

SAP® PowerDesigner®  
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## PowerDesigner Web

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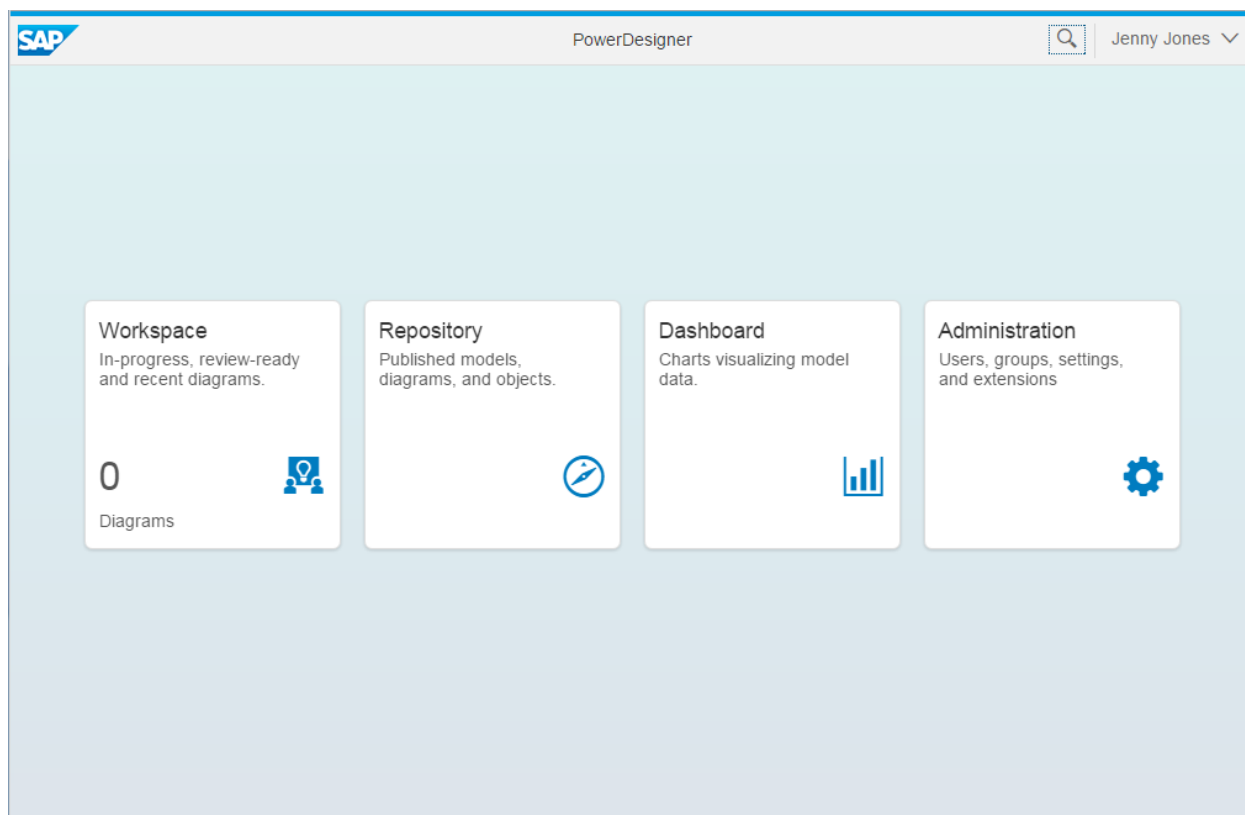
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# 1 Modeling with PowerDesigner Web

PowerDesigner Web lets you browse PowerDesigner diagrams and objects through a Web browser. If you have the necessary permissions, you can also create and edit requirements documents, enterprise architecture diagrams, process maps, and BPMN 2 Descriptive and Executable process diagrams. To visit PowerDesigner Web, navigate to the URL indicated to you by your administrator and, if required, enter your user name and password.



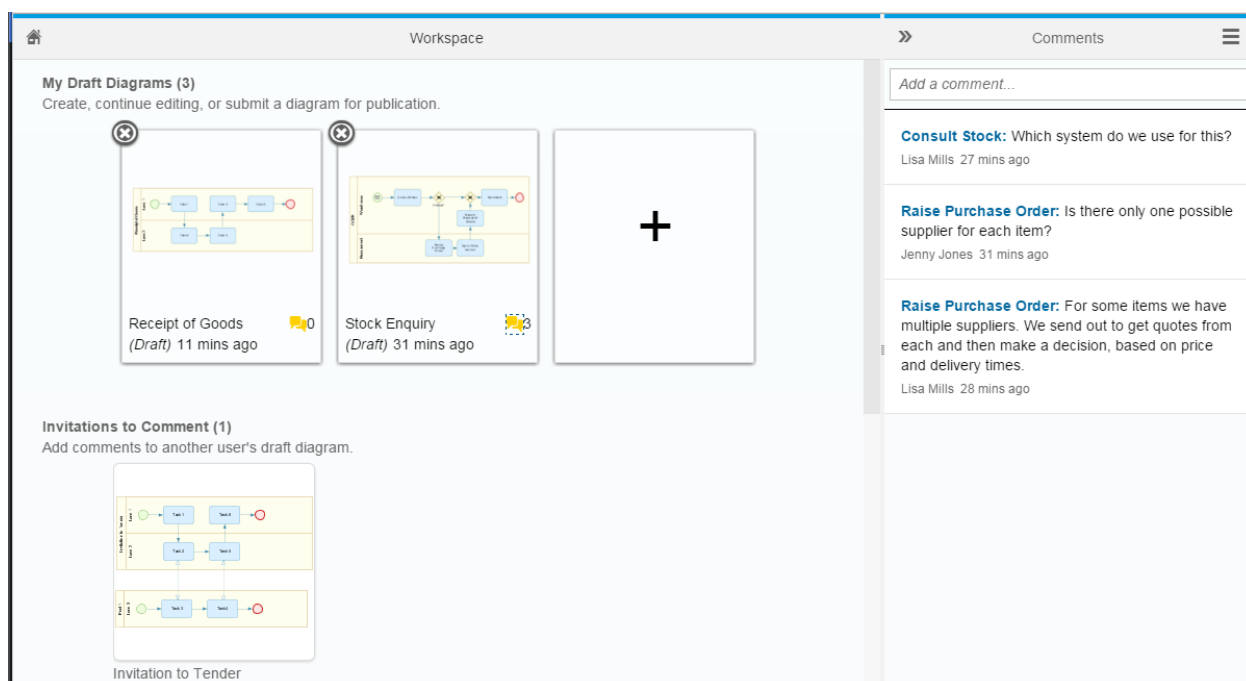
- In the top toolbar:
  - Click the [Search](#) button to search the repository contents (see [Search and Reuse \[page 36\]](#)).
  - Click your name to change your password, change the interface language, access help, or log out of PowerDesigner Web.
- In the center of the screen:
  - Click the [Workspace](#) tile to create a diagram and to access your diagrams in progress and those sent to you for comment or review (see [The Workspace \[page 7\]](#)).
  - Click the [Repository](#) tile to access the full repository contents (see [The Repository \[page 10\]](#)).
  - Click the [Dashboard](#) tile to access all the charts defined on repository models (see [The Dashboard \[page 31\]](#)).
  - [administrators] Click the [Administration](#) tile to manage users, groups, settings, and extensions, and to review logs of activities (see [Administering PowerDesigner Web \[page 143\]](#)).

PowerDesigner Web works with modern Web browsers. It has been tested with the following browser versions:

- Internet Explorer 10 and 11
- Firefox v26 to v42
- Chrome v35 to v47
- Safari for Mac OS X v10.10 and v10.11
- Mobile Safari for iOS v7.1, v8.1, and v9.1

## 1.1 The Workspace

The Workspace gives you access to your in-progress diagrams, as well as diagrams sent to you for review or comment, and your recent and favorite diagrams. To access the Workspace, go to the homepage and click the [Workspace](#) tile.



The following sections may appear in the Workspace:

- **My Draft Diagrams** - Allows you to create new diagrams (see [Creating a Diagram from the Workspace \[page 8\]](#)), and lists diagrams that you are currently editing:
  - **Draft** - You have begun editing the diagram, and have not submitted your changes for publication.
    - Click a diagram thumbnail to open it for editing or submission (see [Editing Diagrams \[page 19\]](#)).
    - Click the X in the top right corner of a diagram thumbnail to delete your changes and remove it from your workspace.
    - Click the yellow comment icon at the base of a diagram thumbnail to open the [Comments](#) pane and show open comments associated with it.

- **Submitted** - You have submitted your diagram for publication and it is awaiting review. Click a diagram to open it for viewing. You cannot edit a diagram once it has been submitted.
- **Diagrams to Review for Publication** - Lists diagrams that have been submitted to you for review before publication. Click a diagram to open it for review ([Reviewing Diagrams for Publication \[page 9\]](#)).
- **Invitations to Comment** - Lists draft diagrams to which you have been invited to comment before they are submitted for publication. Click a diagram to open it for comment (see [Commenting on Diagrams \[page 21\]](#)).
- **Recently Viewed Diagrams** - Lists diagrams that you have viewed or edited. Click a diagram to open it for viewing. Click the pin in the top-right corner to pin it to the top of the list as a favorite.

#### **i** Note

If your administrator has configured PowerDesigner Web to send emails, then you will receive notifications when a diagram arrives in your workspace for comment or review, when comments are posted to your diagrams, and when your diagrams are approved or rejected for publication.

## 1.1.1 Creating a Diagram from the Workspace

If you have **Submit** or higher permission on one or more repository folders, you can create a new diagram from the workspace.

### Context

#### **i** Note

You can also create diagrams in the repository explorer (see [Creating a Diagram \[page 13\]](#)).

### Procedure

1. Click the + tile in the [My Draft Diagrams](#) section (or click the menu button and select [Create Diagram](#)).
2. In the left pane, navigate to the repository location where you want to create the diagram.

#### **i** Note

You must have at least **Submit** permission (see [Granting Access Permissions on Repository Items \[page 155\]](#)) for the location where you want to create the diagram.

3. Enter a name for the diagram, and select the type of diagram to create:
  - **BPMN 2.0 Descriptive** - Commonly used by process owners, BPMN 2.0 Descriptive is aimed at business users and contains a subset of the BPMN 2.0 objects suitable for business process design and analysis. See [BPMN 2.0 Descriptive \[page 103\]](#).



- [BPMN 2.0 Executable](#) - Commonly used by process implementers, BPMN 2.0 Executable includes all the standard BPMN 2.0 objects, and is aimed at technical modelers and those who are reverse-engineering from SAP BPM or Eclipse BPMN2 Modeler. See [BPMN 2.0 Executable \[page 117\]](#).
  - [Enterprise Architecture](#) - Enterprise architecture diagrams help you analyze and document your organization, its functions and processes, the applications and systems that support them, and the physical architecture on which they are implemented. See [Enterprise Architecture \[page 55\]](#).
  - [Process Map](#) - A process map provides a graphical view of your business architecture, and helps you identify your business functions and high-level processes, independent of the people and business units who fulfill them. See [Process Maps \[page 99\]](#).
  - [Requirements](#) - Requirements documents display a hierarchical list of written requirements. See [Requirements Documents \[page 49\]](#).
4. Click [Create](#) to create your diagram and open it in the Diagram Editor. Use the tools in the bottom toolbar to draw your diagram (see [Editing Diagrams \[page 19\]](#)).
  5. Click [Save](#) at any time to save the current state of your diagram. After saving you can navigate away from or close the window. Your draft diagram will not be available to other users, but is accessible to you in the [My Draft Diagrams](#) section of your workspace (see [The Workspace \[page 7\]](#)).
  6. [optional] Invite other users to comment on your diagram before publication (see [Commenting on Diagrams \[page 21\]](#)).
  7. [optional] To verify that the diagram conforms with the appropriate modeling rules, click the [Verify](#) button at the bottom right of the window (see [Verifying Diagrams \[page 26\]](#)).
  8. When your diagram is complete, click the [Publish](#) tool to publish your diagram or to submit it for review before publication (see [Publishing Diagrams \[page 30\]](#)).

## 1.1.2 Reviewing Diagrams for Publication

If you have **Write** permission or higher on a diagram that another user has submitted for publication, then it will appear in your workspace for review before publication. The changes proposed in the diagram will not be published until you or another user with **Write** permission or higher approves it.

### Context

#### **i** Note



If you have **Write** permission or higher on a diagram, and choose to submit your changes for peer review, the submitted diagram will appear in your own review section (as well as being sent to other qualified users) and you can, at any time, review and publish it yourself. For information about permissions, see [Granting Access Permissions on Repository Items \[page 155\]](#).

