cartridge pack by taking advantage of stub rulesets.

> **Note:**
>
> To ensure that extensions are upgradeable and supportable, follow the guidelines and policies described in *UIM Developer's Guide*. In most cases, you extend cartridge packs by adding content in supplemental cartridges that you create.

When extending cartridge packs, see the following topics:

- Extending Cartridge Packs and Cartridges by Adding Content
- Extending Cartridge Packs and Cartridges by Replacing Stub Rulesets
- Extending Cartridge Packs and Cartridges by Renaming

Extending Cartridge Packs and Cartridges by Adding Content

You can extend cartridge packs and cartridges by creating new, related content in a separate project. When you install the cartridge pack or cartridge into UIM and then install your supplemental cartridge, the additional content becomes available.

There are several ways to add content:

- By creating new specifications to represent additional resources in the model. For example, if the cartridge pack or cartridge does not include specifications for all of the specific types of equipment and physical devices you use, you can create specifications for them. If the new specifications are similar to specifications in the cartridge pack or cartridge, you can copy the existing specifications into your project and make any necessary modifications. Design Studio forces you to rename the copies. See "Copying Specifications" for more information.

- By creating new specifications that are upwardly related to specifications in the cartridge pack or cartridge. Three types of upward relationships are possible:

    – From an entity specification to another entity specification in a cartridge pack or cartridge. For example, you can create an upward relationship from a Device Interface specification you create to a Logical Device specification in a cartridge pack or cartridge.

    – From an entity specification to a configuration item in the cartridge pack or cartridge. For example, you can create an upward relationship from a Telephone Number specification you create to a configuration item in a configuration specification that is part of a cartridge pack or cartridge. See "Defining Configuration Specification Usage" for more information.

    – From an configuration specification to a parent entity specification in a cartridge pack. For example, you can create an ADSL2Plus Service Configuration specification and relate it to a DSL Service specification in a cartridge pack.

    See "Defining Specification Relationships" for more information about relating specifications.

- By creating new entity-level characteristics for an IP Address Resource or Property Location Extension entity. When you define entity-level characteristics for these extension entities, those characteristics apply to all instances of the entity in the run-time environment. See "Extending Predefined Specifications" for more information.

When you create a dependency between a specification in your own cartridge and a specification in a cartridge pack or cartridge, both cartridges must exist in the same workspace. Additionally, you must import into the workspace all cartridges on which the cartridge pack or cartridge depends.

Extending Predefined Specifications

Some UIM entities are defined by a single predefined specification rather than by specifications that you design. To extend these entities, you can define entity-level characteristics. You add the entity-level characteristics to extension specifications for these entities:

- Channelized Connectivity Extension (included for backward compatibility with previous versions)
- Managed Project Extension
- IP Address Resource Extension
- Property Location Extension entities

When you define entity-level characteristics for these specifications and deploy the cartridge that contains them to UIM, the characteristics apply to all entities based on the specifications.

> **Note:**
>
> You must import the ora_uim_basespecifications cartridge before you define characteristics for the extension entities. See *UIM Cartridge Guide* for information about the ora_uim_basespecifications cartridge.

To extend Design Studio for Inventory entities:

1. From the **Studio** menu, select **New**, then select **Inventory**, then select **Extend Entity**, and then select the type of entity to extend.

   You can extend Channelized Connectivity Extension, IP Address Resource Extension, or Property Location Extension entities. After you make a selection, the Entity Extension Wizard appears.

2. In the **Project** field, select the name of the project to which the new specification should be added.

3. (IP Address Resource Extension only) From the **IP Resource Type** list, select IPv4Network, IPv4Subnet, IPv4Address, IPv6Network, IPv6Subnet, or IPv6Address.

4. (Optional) Select a location for the new specification.

   By default, Design Studio saves the entity to your default workspace location. You can enter a folder name in the **Folder** field or select a location different from the system-provided default. To select a different location:

   a. Click the **Folder** field **Browse** button.

   b. Navigate to the directory in which to save the entity.

   c. Click **OK**.