## Procedure

1. Click the diagram thumbnail in the [Diagrams to Review for Publication](#) section to open it for review.

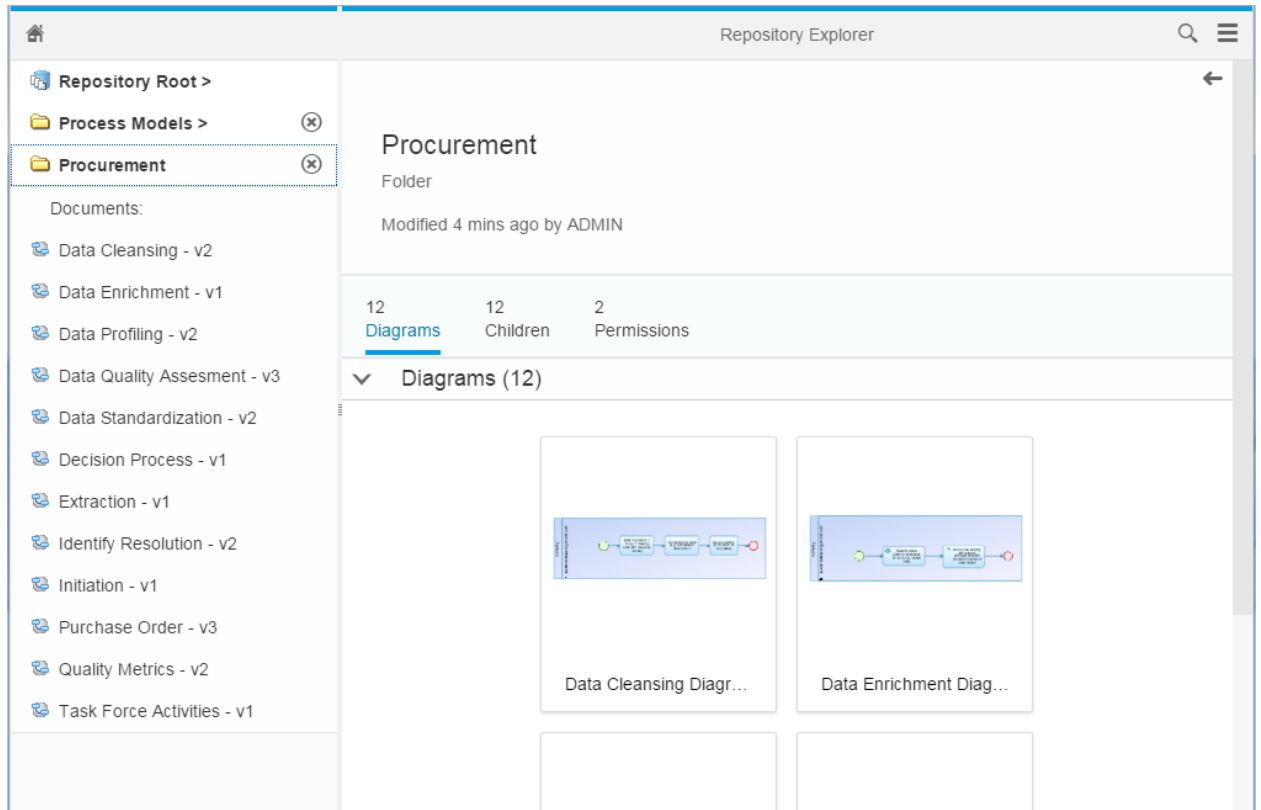
### Note

Only changes submitted through PowerDesigner Web appear in the workspace for review. Changes submitted through the PowerDesigner desktop client will not appear.

2. If the [Comments](#) panel is not already open, open it and review any comments that the modeler and her peers have posted (see [Commenting on Diagrams \[page 21\]](#)).
3. Review the content of the diagram for accuracy and compliance with your organization's modeling standards:
  - To verify that it conforms with the appropriate modeling rules, click the [Verify](#) button at the bottom right of the window (see [Verifying Diagrams \[page 26\]](#)).
  - To obtain an interactive analysis of the changes made from the published version, select  [Menu](#)  (see [Comparing Diagram Versions \[page 24\]](#)).
4. If there are problems with the diagram, you can:
  - Add comments to the objects requiring further attention (see [Commenting on Diagrams \[page 21\]](#)).
  - Click [Edit](#) and make corrections yourself (see [Editing Diagrams \[page 19\]](#)).
5. Once your review is complete, click the [Publish](#) tool and select one of the following options:
  - [Publish](#) - Approve all the changes and publish them to make them available to everyone.
  - [Return for Revision](#) - Return the draft diagram to the modeler to make the changes required before publication. Before returning the diagram for revision, you should document your requirements using comments.
  - [Reject Changes](#) - Reject the draft diagram and delete the changes.

## 1.2 The Repository

The Repository gives you access to all the published models, diagrams, and objects that you have permission to see via a navigable tree view. To access the repository, go to the homepage and click the [Repository](#) tile.



- The top-left panel lets you can navigate in the repository tree structure to browse its content:
  - Click a folder, branch, or project to descend into it and view its contents. The item is added to the path, with an **x** to its right, and its property sheet is displayed in the right-hand panel.
  - Click the **x** to the right of an item in the path to return to the level above.
- The bottom-left panel lists the documents that are the immediate children of the currently selected folder, branch, or project:
  - Click a document in the bottom-left panel to view its property sheet in the right-hand panel.
- The right-hand panel displays the property sheet of the currently selected item (see [Object Properties \[page 12\]](#)). The following facets are most commonly used in the repository:
  - **Diagrams** - Lists thumbnails of diagrams contained in the item:
    - Click a diagram thumbnail to open it (see [The Diagram Viewer \[page 17\]](#)).
    - Click the **+** tile (or click the menu button and select **Create Diagram** or **Import BPMN2 File**) to create a diagram (see [Creating a Diagram \[page 13\]](#)).

### **i** Note

The new diagram will, by default, inherit the permissions of its parent folder.

- [models] Select **Menu > Generate Report** - to generate a report for the model's diagrams (see [Generating a Report on a Diagram \[page 24\]](#)).
- **Charts** [models] - Lists thumbnails of charts contained in the item:
  - Click a chart thumbnail to open it.
  - Click the **+** tile to create a chart (see [Creating a Chart \[page 14\]](#)).
- **Children** [folders, branches, projects] - Lists all the documents and folders contained in the item:

- Click the menu button and select [Create Folder](#) to create a sub-folder.

#### **i** Note

The new folder will, by default, inherit the permissions of its parent location (see [Granting Access Permissions on Repository Items \[page 155\]](#)).




- Click the menu button and select [Upload New File](#) to upload a new external file for storage in the repository (see [Uploading and Working with External Files \[page 16\]](#)).
- Use the list to rename, move or delete items ([Renaming, Moving, and Deleting Repository Items \[page 16\]](#)).
- [Permissions](#) - Lists the users and groups with access to the item (see [Granting Access Permissions on Repository Items \[page 155\]](#)).
- [Versions](#) - [models, external files] Lists the published versions of the item.

## 1.2.1 Object Properties

You can review the properties of an object in the [Properties](#) panel, which is available in the Repository and Diagram viewers.

These tools are available in the property panel header:

Table 1:

Tool	Description
	<a href="#">Previous Property Sheet</a> - Navigates to the previously viewed property sheet.
	<a href="#">Show/Hide Section</a> - Lists all the sections that can be displayed on the facet, with checkmarks against those currently visible. Select a section to show or hide it.
	<a href="#">Go To Section</a> - Lists all the sections currently displayed on the facet. Select a section to go to it.

These facets organize the properties of the object:

- [Info](#) - Contains core information for identifying and defining the object.
- [Children](#) - Lists objects that belong to the object. For example, a process map process can contain sub-processes or a physical data model table contains columns and indexes. Click an object name in a list to navigate to the property sheet of that object. When in the diagram viewer in [Edit](#) mode, you can create child objects in the lists on this facet.
- [Depends On](#) - Lists the objects to which the object is connected and on which it depends. If these objects are modified or deleted, the current object may be modified or deleted. Click an object name in a list to navigate to the property sheet of that object. When in the diagram viewer in [Edit](#) mode, you can create links to other objects in some lists (see [Referencing an Object in a Property Field or List \[page 40\]](#)).
- [Impacts](#) - [read-only] Lists the objects that depend on the object. If the current object is modified or deleted, these objects may be modified or deleted. Click an object name in a list to navigate to the property sheet of that object. When in the diagram viewer in [Edit](#) mode, you can create links to other objects in some lists (see [Referencing an Object in a Property Field or List \[page 40\]](#)).

- **Diagrams** - Lists the diagrams contained by or associated with the object. Click a diagram thumbnail to open the diagram, or the + tile to create a diagram (see [Creating a Diagram \[page 13\]](#)).
- **Charts** - [models] Lists the charts defined on the model. Click a chart thumbnail to open the chart, or click the + tile to create a chart (see [Creating a Chart \[page 14\]](#)).
- **Versions** - [models] Lists the versions of the model published in the repository, with a separate list per branch where appropriate. To compare two versions of a model in a single branch, select their checkboxes and click the **Compare** tool (see [Comparing Diagram Versions \[page 24\]](#)).
- **Permissions** - [folders, models] Lists the users and groups with permissions to view and edit the contents of the folder or the diagrams in the model. Users with **Full** permission on the object and administrators with the **Manage Users and Permissions** right can modify the permissions (see [Granting Access Permissions on Repository Items \[page 155\]](#)).

#### **i** Note

PowerDesigner Web can display most PowerDesigner object properties, but certain calculated properties and collections of sub-objects and associated objects are not presently supported.

## 1.2.2 Creating a Diagram

If you have **Submit** or higher permission on a repository folder, you can create a new diagram in the repository.

### Context

#### **i** Note

You can also create diagrams from your workspace (see [Creating a Diagram from the Workspace \[page 8\]](#)).

### Procedure

1. Navigate to the repository location where you want to create the diagram, click the **Diagrams** facet, and then click the + tile (or click the menu button and select **Create Diagram**).

#### **i** Note

You must have at least **Submit** permission (see [Granting Access Permissions on Repository Items \[page 155\]](#)) for the location where you want to create the diagram to have these options available. If they are not visible to you, contact your administrator.

2. Enter a name for the diagram, and select the type of diagram to create:
  - **BPMN 2.0 Descriptive** - Commonly used by process owners, BPMN 2.0 Descriptive is aimed at business users and contains a subset of the BPMN 2.0 objects suitable for business process design and analysis. See [BPMN 2.0 Descriptive \[page 103\]](#).

- [BPMN 2.0 Executable](#) - Commonly used by process implementers, BPMN 2.0 Executable includes all the standard BPMN 2.0 objects, and is aimed at technical modelers and those who are reverse-engineering from SAP BPM or Eclipse BPMN2 Modeler. See [BPMN 2.0 Executable \[page 117\]](#).
  - [Enterprise Architecture](#) - Enterprise architecture diagrams help you analyze and document your organization, its functions and processes, the applications and systems that support them, and the physical architecture on which they are implemented. See [Enterprise Architecture \[page 55\]](#).
  - [Process Map](#) - A process map provides a graphical view of your business architecture, and helps you identify your business functions and high-level processes, independent of the people and business units who fulfill them. See [Process Maps \[page 99\]](#).
  - [Requirements](#) - Requirements documents display a hierarchical list of written requirements. See [Requirements Documents \[page 49\]](#).
3. Click [Create](#) to create your diagram and open it in the Diagram Editor. Use the tools in the bottom toolbar to draw your diagram (see [Editing Diagrams \[page 19\]](#)).
  4. Click [Save](#) at any time to save the current state of your diagram. After saving you can navigate away from or close the window. Your draft diagram will not be available to other users, but is accessible to you in the [My Draft Diagrams](#) section of your workspace (see [The Workspace \[page 7\]](#)).
  5. [optional] Invite other users to comment on your diagram before publication (see [Commenting on Diagrams \[page 21\]](#)).
  6. [optional] To verify that the diagram conforms with the appropriate modeling rules, click the [Verify](#) button at the bottom right of the window (see [Verifying Diagrams \[page 26\]](#)).
  7. When your diagram is complete, click the [Publish](#) tool to publish your diagram or to submit it for review before publication (see [Publishing Diagrams \[page 30\]](#)).

## 1.2.3 Creating a Chart

If you have [Submit](#) or higher permission on a model, you can create a chart to analyze its contents. You create charts from the [Charts](#) facet of the model's property sheet, and can view them either in that facet or via the [Dashboard](#).

### Procedure

1. Navigate to the model for which you want to create a chart, click the [Charts](#) facet, and then click the [+](#) tile.

#### Note

You must have at least [Submit](#) permission (see [Granting Access Permissions on Repository Items \[page 155\]](#)) for the model for which you want to create the chart to see the [+](#) tile. If it is not visible to you, contact your administrator.

2. Select the appropriate dataset from the list to open it in the Chart Editor.



### Note

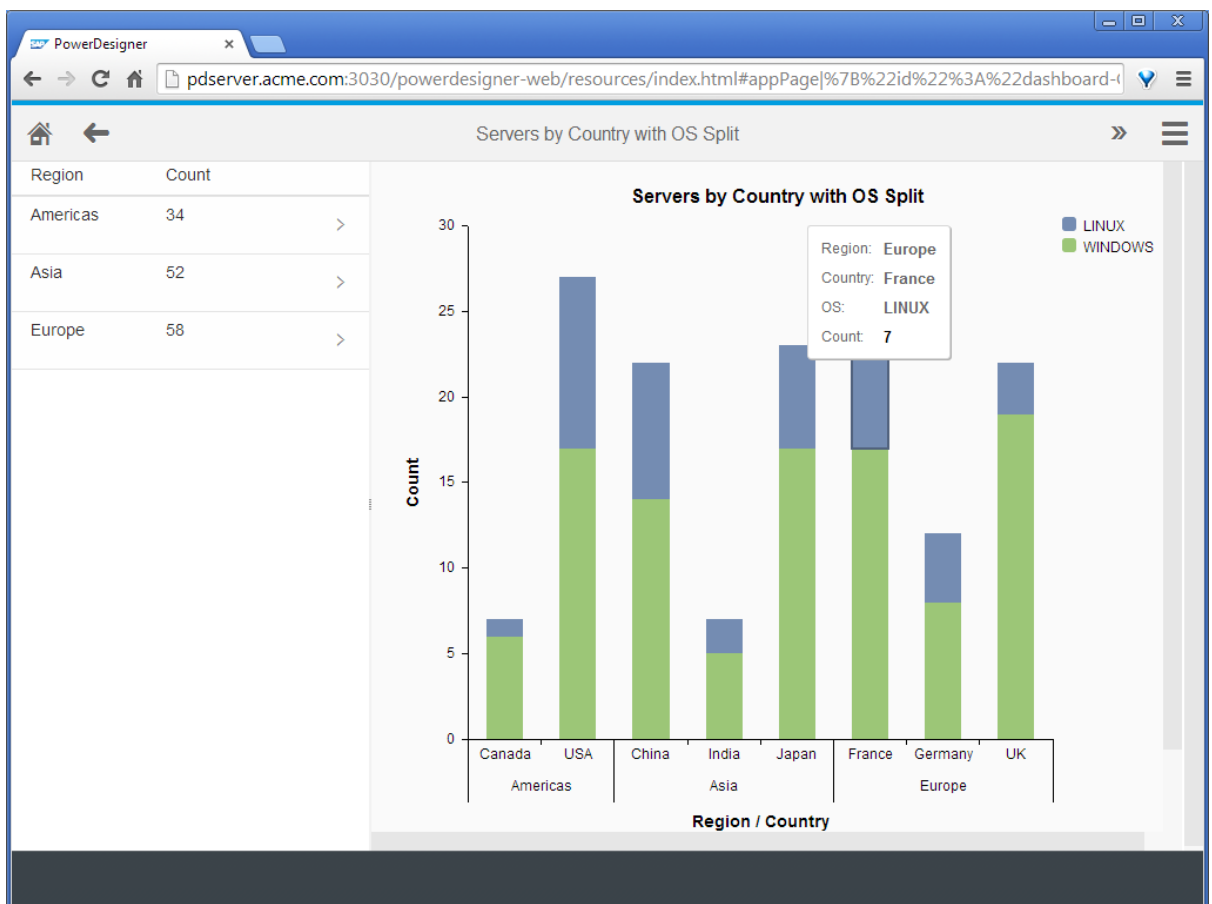
The datasets in this list are created using the PowerDesigner desktop client. If you require a dataset that is not available, contact your administrator. For detailed information about working with datasets, see *Customizing and Extending PowerDesigner > Extension Files > Chart Datasets (Profile)*.

3. Select the type of chart you want to use:
  - Column Charts - Standard, stacked, and 2 Y-Axes column charts.
  - Line Charts - Standard, area, combined column, 2 Y-Axes, and combined column and 2 Y-Axes line charts.
  - Pie Charts - Pie and donut charts.
  - Scatter Charts - Scatter and bubble charts.
  - Map Charts - Heat and tree maps.
4. Select appropriate measures and dimensions. The chart will dynamically update as you make changes to its parameters.

### Note

For examples of measures and dimensions, see [Chart Examples \[page 32\]](#).

5. Once you are happy with your chart, click [Save](#) to publish it and make it available to other users on the model property sheet [Charts](#) facet and in the [Dashboard](#) (see [The Dashboard \[page 31\]](#)).



### Note

You can subsequently edit the chart by opening it from the [Charts](#) facet and clicking the [Edit](#) tool in the top toolbar. You cannot edit a chart when it is opened from the [Dashboard](#).

## 1.2.4 Uploading and Working with External Files

You can upload Word, Excel, PDF, and other files into the repository to make them available next to your models. Files are listed in the [Documents](#) section in the bottom-left panel and on the [Children](#) facet of the folder. You must have **Write** or higher permission on a folder to upload an external file to it, and **Write** or higher on the file to upload a new version of it. Users must have **Read** permission or higher to see and download the file.

To:

- Upload a new external file - On the [Children](#) facet of the folder, click the menu and select [Upload New File](#), navigate to the file to upload, and then click [Upload](#). The file will inherit the permissions of its parent folder. To change them, use the tools on its [Permissions](#) facet (see [Granting Access Permissions on Repository Items \[page 155\]](#)).
- Download an external file - On the [Children](#) facet of the parent folder, click the file name to go to its property sheet, and then click the file name hyperlink on the [Info](#) facet to begin the download.
- Upload a new version of the file - On the file's [Info](#) facet, click the [Upload New Version](#) tool, navigate to the new version to upload, and then click [Upload](#). A list of versions of the file is maintained on its [Versions](#) facet.

## 1.2.5 Renaming, Moving, and Deleting Repository Items

You can rename, move, or delete models, files, and folders in the repository from the [Children](#) facet of their parent folder. You must have at least **Write** permission to rename an item and **Full** permission to move or delete it.

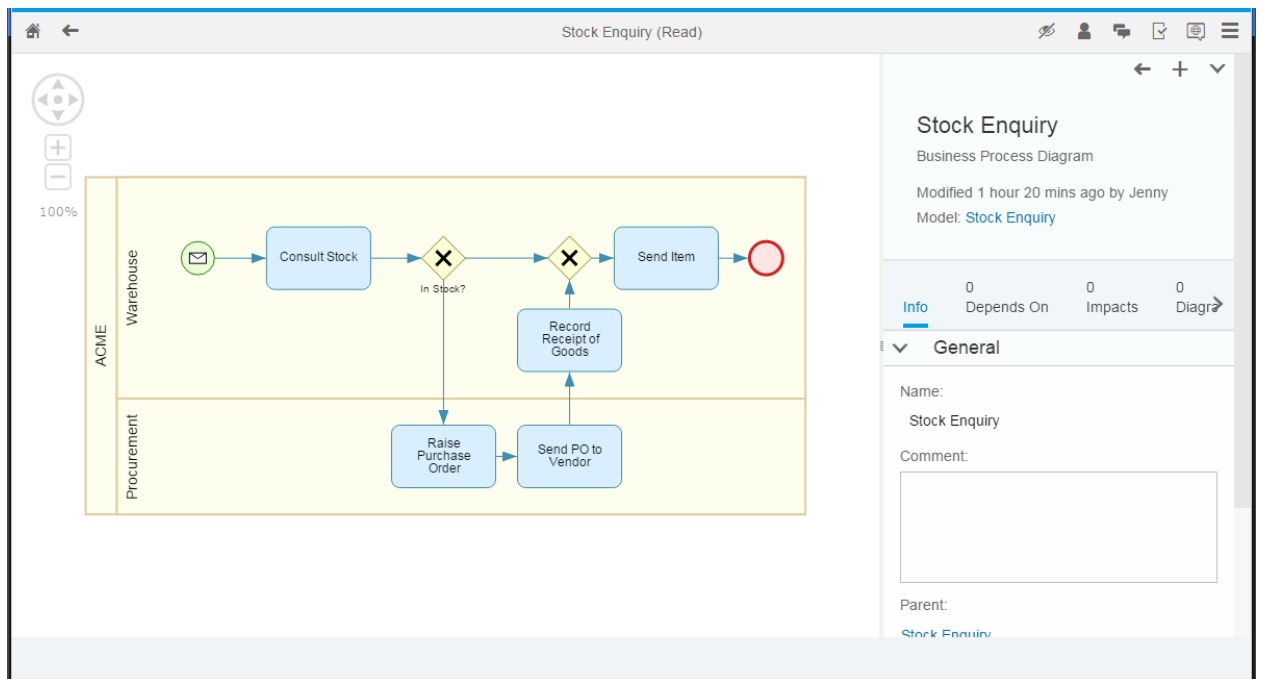
The following operations are supported:

- Rename an item - On the [Children](#) facet of the parent folder, hover over the item name and then click the pencil that appears.
- Move one or more items - On the [Children](#) facet of the parent folder, select the checkboxes to the left of the items to move, click the [Move](#) tool, select the folder to move them to and then click [Move](#).
- Delete one or more items - On the [Children](#) facet of the parent folder, select the checkboxes to the left of the items to delete, click the [Delete](#) tool, and then click [Delete](#).
- Delete the latest version of a model or file - On the document's [Versions](#) facet, click the [Delete Latest Version](#) tool.

## 1.3 The Diagram Viewer




The Diagram viewer lets you view and comment on model diagrams. You can choose to show the [Properties](#) panel, which displays the properties of the selected object and allows you to navigate to connected objects and diagrams.





To open a diagram, click its thumbnail in your Workspace (see [The Workspace \[page 7\]](#)) or the Repository (see [The Repository \[page 10\]](#)):



- In the top toolbar:

Table 2:

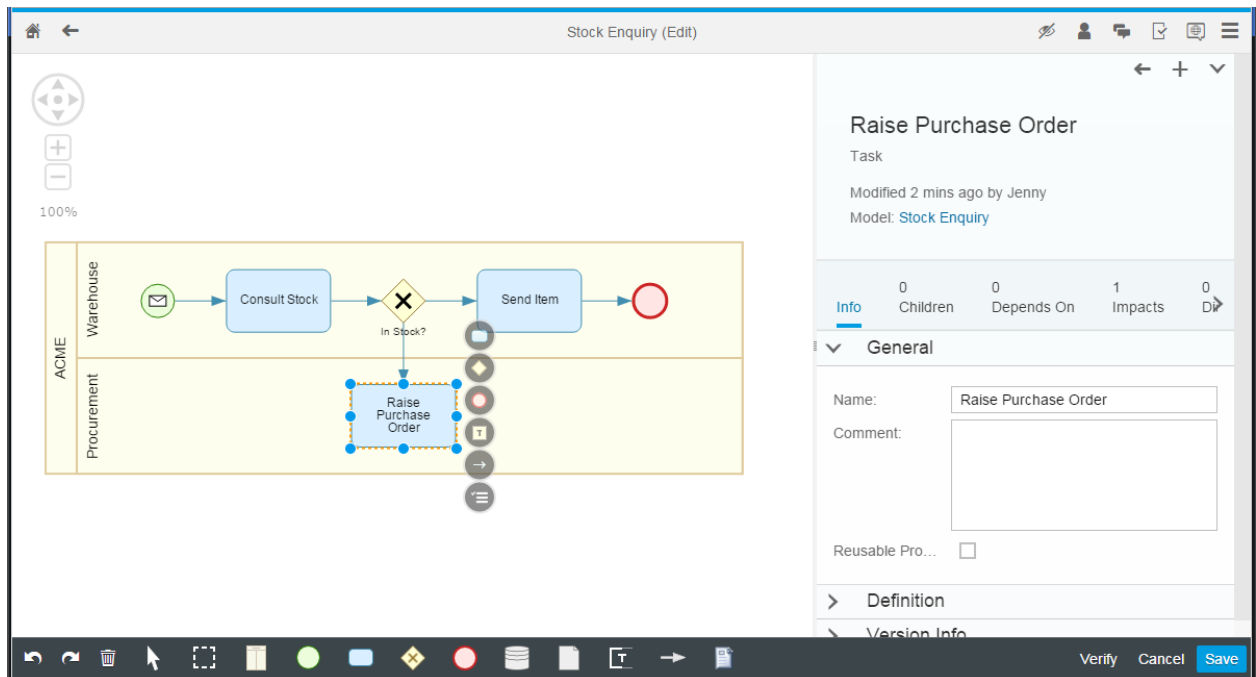
Tool	Description
	<a href="#">Home</a> - Return to the homepage.
	<a href="#">Previous View</a> - Return to the previously viewed diagram or other screen.
	<a href="#">Hide Properties</a> / <a href="#">Show Properties</a> - Hide the <a href="#">Properties</a> panel and maximize the <a href="#">Diagram</a> panel or show the <a href="#">Properties</a> panel (see <a href="#">Object Properties [page 12]</a> ).