5. Click **Finish**.

    Design Studio creates the new entity and displays its information in an Entity Extension editor.

6. In the Entity Extension editor **Characteristics** tab, right-click and select **Add Characteristic** or **Select Characteristic**.

    See "Creating Characteristics from the Specification Editor" for information about creating new characteristics, and see "Adding Characteristics to Specifications" for information about selecting existing characteristics.

7. (Optional) Define the layout for the entity extension.

    See "Specification Editor Layouts Tab" for more information.

8. (Optional) Define user interface hints for the entity-level characteristics for the entity extension.

    See "Specification Editor Layouts Tab" for more information.

9. (Optional) If a characteristic is defined with enumerations, define a set of data values for the entity-level characteristic.

    You can exclude enumerations defined at the schema level or add additional enumerations. See "Characteristics Tab Data Values Subtab" for more information.

10. (Property Location Extension only) In the Entity Extension editor **Rules** tab, do one of the following:

    •   Click **Select** to select an existing ruleset extension point.

    •   Click **Add** to create and select a new ruleset extension point. See "Creating Ruleset Extension Points" for more information.

    •   Select a ruleset extension point in the table and click **Open** to view the ruleset extension point in the Ruleset Extension Point editor.

    •   Select a ruleset extension point in the table and click **Remove** to delete the association.

11. Click **Save**.

Entity Extension Editor

You use the Entity Extension editor to create new entity-level characteristics for a Channelized Connectivity Extension, IP Address Resource Extension, or Property Location Extension entity.

When extending these entities, see the following topics:

*   Specification Editor Characteristics Tab
*   Specification Editor Layouts Tab
*   Specification Editor Rules Tab
*   Specification Editor Tags Tab

(The **Rules** tab is not available for Channelized Connectivity Extension.)

Extending Cartridge Packs and Cartridges by Replacing Stub Rulesets

You can extend a cartridge pack or cartridge by replacing stub rulesets with rulesets you create. Stub rulesets have no default logic associated with them. When you replace a stub, your logic runs at the extension point associated with the ruleset. Stub rulesets typically provide opportunities to extended validation and auto-allocation.

You give your ruleset the same name as the original in the cartridge pack. When you install your cartridge into UIM, your version of the stub ruleset overwrites the stub ruleset installed with the cartridge pack. Because Design Studio requires unique names within a workspace, you must create your ruleset in a workspace that does not include the cartridge pack project with the stub.

Alternatively, instead of having a separate workspace, you can just close the other project that includes the entity with the same name.

See "Working with Rulesets" for more information about working with rulesets.

Extending Cartridge Packs and Cartridges by Renaming

You can extend cartridge packs and cartridges by renaming the original cartridge pack or cartridge and refactoring all existing objects. Oracle recommends that you use this method only when you are not able to extend the cartridge pack or cartridge by adding new content to your own project.

> **Note:**
>
> When you intend to rename a cartridge pack or cartridge, do not deploy the original cartridge pack or cartridge into UIM.

To extend cartridge packs and cartridges by renaming:

1. Create a backup of the cartridge pack or cartridge.

2. Import all dependent projects into the workspace, then import the cartridge pack or cartridge.

   See "Importing Projects" for more information.

3. Build the cartridge pack or cartridge and all dependent projects and resolve all problem markers.

   See "Building and Packaging Projects" for more information.

4. From the **Studio** menu, select **Show Design Perspective**.

5. From the Studio Projects view, double-click the Project entity for the cartridge pack or cartridge.

   The entity opens in the Project editor.

6. On the **Properties** tab, click **Unseal**.

   The Unseal Project confirmation dialog box appears.

7. Click **OK**.

8. Build the unsealed cartridge pack or cartridge project.

9. From the Studio Projects view, right-click the cartridge pack or cartridge and select **Rename**.

   The Refactoring dialog box appears.

> **✎ Note:**
>
> Always rename cartridge packs or cartridges from the Studio Projects view.

10. In the **Name** field, enter a new name for the cartridge pack or cartridge then click **Next**.

    Design Studio lists all of the changes to be performed. Ensure that all of the instances are selected.