Tool	Description
	<i>Edit</i> - [editable diagrams] Begin editing the diagram (see <a href="#">Editing Diagrams [page 19]</a> ).
	<i>Show Comments</i> - Open the <i>Comments</i> panel and review or add comments (see <a href="#">Commenting on Diagrams [page 21]</a> ). Select an object in the diagram to show only the comments attached to it, or click the diagram background to show all the comments.
	<i>Content Language</i> - Select an alternative language in which to view the diagram content (see <a href="#">Translating Diagrams and Viewing Translated Diagrams [page 46]</a> ).
	<i>Menu</i> - Select: <ul style="list-style-type: none"> <li>◦ <i>Impact and Lineage Analysis</i> - Open an analysis diagram in a new tab (see <a href="#">Impact and Lineage Analysis [page 41]</a>).</li> <li>◦ <i>Share Link</i> - Obtain a shareable link to the diagram or object.</li> <li>◦ <i>Print Diagram</i> - Generate a printable image of the diagram.</li> <li>◦ <i>Export Diagram Image</i> - Save the diagram to an SVG file.</li> <li>◦ <i>Generate Report</i> - Generate a report from the diagram (see <a href="#">Generating a Report on a Diagram [page 24]</a>).</li> <li>◦ [BPMN] <i>Export BPMN2 File</i> - Export your diagram to a standard BPMN 2.0 or SAP BPM file.</li> </ul>

- In the diagram panel:
  - Click and drag to move around the diagram. Use your mouse wheel to zoom in and out.
  - Select an object or link to display its properties in the *Properties* panel at right (see [Object Properties \[page 12\]](#)).

## 1.3.1 Editing Diagrams

PowerDesigner Web supports editing requirements documents, enterprise architecture diagrams, process maps, and BPMN 2 Descriptive and Executable process diagrams. To enter edit mode, click the [Edit](#) tool at the top-right of the diagram panel.











### Note

You must have **Submit** or higher permission on the diagram to edit it (see [Granting Access Permissions on Repository Items \[page 155\]](#)). If the diagram is already locked for editing by another user, you will be notified with the possibility to send an email to them.


- In the bottom toolbar:
  - Click an object tool to select it, and then click in the diagram to create the object.
  - [BPMN/EA] Click the [Link](#) tool to select it, and then click and drag from one object to another in the diagram to create the appropriate type of link between them.
  - Click the [Undo](#) (**CTRL+Z**) or [Redo](#) (**CTRL+Y**) tool to step back or forward through your changes since the last save.
  - Select an object and then click the [Delete](#) tool or press Delete (or, in Safari, press **FN+Delete**) to delete it.
  - Select multiple objects by clicking them while holding down the shift key or by clicking the [Lasso](#) tool and then clicking and dragging over them.
  - Click [Verify](#) to launch an interactive verification of your diagram (see [Verifying Diagrams \[page 26\]](#)).
  - Click [Save](#) to save your changes from this editing session or click [Cancel](#) to cancel your changes and revert to your last saved version. Your latest saved version is available in your Workspace (see [The Workspace \[page 7\]](#)), and can be reopened at any time.
- In the Diagram panel:
  - Click and drag to move around the diagram. Use your mouse wheel to zoom in and out.
  - Select an object or link to display its properties in the [Properties](#) panel at right (see [Object Properties \[page 12\]](#)).

- Select an object to display its context toolbar:
  - Click and release an object tool to create a new object immediately next to it or (for BPMN) below it.
  - Click and drag an object tool to control the placement of the new object.
  - [BPMN/EA] Click and drag the [Link](#) tool to create a link from the present object to another object.
  - [BPMN/EA] Click the [Properties](#) tool to change the object type.
- In the top toolbar:

Table 3:

Tool	Description
	<a href="#">Home</a> - Return to the homepage.
	<a href="#">Previous View</a> - Return to the previously viewed diagram or other screen.
 	<a href="#">Hide Properties</a> / <a href="#">Show Properties</a> - Hide the <a href="#">Properties</a> panel and maximize the <a href="#">Diagram</a> panel or show the <a href="#">Properties</a> panel (see <a href="#">Object Properties [page 12]</a> ).
	<a href="#">Invite to Comment</a> - Invite other users to view your draft diagram and post comments on the objects in it before you submit it for publication.
	<a href="#">Show Comments</a> - Open the <a href="#">Comments</a> panel and review or add comments (see <a href="#">Commenting on Diagrams [page 21]</a> ). Select an object in the diagram to show only the comments attached to it, or click the diagram background to show all the comments.
	<a href="#">Publish</a> - Select: <ul style="list-style-type: none"> <li>○ <a href="#">Submit Changes</a> - to submit your diagram for review by accredited users before publication. You will no longer be able to edit it.</li> <li>○ <a href="#">Publish</a> - to make your changes available to all users via the repository (requires <a href="#">Write</a> or higher permission).</li> <li>○ <a href="#">Revert Changes</a> - to delete your draft diagram and abandon your changes. The published version of the diagram will remain unchanged.</li> </ul>
	<a href="#">Content Language</a> - Select an alternative language in which to view the diagram content (see <a href="#">Translating Diagrams and Viewing Translated Diagrams [page 46]</a> ).



Tool	Description
	<p><b>Menu</b> - Select:</p> <ul style="list-style-type: none"> <li>◦ <a href="#">Compare with Initial Diagram</a> - Compare your version of the diagram with the published version from which you began (see <a href="#">Comparing Diagram Versions [page 24]</a>).</li> <li>◦ <a href="#">Impact and Lineage Analysis</a> - Open an analysis diagram in a new tab (see <a href="#">Impact and Lineage Analysis [page 41]</a>).</li> <li>◦ <a href="#">Share Link</a> - Obtain a shareable link to the diagram or object.</li> <li>◦ <a href="#">Print Diagram</a> - Generate a printable image of the diagram.</li> <li>◦ <a href="#">Export Diagram Image</a> - Save the diagram to an SVG file.</li> <li>◦ <a href="#">Generate Report</a> - Generate a report from the diagram (see <a href="#">Generating a Report on a Diagram [page 24]</a>).</li> <li>◦ [BPMN] <a href="#">Change Pool to Horizontal/Vertical</a> - Change the orientation of your pools and lanes to horizontal (left to right) or vertical (top-to-bottom).</li> </ul> <div style="background-color: #fff9c4; padding: 10px; margin: 10px 0;"> <p><b>i Note</b></p> <p>You can only change the orientation of your diagram if the diagram does not contain any pools.</p> </div> <ul style="list-style-type: none"> <li>◦ [BPMN] <a href="#">Import BPMN2 File</a> - Import a standard BPMN 2.0 or SAP BPM file.</li> <li>◦ [BPMN] <a href="#">Export BPMN2 File</a> - Export your diagram to a standard BPMN 2.0 or SAP BPM file.</li> </ul>

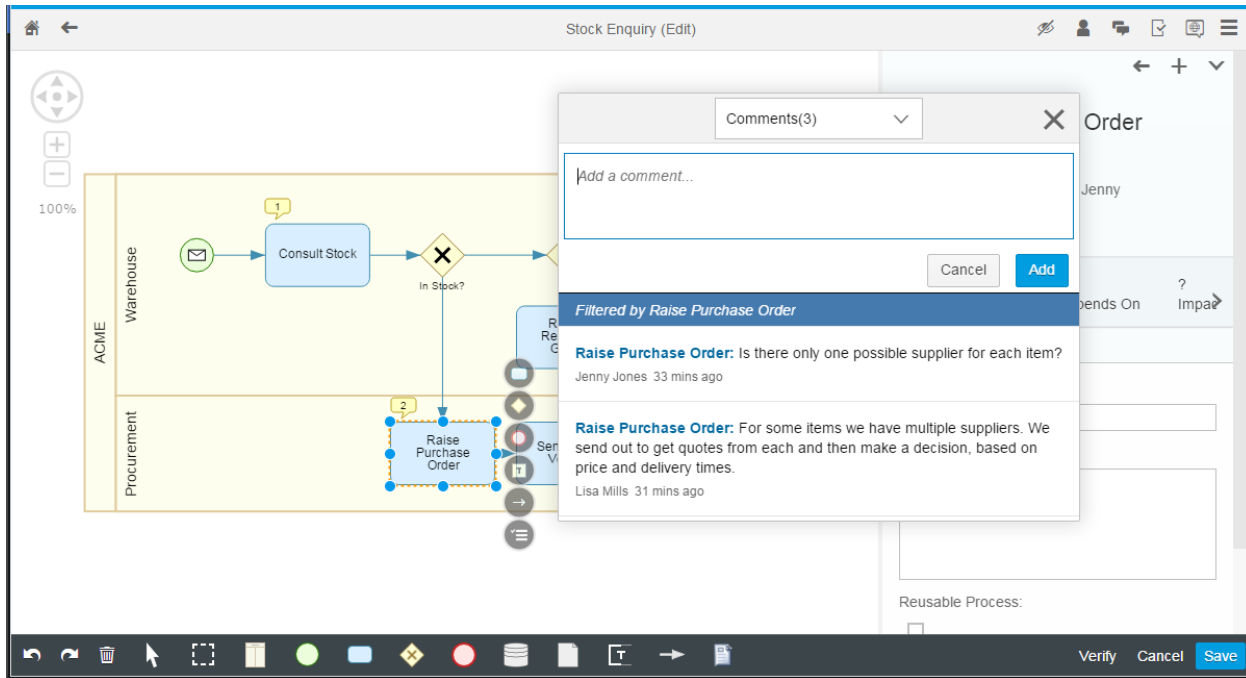
## 1.3.2 Commenting on Diagrams

Any user can comment on any object in any published diagram they have permission to see. By default, users cannot see your draft diagrams, but you can invite them to view and comment on them before you submit your changes for publication.

### **i Note**

Comments posted to published diagrams are preserved across versions, but comments posted to draft diagrams are removed when the diagram is published.

Yellow speech bubbles show above objects in the diagram that have comments. Click a comment bubble to open the [Comments](#) panel to read, reply to, or close existing comments, or to add new ones.



- In the top toolbar:
  - [in your draft diagrams] Click the *Invite to Comment* tool to give other users access to your draft diagram and the ability to post comments to it before you publish it:

**Invitations**

*Invite people to view and comment on this diagram:*

Michael Andrews ✕

Select or enter a name 📄

Hi Mike,

Can you help me out with some details about how we review tender documents?

Thanks

Lisa

**Send    Cancel**

#### Note

If you are invited to comment on another user's draft diagram, it will appear in your Workspace in the [Invitations to Comment](#) section.

- Click the [Comments](#) tool to show or hide the [Comments](#) panel.
- In the Diagram panel:
  - Select an object to show only those comments associated with it, or to add a comment to it.
  - Click the diagram background to view all the comments for all the objects in the diagram or to add a comment to the diagram itself.
- In the [Comments](#) panel:
  - Click a comment to reply to it.
  - Click a comment and click the check mark to mark it as closed and hide it. The comment can be redisplayed if you select to display all comments.
  - Click a comment that you have posted (which does not have any replies) and click the pencil to edit it or the trash can to delete it.
  - Click an object name in a comment to center the diagram on that object.
  - Click the top of the panel to toggle between showing all comments and hiding comments that are marked as closed.

## 1.3.3 Sharing Links to and Printing and Exporting Diagrams

PowerDesigner Web provides various ways of sharing your diagrams through links, as images, and by printing.

Click the [Menu](#) button and select:

- [Share Link](#) - to obtain a shareable link to the diagram or object.
- [Print Diagram](#) - to prepare the diagram for printing through your browser's Print function. You can specify to shrink the diagram to a single page or to a minimum number of readable pages.
- [Export Diagram Image](#) - to save the diagram as an SVG image.

## 1.3.4 Generating a Report on a Diagram

You can generate a PDF or Word report from your diagrams. Reports include the diagram image (as well as images of any sub-diagrams) and lists of the objects in them.

### Procedure

1. Open the diagram that you want to report on, click the [Menu](#) button, and select [Generate Report](#).
2. Select whether to generate in **PDF** or **Word** format.
3. Select the types of object that you want to include in the report in the content panel on the right, the order in which they will appear (using the arrows above the list), and what properties and sub-objects will be displayed for them in what order.

By default, all objects are included and all properties displayed for them.