11. Click **Finish** and when prompted click **OK**.

    Design Studio closes and restarts.

12. After Design Studio reopens, build all sample and dependent cartridges and fix all problem markers.

13. Change the package reference to remove "Oracle" from the class packaging.

    Removing this reference ensures that there are no collisions at run time.

    a. From the **Window** menu, select **Open Perspective** and then select **Java**.

       The Java perspective appears.

    b. In the Package Explorer view, navigate to and open the cartridge **src** folder.

    c. Remove the Oracle reference from the class packaging.

14. (Optional) If projects in the workspace have dependencies on the original cartridge, import the original cartridge back into the workspace.

Working with UIM Cartridge Projects

In Design Studio, a cartridge is a collection of components that you deploy into a run-time environment to support your business processes. You create Cartridge projects to contain the specifications and code that you develop. Each Cartridge project is mapped to directories in the file system and is a collection of files and folders.

You can import existing Cartridge projects into your workspace (for example, you can import Cartridge projects from a cartridge pack) or you can create new Cartridge projects in Design Studio.

When working with Inventory Cartridge projects, see the following topics:

- About Imported Inventory Cartridge Projects
- About New UIM Cartridge Projects
- About Inventory Cartridge Project Dependencies
- Deploying Inventory Cartridge Projects
- Configuring the UIM Project Library List

About Imported Inventory Cartridge Projects

You can import existing Cartridge projects into Design Studio. Cartridges that include customizable Java source code are packaged in a ZIP file. You can import the ZIP file or extract the ZIP file to a folder and import the Cartridge project from the folder. When you import a cartridge, it becomes a Cartridge project in the current workspace. See "Importing Projects" for more information about importing Inventory Cartridge projects.

If you import a cartridge from a cartridge pack or a cartridge that has been protected by its creator, it will be *sealed*. Sealed cartridges cannot be modified without first being unsealed. See "Sealing Projects" and "Unsealing Projects" for more information.

Cartridges with dependencies will display errors when you import them without the required cartridges already being present in the workspace. For example, if you import a cartridge that requires one of the base cartridges, you will see errors. After all the cartridges have been imported, you can clean all the projects to remove the errors. See "Reviewing the Error Log", "Problems View", and "Running Clean Builds" for more information. See "Importing Projects into Design Studio using Root Directories" for more information about importing existing projects into a workspace.

About New UIM Cartridge Projects

You can create new Cartridge projects in Design Studio. For example, you may create a Cartridge project that contains all characteristics, another that contains all specifications, and so forth. Everything you create in Design Studio (characteristics, specifications, and rulesets, for example) resides in a project. The name you choose for a Cartridge project becomes the name of a JAR file, and everything you create within that project is automatically placed in the JAR file.

See "Creating New Cartridge Projects" for more information about creating cartridge projects in Design Studio.

See "Project Editor" for information about the tabs you use to define an Inventory cartridge project. See "Reviewing the Error Log" and "Problems View" for more information about resolving project errors and warnings.

About Inventory Cartridge Project Dependencies

Inventory projects have dependencies on other projects when entities in one project reference entities in a different project. For example, an Inventory project might reference data elements defined in a common model project.

If you configure a project to reference content in other projects without declaring project dependencies, Design Studio creates an error or a warning, depending on how you configured the diagnostic level (see "Project Editor Dependency Tab" for more information about configuring the diagnostic level). Design Studio filters data that appears in dialog boxes and views based on project dependencies.

All Inventory cartridge projects have a dependency on the **ora_uim_model** project. You must import and open the **ora_uim_model** and **ora_uim_mds** projects in your workspace before modeling UIM entities in Design Studio.

> ✎ **Note:**
>
> Import the **ora_uim_mds_cartproj.zip** and **ora_uim_model_cartproj.zip** cartridge project archive files from the *UIM_Home***/cartridges/base** directory.

The **ora_uim_model** project is a read-only project that represents the UIM model. It supports the ability to define specifications and characteristics and is also used to validate which entity types can be assigned or referenced by configuration items.