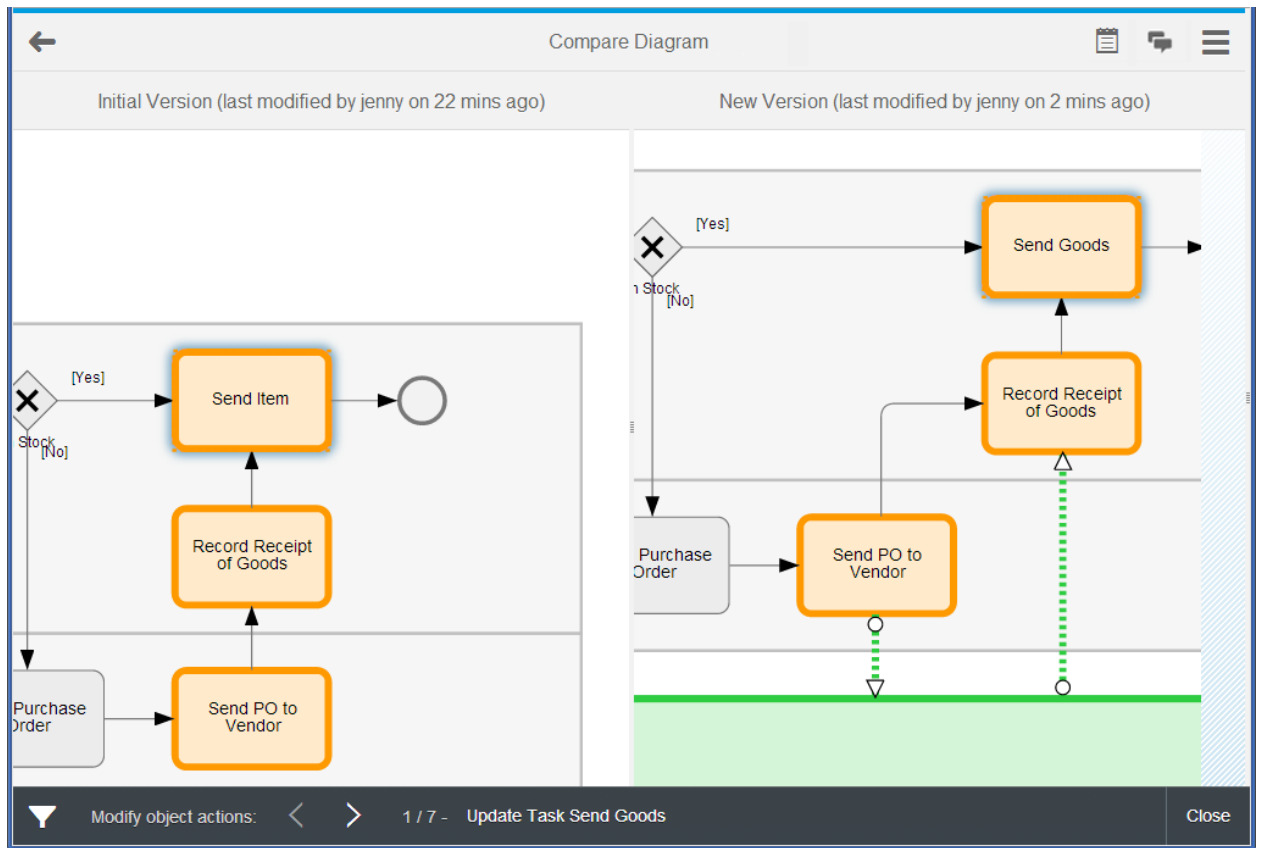
4. Click [Generate](#) to generate the report, which will automatically download to your browser.

## 1.3.5 Comparing Diagram Versions

You can, at any time, compare your draft diagram (or a diagram on which you have been invited to comment, or one that has been sent to you for review) with the published version from which the edits were begun by selecting [Menu](#) > [Compare Versions](#) . You can also compare any two published versions of a diagram in a single branch from the [Versions](#) facet of their parent model.

### Note

Requirements documents do not support comparing versions.



- In the top toolbar:
  - Click the [Previous View](#) tool to go back to the diagram.
  - Click the [Properties](#) tool to display the [Compare Properties](#) panel, which shows the [Initial Properties](#), the [Changes](#) to them, and the [New Properties](#) of the selected object.
  - Click the [Show Comments](#) tool to open the [Comments](#) panel and review or add comments (see [Commenting on Diagrams \[page 21\]](#)). Select an object in the diagram to show only the comments attached to it, or click the diagram background to show all the comments.
  - Select [Menu > Impact and Lineage Analysis](#) to open an analysis diagram in a new tab (see [Impact and Lineage Analysis \[page 41\]](#)).
- In the diagram panels:
  - The published diagram is displayed in the left panel and the draft version in the right panel. Differences are color-coded as follows:
    - Creations - Green (right panel only)
    - Changes - Orange (both panels)
    - Deletions - Red (left panel only)
  - Click an object in either panel to select it in the list of changes.
  - Click and drag to move around the diagram. Use your mouse wheel to zoom in and out.
  - Review or add comments in the right panel (see [Commenting on Diagrams \[page 21\]](#)).
- In the bottom toolbar:
  - Click the filter tool to control the display of creations, changes, symbol changes (including creation and deletion of symbols), and deletions.
  - Click the left or right arrows to go to the next or previous change.
  - Click the change text itself to display the list of changes.

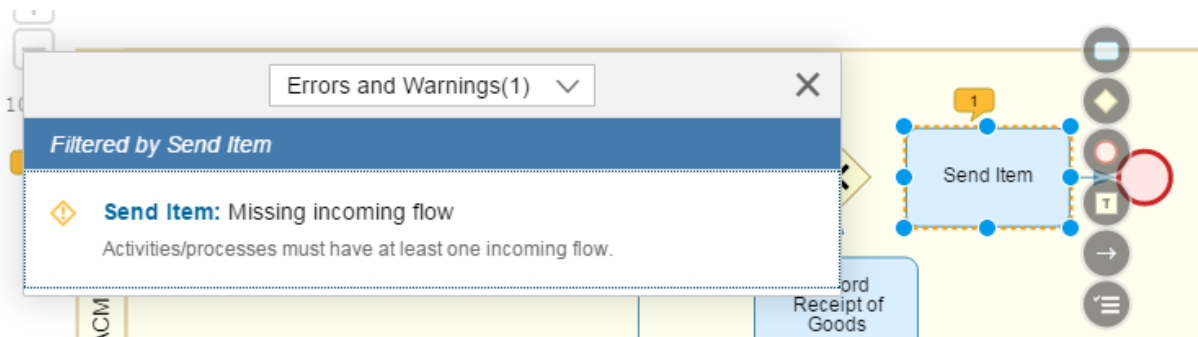
- Click [Close](#) to return to the Diagram Viewer.

## 1.3.6 Verifying Diagrams

You can, at any time while editing a diagram, verify that it conforms with the appropriate modeling rules. To begin verification, click the [Verify](#) button at the bottom right of the window.

### **i** Note

Requirements documents do not support verification.



Red or orange speech bubbles show above objects in the diagram that have errors or warnings, and the relevant facet and property in its property sheet are highlighted where possible. Click an error bubble to open the [Errors and Warnings](#) panel to view the errors and warnings.

- In the [Diagram](#) panel:
  - Select an object to show only those errors and warnings associated with it. All objects are tested to ensure that they have a name and that the name is unique for objects of that type in the current scope, which is generally the current process or diagram. For information about rules specific to:
    - BPMN 2.0 - See [Verifying BPMN 2.0 Process Diagrams \[page 27\]](#).
    - Enterprise architecture - See [Verifying Enterprise Architecture Diagrams \[page 29\]](#).
  - Click the diagram error bubble under the zoom and pan tools in the top-left corner to view all the errors and warnings for all the objects in the diagram.
- In the [Errors and Warnings](#) panel:
  - Click an object name in a comment to center the diagram on that object.
  - Click the top of the panel to toggle between showing errors and warnings and errors only.

Once you have launched a diagram verification, PowerDesigner Web continues to verify your changes in real time so that as you correct issues, the counts of errors and warnings in the bubble and list decrease. To exit validation mode, click [Save](#) to save your changes, and then press **F5** to refresh your browser window.



## 1.3.6.1 Verifying BPMN 2.0 Process Diagrams

PowerDesigner Web provides a set of standard verification rules for BPMN 2 process diagrams.

The verification rules in this list apply to BPMN 2.0 Executable and (where appropriate) BPMN 2.0 Descriptive:

- All Objects:
  - **Name Uniqueness**: Object names and codes must be unique for objects of the same type in the namespace.
- Activities:
  - **Missing incoming flow/Missing outgoing flow**: Activities/processes must have at least one incoming and one outgoing flow.
  - **Invalid implementation**: Activities/processes cannot be implemented by an activity/process that is, itself, implemented.
  - **Invalid decomposition**: Tasks must not contain other objects. Only sub-processes and other composite activities can contain other objects.
  - **Invalid item-aware elements**: Events and tasks must only contain item-aware objects of type **Data Input** or **Data Output**.
  - **Too many default flows**: Activities and intermediate events must not have more than one default outgoing flow.
  - **Invalid implementation type**: Call activities must have an implementation type of **Reuse process**.
  - **Missing start/Missing end**: Sub-processes/composite processes must have at least one start and at least one end.
  - **Invalid incoming flows/Invalid outgoing flows**: Event sub-processes must not have any incoming or outgoing flows.
  - **Too many start events**: Event sub-processes must have exactly one start event.
  - **Invalid incoming flows/Invalid outgoing flows**: Compensation activities must not have any incoming sequence flows that are not of type Compensation, nor any outgoing sequence flows.
  - **Invalid for export**: Manual tasks cannot be exported to a NetWeaver BPMN2 file.
- Gateways:
  - **Too few incoming or outgoing flows**: Gateways/decisions must have more than one outgoing flow to represent a split (conditional branch) or more than one incoming flow to represent a merge.
  - **Too many default flows**: Gateways must not have more than one default outgoing flow.
  - **Missing outgoing flow**: Gateways must have at least one outgoing flow.
  - **Missing incoming flow**: Gateways (except event-based gateways) must have at least one incoming flow.
- Sequence and Message Flows:
  - **Missing source/Missing destination**: Flows must have both a source and a destination object.
  - **Invalid message format**: Sequence flows must not have message formats attached to them.
  - **Undefined message format**: Message flows must either specify a message format or have their message format set to **<None>**.
  - **Duplicate definition**: Message formats must not have the same definition as another message format.
  - **Invalid correlation property**: Message flows must specify a correlation property from among those defined in their correlation key.

- **Invalid source/Invalid destination:** Message flows can only go from (have as sources) and point to (have as destinations) activities, pools, catching message intermediate events, or message start events.
- **Events:**
  - **Missing outgoing flow:** Starts must have at least one outgoing flow.
  - **Missing incoming flow:** Ends must have at least one incoming flow.
  - **Not permitted at top level:** Start events of type Escalation, Error, or Compensation are only permitted in event sub-processes.
  - **Not permitted in sub-process:** Start events that are not of type Standard are not permitted in sub-processes.
  - **Not permitted in event sub-process:** Start events of type Standard are not permitted in event sub-processes.
  - **Not permitted in transaction:** Start events that are not of type Standard are not permitted in transactions.
  - **Not permitted in ad-hoc sub-process:** Start and end events are not permitted in ad-hoc sub-processes.
  - **Only permitted in transactions:** End events of type Cancel are not permitted at the top level or in event sub-processes. They are only permitted in transactions.
  - **Invalid item-aware elements:** Events and tasks must only contain item-aware objects of type **Data Input** or **Data Output**.
  - **Too many default flows:** Activities and intermediate events must not have more than one default outgoing flow.
  - **Too few event definitions:** Multiple events must contain at least two event definitions.
  - **Invalid event definitions:** Multiple and parallel multiple events of type:
    - Start (at the top level) - can only contain Message, Timer, Conditional, Error, and Signal event definitions.
    - Interrupting start (in an event sub-process) - can only contain Message, Timer, Escalation, Conditional, Error, Compensation, and Signal event definitions.
    - Non-interrupting start (in an event sub-process) - can only contain Message, Timer, Escalation, Conditional, and Signal event definitions.
    - Interrupting boundary - can only contain Message, Timer, Escalation, Conditional, Error, Cancel, Compensation, and Signal event definitions.
    - Non-interrupting boundary - can only contain Message, Timer, Escalation, Conditional, and Signal event definitions.
    - Intermediate catching - can only contain Message, Timer, Conditional, Link, and Signal event definitions.
    - Intermediate throwing - can only contain Message, Escalation, Link, Compensation, and Signal event definitions.
    - End - can only contain Message, Error, Escalation, Cancel, Compensation, Signal, and Terminate event definitions.
  - **Invalid decomposition:** Events must not be decomposed. They must not contain other objects.
  - **Missing stereotype:** Events must bear a stereotype to define what type of event it is.
  - **Invalid reusability:** Events must not be specified as reusable.
- **Data and Data Associations:**
  - **Unused resource:** Data objects/resources must be linked to at least one activity/process.

- **Not permitted in tasks or events:** Data objects and data object references are not permitted in tasks or events.
- **Missing data object/Invalid data object:** Data object references must specify the data object to which they are a reference.
- **Invalid source/Invalid destination:** Data associations/resource flows can only go from (have as sources) and point to (have as destinations) activities/processes and data objects/resources.
- **Missing source item/Invalid source item:** Data associations with a transformation type of Output must specify an item-aware element (of type Data Output) from among those defined on their source activity, which will be transferred from the activity to the data.
- **Missing target item/Invalid target item:** Data associations with a transformation type of Input must specify an item-aware element (of type Data Input) from among those defined on their target activity, which will be transferred to the activity from the data.
- Item-aware Elements:
  - **Not permitted in start events:** Item-aware elements of type Data Input are not permitted in start events.
  - **Not permitted in intermediate catch events:** Item-aware elements of type Data Input are not permitted in intermediate catch events.
  - **Not permitted in intermediate throw events:** Item-aware elements of type Data Output are not permitted in intermediate throw events.
  - **Not permitted in end events:** Item-aware elements of type Data Output are not permitted in end events.
- Correlation Keys:
  - **Missing variables:** Correlation keys must contain at least one variable.
- Implementation Objects - These objects are not commonly modeled in PowerDesigner Web but may be present in models created in the PowerDesigner desktop client:
  - **Missing interfaces:** Service providers must contain at least one interface.
  - **Missing operations:** Interfaces must contain at least one operation.
  - **Missing input message (One-Way):** One-way operations must specify an input message.
  - **Missing input message (Request-Response):** Request-response operations must specify both an input and an output message.
  - **Missing input message (Solicit Response):** Solicit response operations must specify both an input and an output message.
  - **Missing output message (Notification):** Notification operations must specify an output message.
  - **Missing output message (Request-Response):** Request-response operations must specify both an input and an output message.
  - **Missing output message (Solicit Response):** Solicit response operations must specify both an input and an output message.

## 1.3.6.2 Verifying Enterprise Architecture Diagrams

PowerDesigner Web provides a set of standard verification rules for enterprise architecture diagrams.

- All Objects:





- **Name Uniqueness:** Object names and codes must be unique for objects of the same type in the namespace.
- Organization architecture checks:
  - **Missing organization unit:** A person must belong to at least one organization unit.
  - **Manager not in organization:** A manager of an organization unit must belong to that organization unit. A manager of a person must belong to the same organization unit as the person.
  - **Cannot manage self:** A person cannot manage herself.
- Application architecture checks:
  - **Not deployed:** Each application, database, component, form, and application service should be deployed at least once.
  - **Incorrectly used:** Contracts must have at least one incoming and one outgoing link with an application service, a business service, or a role.
  - **Multiple input service types:** Contracts must have either roles, business services, or application services as inputs, but not any combination of these types.
  - **Same input and output:** Contracts cannot have the same service as an input and output.
- Infrastructure architecture checks:
  - **Serial number / Asset number / Mac address uniqueness:** These identifiers must be unique for infrastructure assets.
  - **Isolated node:** Each infrastructure asset should be linked to at least one other node.
  - **No deployed object:** Each deployment instance should be an instance of some object.
  - **Not deployed:** Each deployment instance should be deployed to a server, workstation, mobile device, or network.
  - **Unsuitable server:** If a deployment instance is deployed to a software server, the type of the software server must be appropriate for the instance.

## 1.3.7 Publishing Diagrams

When your changes (or the changes you are reviewing) are complete, you can publish them and make the new version of the diagram available to all users.

### Context

#### Note

You must have **Write** permission or higher to directly publish a diagram. If you have only the **Submit** permission, your changes must be reviewed before publication. In this case, select  [Publish](#)  [Submit](#)  [Changes](#) .

## Procedure

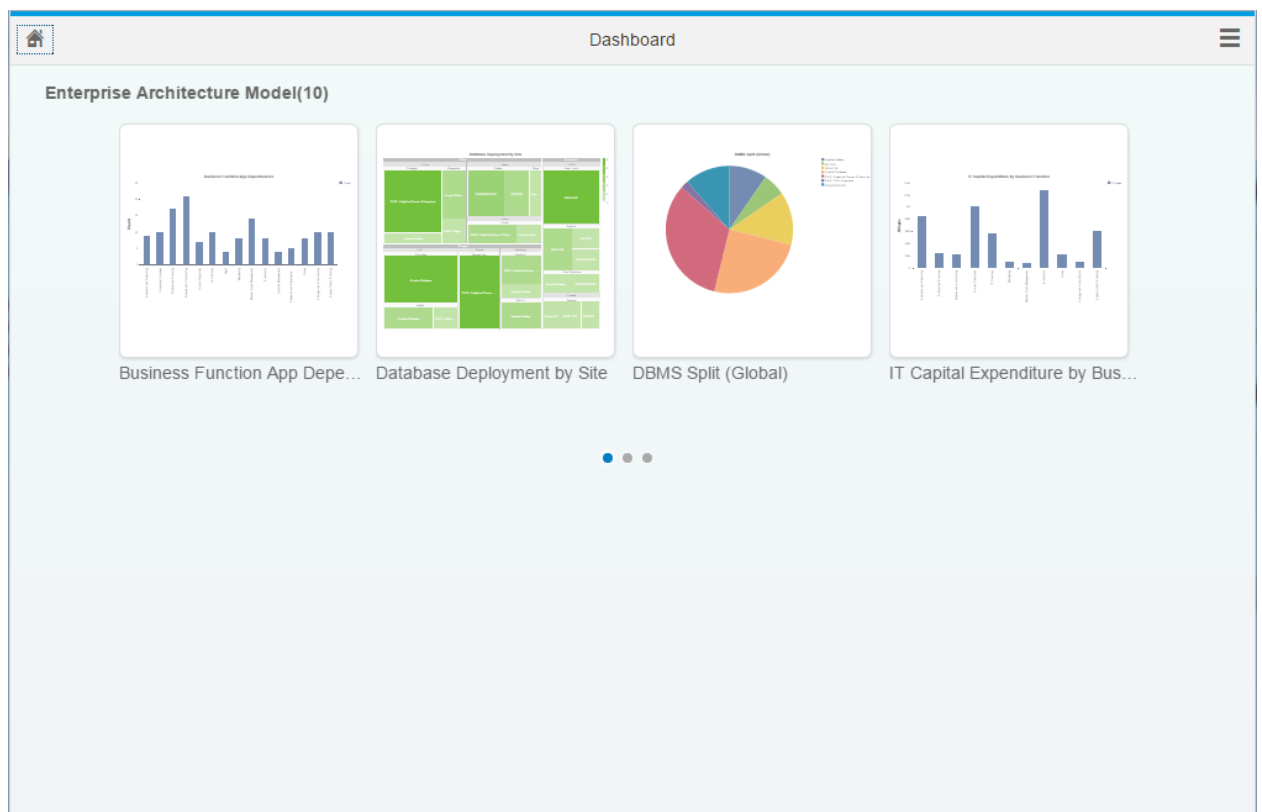
1. [recommended] Review the content of the diagram for accuracy and compliance with your organization's modeling standards:
  - To verify that it conforms with the appropriate modeling rules, click the [Verify](#) button at the bottom right of the window (see [Verifying Diagrams \[page 26\]](#)).
  - To obtain an interactive analysis of the changes made from the published version, select [Menu > Compare Versions](#) (see [Comparing Diagram Versions \[page 24\]](#)).
2. Click the [Publish](#) tool and select [Publish](#).
3. Enter a comment to explain the purpose of these changes.

The publication comment is displayed against the version number on the model property sheet [Versions](#) tab (see [Object Properties \[page 12\]](#)).
4. Click [OK](#) to publish the changes.

A new version of the diagram is published and you return to your workspace. The published diagram is available at the head of the [Recently Viewed Diagrams](#) list.

## 1.4 The Dashboard

The Dashboard gives you access to charts visualizing information drawn from published models. To access the Dashboard, go to the homepage and click the [Dashboard](#) tile.



Click a chart thumbnail to open it in the Chart Viewer. Click a chart element or table line to drill down into the data.

*i* **Note**

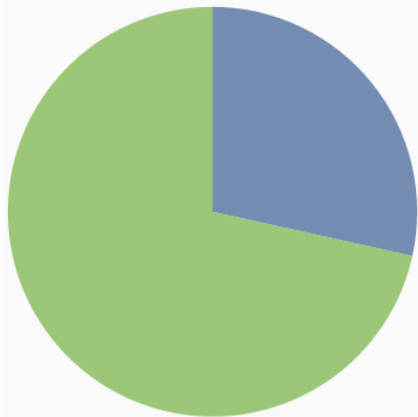
Charts are not created directly in the Dashboard, but on the *Charts* facet of a model property sheet (see [Creating a Chart \[page 14\]](#)).

### 1.4.1 Chart Examples

Example models and an extension file containing datasets to derive charts from them are provided with PowerDesigner.

The following example charts are defined in the EA Charts extension file, which is loaded by default in your repository library (and which is also delivered as part of the EA Example files available at `<install_dir>/Examples/EAExample`).

Table 4:

Dataset and Chart Configuration	Chart
<div>Question: What OS are my servers running?</div> <div>Path: <i>Model</i> &gt; <i>Hardware Server (Operating System, Operating System Version)</i></div> <div>Chart: A pie chart with each OS as a piece of the pie:</div> <div><ul style="list-style-type: none"><li>• Pie Sectors: Count (of hardware servers)</li><li>• Legend Color: Operating System</li></ul></div>	<div><b>OS Split (Global)</b></div> <div></div>



Dataset and Chart Configuration	Chart																																																		
<p>Question: What OSs are running where?</p> <p>Path: <a href="#">Site</a> <a href="#">Site</a> <a href="#">Site</a> <a href="#">Hardware Server (Operating System, Operating System Version)</a></p> <p>Chart: A stacked bar chart with OSs as stacked colored bars</p> <ul style="list-style-type: none"><li>Measures: Count (of hardware servers)</li><li>X Axis: Region, Country</li><li>Legend Color: Operating System</li></ul>	<p><b>Servers by Country with OS Split</b></p> <table border="1"><thead><tr><th>Region / Country</th><th>WINDOWS</th><th>LINUX</th></tr></thead><tbody><tr><td>Canada</td><td>6</td><td>1</td></tr><tr><td>USA</td><td>17</td><td>10</td></tr><tr><td>China</td><td>14</td><td>8</td></tr><tr><td>India</td><td>5</td><td>2</td></tr><tr><td>Japan</td><td>17</td><td>6</td></tr><tr><td>France</td><td>17</td><td>7</td></tr><tr><td>Germany</td><td>8</td><td>4</td></tr><tr><td>UK</td><td>19</td><td>3</td></tr></tbody></table>	Region / Country	WINDOWS	LINUX	Canada	6	1	USA	17	10	China	14	8	India	5	2	Japan	17	6	France	17	7	Germany	8	4	UK	19	3																							
Region / Country	WINDOWS	LINUX																																																	
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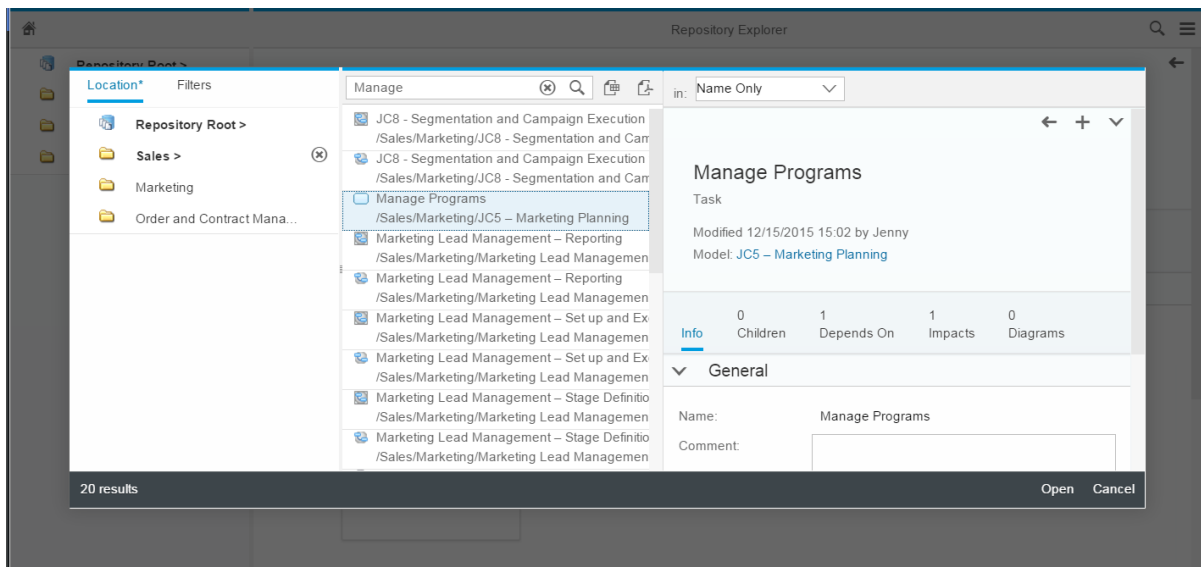
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<p>Question: What is the impact of my projects on processes?</p> <p>Path: ► <a href="#">Process</a> ► <a href="#">Process</a> ► <a href="#">Process</a> ► <a href="#">Process</a> ► <a href="#">TraceabilityLink</a> ► <a href="#">System</a> ► <a href="#">Impact</a> ► <a href="#">Project</a> ►</p> <p>Chart: A bar chart with a bar per business function:</p> <ul style="list-style-type: none"> <li>Y Axis: Count (of projects)</li> <li>X Axis: L1 Business Function</li> </ul>	<table border="1"> <caption>Project Impact on Processes</caption> <thead> <tr> <th>Process</th> <th>Count</th> </tr> </thead> <tbody> <tr><td>Attract, Develop And Retain ...</td><td>~60</td></tr> <tr><td>Business Development, Par...</td><td>~30</td></tr> <tr><td>Define &amp; Track Strategy</td><td>~80</td></tr> <tr><td>Demand To Cash</td><td>~90</td></tr> <tr><td>Idea To Market</td><td>~50</td></tr> <tr><td>Procure To Pay</td><td>~540</td></tr> <tr><td>Workplace &amp; Infrastructure ...</td><td>~80</td></tr> </tbody> </table>	Process	Count	Attract, Develop And Retain ...	~60	Business Development, Par...	~30	Define & Track Strategy	~80	Demand To Cash	~90	Idea To Market	~50	Procure To Pay	~540	Workplace & Infrastructure ...	~80																
Process	Count																																
Attract, Develop And Retain ...	~60																																
Business Development, Par...	~30																																
Define & Track Strategy	~80																																
Demand To Cash	~90																																
Idea To Market	~50																																
Procure To Pay	~540																																
Workplace & Infrastructure ...	~80																																

## 1.5 Search and Reuse

You can search for any object from the homepage or repository explorer. You can filter by location, model and object type, and many properties and export your results to a CSV or PDF file. The search engine will also automatically propose the reuse of existing objects in your diagrams and is used to find objects to insert into property fields and lists of objects.