When you create a new Inventory cartridge project, Design Studio adds the **ora_uim_model** project to the dependency list on the Inventory Project editor **Dependency** tab. Do not remove this dependency.

> **✎ Note:**
>
> Inventory cartridge projects must be defined with the same target version as the required model projects in a workspace. Ensure that you import the correct version of the required model projects into a workspace. See "Defining Cartridge Project Target Versions" for more information.
>
> See *UIM Cartridge Guide* for more information about the **ora_uim_model** project and the **ora_uim_mds** project.

Related Topics

Managing Project Dependencies

Deploying Inventory Cartridge Projects

You deploy Design Studio Inventory cartridge projects from the Environment perspective. The method that you use to deploy cartridge projects is the same for all Design Studio features. See "Deploying Cartridge Projects" for more information.

If you are deploying into a UIM environment that is a clustered server or where UIM is running on a managed server that is separate from the administration server, you must define the **wladmin.host.name** and **wladmin.host.port** cartridge management variables. See "Design Studio for Inventory Cartridge Management Variables Tab" for more information.

Design Studio for Inventory Cartridge Management Variables Tab

Use the Project editor **Cartridge Management Variables** tab to define the Oracle WebLogic Server Admin Server IP address and port values. Before you deploy Design Studio for Inventory Cartridge projects, you must define the default cartridge management variables **wladmin.host.name** and **wladmin.host.port**.

This topic describes the cartridge management variables that are specific to Design Studio for Inventory. For general information about how to use the tab to add variables, see "Project Editor Cartridge Management Variables Tab".

Field	Use
wladmin.host.name	Enter the host name where the WebLogic Server software resides. Contact your UIM system administrator to obtain this information.
	If you are deploying to an environment where there is only one server (for example, the application is deployed to the WebLogic Admin server, use the same value that you used for the IP address of the UIM server in the Studio Environment editor **Connection Information** tab **Address** field.

Field	Use
wladmin.host.port	Enter the WebLogic Server port number. Contact your UIM system administrator to obtain this information.
	If you are deploying to an environment where there is only one server (for example, the application is deployed to the Admin Server, define this value with the same value that you defined for port number of the UIM server in the Studio Environment editor **Connection Information** tab **Address** field.

Related Topics

Studio Environment editor Connection Information Tab

Configuring the UIM Project Library List

Depending on the imported project, you may need to configure the project library list. If the imported project includes a library list of the files needed to compile the project, the project library list must be configured to point to a location to pick up the cited files.

To configure the project library list within Design Studio:

1. Select the cartridge in the Studio Projects view.

2. From the **Project** menu, select **Properties**.

3. Select **Java Build Path**.

4. Click the **Libraries** tab.

   The project library list contains all the files needed to compile the project.

   The library path for each file starts with UIM_LIB. Therefore, you must:

   a. Create a working directory. For example, **UIM_LIB**.

   b. Copy the files from your UIM installation to the working directory you just created.

   c. Add a new variable named UIM_LIB that points to this working directory. (The following steps show how to add the new variable.)

5. Click **Add Variable**.

   The New Variable Classpath Entry dialog box appears.

6. Click **Configure Variables**.

   The Preferences dialog box appears.

7. Click **New**.

   The New Variable Entry dialog box appears.

8. In the **Name** field, enter UIM_LIB.

9. Click **Folder** and browse to the directory you created in a previous step.

   For example, the **UIM_LIB** directory.

10. Click **OK**.

    The Preferences dialog box appears.

11. Click **OK**.

The Classpath Variables Changed dialog box appears, suggesting that you do a full build now.

12. Click **No**.

The New Variable Classpath Entry dialog box appears.

> **✎ Note:**
>
> The **OK** button is not available, and an error displays stating "Variable points to...". Click **Cancel**, and the new variable is added successfully.

13. Click **Cancel**.

The Properties dialog box appears.

14. Click **OK**.

15. Open the Properties dialog box again to refresh the library list and ensure that the variable was added successfully.

You should now see the complete path in the build path.