### Procedure

1. Go to the homepage or repository explorer and click the [Search](#) button to open the [Search](#) dialog.



2. Enter the text you want to find in the [Search](#) field at the top of the dialog.
3. Click the [Search](#) button to begin the search.  
Search results are listed in the central panel:
  - Click an item to display its property sheet in the right panel.
  - Click the [Open](#) button to open the selected item in a diagram.
  - Click the [Export to CSV](#) or [Export to PDF](#) to download a file containing a list of the results.
4. [optional] On the [Location](#) tab in the top-left corner, navigate to a particular folder, branch, project, or model in the repository tree to restrict the search to its contents.  
Search results are refreshed automatically.
5. [optional] On the [Filter](#) tab in the top-left corner, add appropriate property filters to restrict the search by these criteria:
  - [Model Type](#) - For example, to search only for tables, views, and columns, select **Physical Data Model**.
  - [Object Type](#) - For example, to search only for tables, select **Table**.

### Note

You must select a [Model Type](#) before you can select an [Object Type](#).

- Any other property - Click [Add Filter](#) to add a property/value pair to filter by.

### Note

The available properties depend on the selected [Object Type](#). You can filter by most properties appearing in the [Info](#) facet, but not on properties referencing an object.

Search results are refreshed automatically.

6. [optional] Use the [in](#) list to the right of the search field to specify which text fields you want to search for your search string in:
  - [Name Only](#) - [default] To search for objects by their human-readable names.
  - [Code Only](#) - To search for objects by their technical names.
  - [All Fields \(Full Text\)](#) - To search in all text fields, including [Name](#), [Code](#), [Comment](#), [Description](#), and [Annotation](#). In full text mode, the following kinds of search string are supported:

Table 5:

Search String	Results
<b>top</b>	Contains the string <b>top</b> . Returns <b>top</b> , <b>stop</b> , and <b>tops</b> .
<b>top bottom</b>	Contains <b>top</b> or <b>bottom</b> .
<b>"top bottom"</b>	Contains the phrase <b>top bottom</b> .
<b>top AND bottom</b>	Contains both <b>top</b> and <b>bottom</b> .
<b>top AND NOT bottom</b>	Contains <b>top</b> and does not contain <b>bottom</b> .
<b>t?p</b>	<b>?</b> is a wild card for a single character. Returns <b>tip</b> , <b>tap</b> , and <b>top</b> .
<b>t*p</b>	<b>*</b> is a wild card for one or more characters. Returns <b>tip</b> , <b>tap</b> , <b>top</b> , and <b>temp</b> .
<b>top~</b>	Contains words similar to <b>top</b> .

## 1.5.1 Reusing Objects in Diagrams

You can reuse an object defined in one diagram in any other diagram (of the same type). Reusing objects in this way prevents unnecessary duplication of information and improves the quality and scope of impact analysis. When you create an object in a diagram and begin entering its name, PowerDesigner Web will propose a list of existing objects that you can reuse.

## Context

For example:

- A site, organization unit, business function, system, or application created in one enterprise architecture diagram can be reused in multiple other enterprise architecture diagrams.
- A lane, task, activity, data object, or intermediate event created in one BPMN 2.0 Descriptive diagram can be reused in multiple other BPMN 2.0 Descriptive diagrams.

### Note

Objects saved in the **Library** folder are prioritized for reuse (see [Promoting Reuse through the Library Folder \[page 40\]](#)).

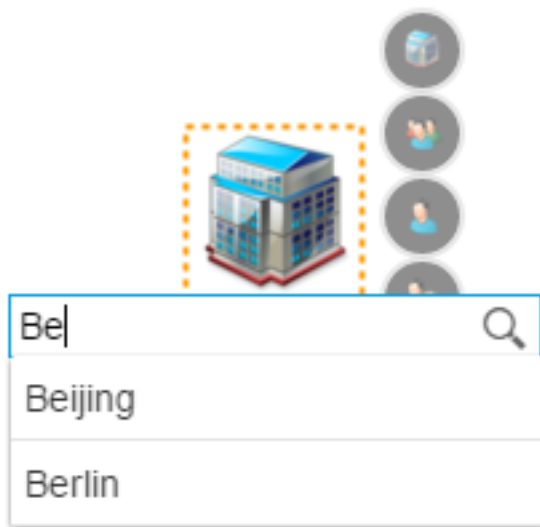
## Procedure

1. Create an object in the diagram.

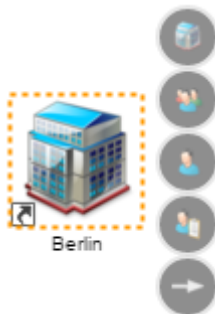
The symbol is created and the default name is selected ready for overwriting:



2. Begin entering the name of the object. PowerDesigner Web proposes a list of existing objects (from the current model and the **Library** folder), containing the entered characters:



- If the object that you want to use appears in the list, click it to reuse it and insert it into your diagram:



Your local object is replaced by a shortcut to the library object, which is read-only, and any properties you had previously defined for the object are lost.

- If the object that you want to reuse does not appear in the list, click the [Search](#) button in the right of the field to open the [Search](#) dialog, initialized to search the current model and the **Library** folder for the entered characters. You can reconfigure the search results:
  - Add to or change the characters to search for in the [Search](#) field and press enter.
  - On the [Location](#) tab in the top-left corner, navigate to a particular folder, branch, project, or model in the repository tree to restrict the search to its contents.
  - On the [Filter](#) tab in the top-left corner, add appropriate property filters to restrict the search by these criteria.

#### **i** Note

The model and object type filters are read-only when selecting an object for reuse.

When you find the object, select it in the list of results and click [Select](#) to reuse it.

- If you do not find an object to reuse, click [Cancel](#) and enter a name to create a new object.

## 1.5.2 Referencing an Object in a Property Field or List

Certain object properties, such as the [Site](#) of a hardware server or the [Called Object](#) of a call activity, must be completed by selecting an object. Similarly, some lists on the [Depends On](#) or [Impacts](#) facets, such as [Associated Business Rules](#) require you to add existing objects to them.

### Procedure

1. On the [Info](#) facet, click the [Select](#) tool to the right of the property to be completed, or  
On the [Depends On](#) or [Impacts](#) facet, click the + (plus) tool above the list.  
The [Search](#) dialog opens, initialized to search the current model for the entered characters.
2. [optional] If the object that you want to select is not visible, you can reconfigure the search results:
  - Add to or change the characters to search for in the [Search](#) field and press enter.
  - On the [Location](#) tab in the top-left corner, navigate to a particular folder, branch, project, or model in the repository tree to restrict the search to its contents.
  - On the [Filter](#) tab in the top-left corner, select a type of model and object and add other appropriate filters to restrict the search by these criteria.

#### Note

The model and object type filters may be read-only if the property or list can contain only one or certain restricted types of objects.

3. Click the object in the results list to view its property sheet.
4. Click [Select](#) to insert the object into the property or list.

## 1.5.3 Promoting Reuse through the Library Folder

You can promote the reuse of commonly-used or reference objects by saving them in a diagram in the repository [Library](#) folder. Objects saved in this way are proposed to users when they create objects in their own diagrams.

For example, you may create lists of sites and organization units/pools/lanes, systems, applications, and process steps in diagrams and save them to the [Library](#) folder. When a user creates a site in a diagram and begins to enter its name, they will be prompted to reuse an existing site from the [Library](#). If the user selects to reuse an object, the local object that they were creating is replaced by a shortcut to the library object.

Promoting reuse in this way prevents unnecessary duplication of information and improves the quality and scope of impact analysis.

#### Note

The following BPMN 2.0 Descriptive and Executable objects can be reused:

- Pools



- Lanes
- Tasks/Activities
- Data Objects/Data Stores
- Intermediate Events

The following BPMN 2.0 Descriptive and Executable objects cannot be reused:

- Start/End Events
- Gateways
- Sequence and Message Links and Data Associations

BPMN 2.0 Descriptive objects cannot be reused in BPMN 2.0 Executable diagrams and vice versa.

## 1.6 Impact and Lineage Analysis

PowerDesigner Web maintains connections between objects within diagrams, in different diagrams, and across different domains. Impact and lineage analysis allows you to visualize and follow these connections to understand the dependencies between objects and the impact of making a change on one of the objects in the chain. The analysis is driven principally by the lists of objects that appear on the [Depends On](#), [Impacts](#) and, optionally [Children](#) facets of an object.

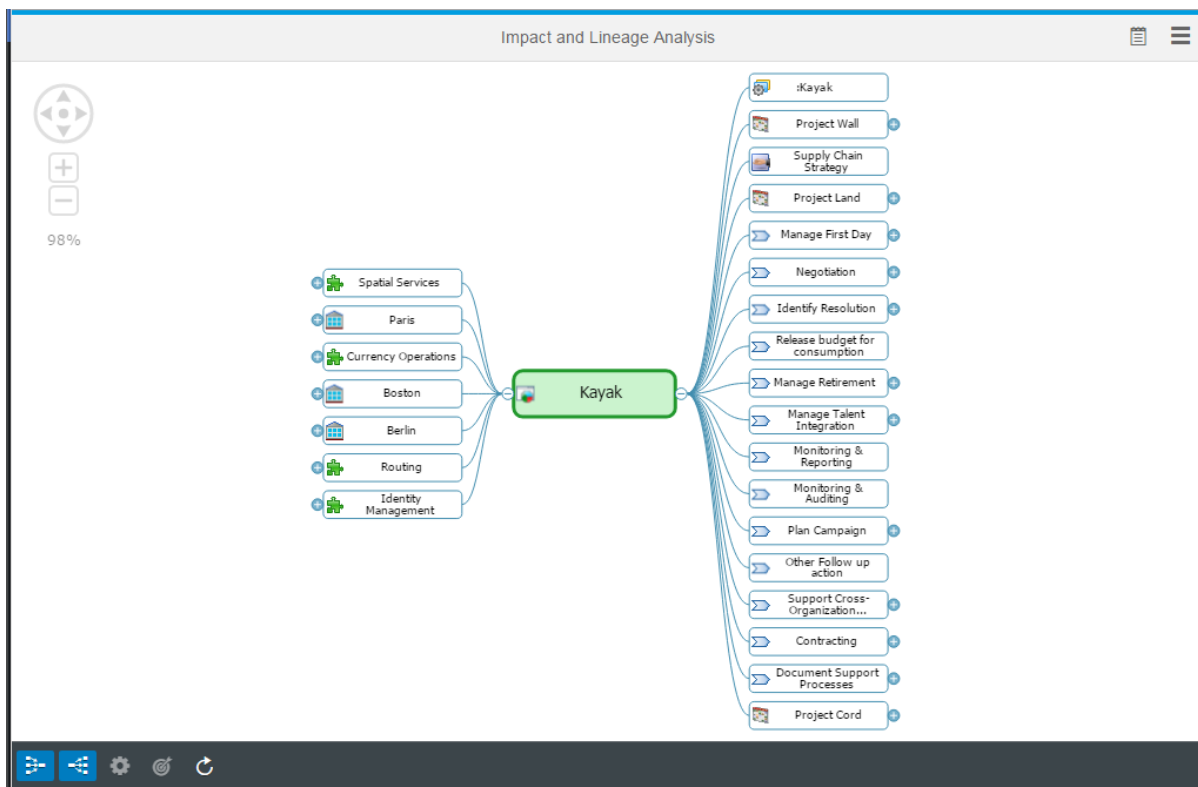
### Procedure

1. Navigate to the property sheet of the object you want to analyze in the diagram viewer, repository, or search dialog, and select **Menu** [Impact and Lineage Analysis](#).

The analysis diagram opens in a new browser tab with one level of impacts expanded to the right of the analysis object and one level of lineages to the left:

- Hover over an object to see its object type and the model it belongs to in a tooltip.
- Click the [Show Properties](#) tool in the top right-hand corner to display the property sheet of the selected object.

In this example, the **Kayak** system depends on a number of components and sites, and impacts various other objects:



2. If an object displays a small plus sign on its outer edge, you can click on it to expand the analysis along this path.

Alternately, select an object and press **[+]** to expand one level (or **[Ctrl] + [+]** to expand up to five levels) of analysis.




### **i** Note

Objects on the impact (right-hand) side of the analysis can only display further impacts and objects on the lineage (left-hand) side can only display further lineages. To display the lineages of an object shown among the impacts (or the impacts of an object shown among the lineages), you must recenter the analysis on the object by selecting it and clicking the [Change Analysis Object](#) tool.

3. [optional] Configure the analysis using the tools in the bottom toolbar:

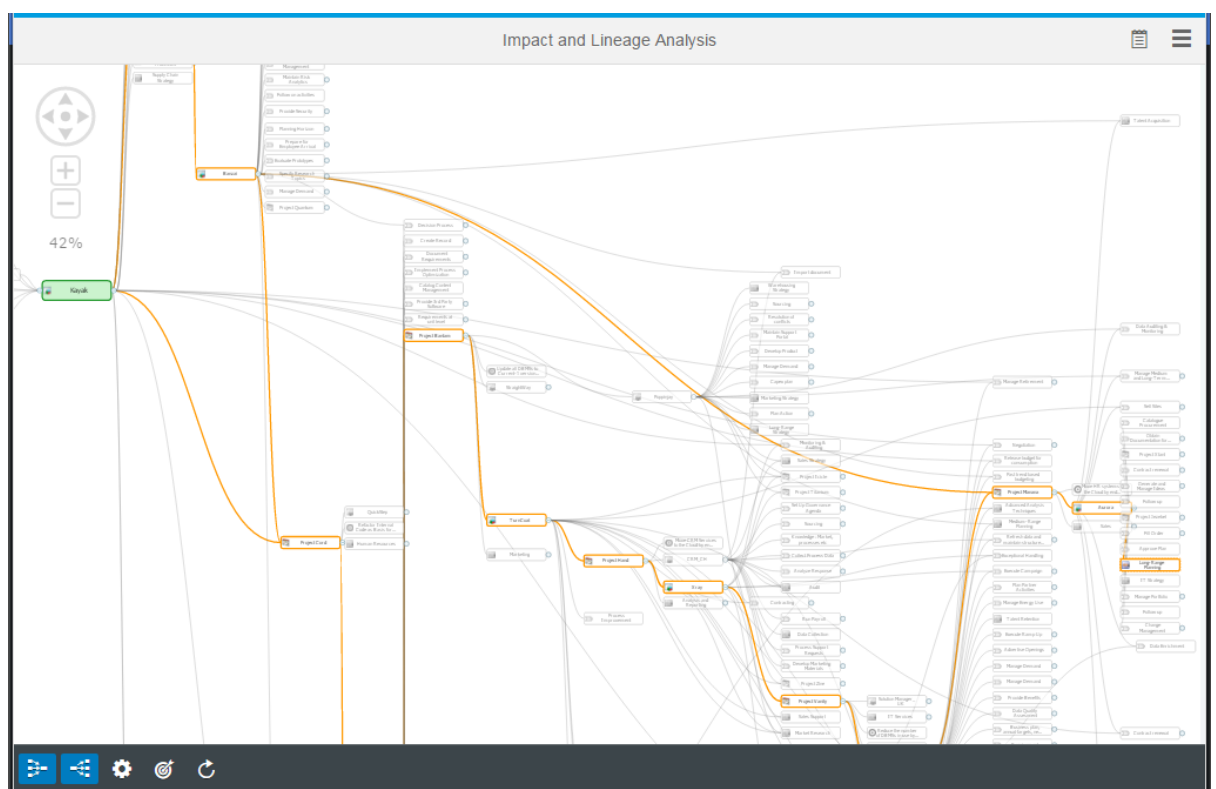
Table 6:

Tool	Description
	<a href="#">Show Lineage</a> - Toggles the display of objects on which the object depends, which are shown to the left of the analysis object.
	<a href="#">Show Impacts</a> - Toggles the display of objects that the object impacts, which are shown to the right of the analysis object.

Tool	Description
	<a href="#">Customize Analysis</a> - Opens a dialog allowing you to control which types of relationships are displayed and whether they are treated as impacts or lineages (see <a href="#">Customizing the Analysis [page 44]</a> )
	<a href="#">Reanalyze</a> - Reruns the analysis to take into account recent local and server changes.
	<a href="#">Change Analysis Object</a> - Recenters the analysis on the selected object.

4. [optional] Select any object that you want to remove from the analysis and press [Delete](#).
5. [optional] Select any object in the analysis to highlight the paths that connect it to the analysis object:

In this example, a business function, far removed from the initial system, is selected, and the multiple impact paths that lead to it are highlighted:



6. [optional] Click the [Menu](#) button and select:
  - [Share Link](#) - to obtain a shareable link to the diagram.
  - [Print Diagram](#) - to prepare the diagram for printing through your browser's Print function. You can specify to shrink the diagram to a single page or to a minimum number of readable pages.
  - [Export Diagram Image](#) - to save the diagram as an SVG image.

---

## 1.6.1 Customizing the Analysis

You can control which types of relationships are displayed in the analysis and whether they are treated as impacts or lineages. You can customize the analysis for individual objects or for all objects of that type.

### Context

By default, the analysis is based on the contents of the object's property sheet:

- Objects listed on the [Impacts](#) facet are shown on the impact (right-hand) side of the analysis.
- Objects listed on the [Depends On](#) facet are shown on the lineage (left-hand) side of the analysis.
- Objects listed on the [Children](#) facet are not shown.

### Procedure

1. Select the object for which you want to modify the analysis, and click the [Customize Analysis](#) tool.

The dialog opens, listing all the types of relationship (or "collections") that can be displayed for this type of object:

Customize Analysis

System 'Kayak' (Enterprise Architecture Model 'EA Example')

☒
Apply to all systems

Display	Collections	Type
<input type="checkbox"/>	Application Services	Impact ▼
<input type="checkbox"/>	Applications	Impact ▼
<input checked="" type="checkbox"/>	Architecture Areas	Lineage ▼
<input checked="" type="checkbox"/>	Asset Impacts	Impact ▼
<input checked="" type="checkbox"/>	Associated Business Rules	Lineage ▼
<input checked="" type="checkbox"/>	Associated Requirements	Lineage ▼
<input type="checkbox"/>	Components	Impact ▼
<input type="checkbox"/>	Databases	Impact ▼
<input checked="" type="checkbox"/>	Deployment Instances	Impact ▼
<input type="checkbox"/>	Documents	Impact ▼

OK Cancel Reset

2. Review each collection and choose whether to *Display* it, and whether it should be shown as an **Impact** (to the right of the selected object) or as a **Lineage** (to the left of the selected object).
3. Choose whether to apply the changes to just this object or to all objects of that type (by selecting the *Apply to all...* checkbox), and click *OK* to return to the diagram and apply your changes.

#### Note

Customizations are saved in your browser's local storage. They are retained across sessions, but may be lost if you clear your browser history.

## 1.7 Translating Diagrams and Viewing Translated Diagrams

PowerDesigner Web supports translating your diagram content for viewing in over 30 languages. Each repository has a default master language for creating diagrams and objects, and users can choose the language in which they want to view model content.

### Context

By default, all users view model content in the default **(Master)** language until they click the [Content Language](#) tool and select a different language. The **(Master)** language is neutral - it can represent, English, French, or any other language that is the principal working language for your organization.

#### Note

The content language is separate from the interface language, which controls the language in which you see field names, tooltips, help and other interface elements, and which can be selected by clicking your name on the homepage (see [Modeling with PowerDesigner Web \[page 6\]](#)).

PowerDesigner Web supports translating diagram content as follows:





- All models, diagrams, and objects in a repository must be created in the **(Master)** language, and we recommend that you complete and publish diagrams in the **(Master)** language before undertaking their translation.
- The primary text fields, [Name](#), [Comment](#), and [Description](#) for all objects can be translated for viewing in multiple languages.
- When you select a [Content Language](#), PowerDesigner Web will present content in the diagram and property sheet to you in this language if it is translated, and will display fields containing untranslated data with a light yellow background.

#### Note

Translated content is only visible in the diagram viewer and property sheet, and is not visible in the Search dialog, diagram verification, and other features.

- The [Content Language](#) tool changes based on your choice and on the availability of translated content in the diagram being viewed:

Table 7:

Model Content	No Content Language Selected or Master Language Selected	Other Language Selected
No content translated	 [default]	 Français (French) No translation has been performed and so all fields show yellow. You can translate them if you have <b>Submit</b> or higher permission on the diagram.
Some or all content translated	 (Master) You have not chosen a content language, but are made aware that there are translations available.	 Français (French) You can view translated content if it is available in your language and/or translate yellow fields.

- If you edit a diagram while viewing it with a *Content Language* that is not the **(Master)** language, any edits that you make are saved as the selected language.

#### Note

Creating objects in a language other than the master language is not supported.

To change the language in which you view diagram content:

## Procedure

1. Open a diagram and click the *Content Language* tool in the top toolbar, next to the *Menu* button.

Languages into which all or part of the model content has been translated are available in the list, and other languages are available by clicking the *Other Languages* item.

2. Click a language to select it as your *Content Language*.

If object names and other translatable data are available in the selected language they will be displayed. Otherwise, content will be shown in the master language with a light yellow background to signal that it requires translation into the selected language.

3. [optional] If you have **Submit** or higher permission on the diagram, you can edit it and enter translations for the *Name*, *Comment*, and *Description* fields of objects.

To translate a field with a light yellow background into your content language, select and overwrite the existing content.

---

**i Note**

Any edits you make will be saved as the selected language. Creating objects in a language other than the master language is not supported.



## 2 Requirements Documents

Requirements documents display a hierarchical list of written requirements. You can link requirements to users and groups who will work on them or are otherwise associated with them, and with any object that contributes to the fulfillment of the requirement or is impacted by it.

In this example, the **Registration** requirement is selected in the hierarchy:

The screenshot shows the 'MainDocumentView (Read)' interface. On the left, a tree view lists requirements under 'Title ID' and 'Name'. The 'Registration' requirement (Title ID 2.2.1) is selected. The right pane displays details for this requirement, including its parent ('Identified Use Cases'), title, code, and a description. The description states: 'A customer must register itself before consulting publications. The registration process includes definition of login, password and email address. The password must be confirmed in a second field in order to detect typing error.'

Title ID	Name
1.	Overview
2.	Use Cases
2.1	Identified Users
2.1.1	Customer
2.1.2	Administrator
2.2	Identified Use Cases
2.2.1	Registration
2.2.2	Log On
2.2.3	Consultation
2.2.4	Administration
3.	Technical Requirements

**Registration**  
Requirement  
Modified 1 min ago by ADMIN  
Parent: Identified Use Cases

0 Children 0 Depends On 1 Impacts 0 Diag

**General**

Parent: Identified Use Cases  
Title: Registration  
Code: Registration  
Description: A customer must register itself before consulting publications. The registration process includes definition of login, password and email address. The password must be confirmed in a second field in order to detect typing error.







**Detail**  
**Version Info**

To create a requirements document, click the + tile in your workspace (see [Creating a Diagram from the Workspace \[page 8\]](#)) or in a repository folder (see [Creating a Diagram \[page 13\]](#)).

- The following tools are available in requirements documents:

Table 8:

Tool	Description
	<i>Insert Requirement</i> - Inserts a new requirement as a sibling under the selected requirement.

Tool	Description
 / 	<i>Move Up (Shift+Alt+Up Arrow)/Move Down (Shift+Alt+Down Arrow)</i> - Move the selected requirements up or down in the tree at a single level.
 / 	<i>Promote (Shift+Alt+Left Arrow)/Demote (Shift+Alt+Right Arrow)</i> - Move the selected requirements up or down a level in the tree.
 / 	<i>Expand/Collapse</i> - Open or close the selected branch of the tree.

- You can control the columns that are displayed in the requirements document and filter on values in any column:
  - To show or hide columns in the document or to change their order, click the [Customize Columns](#) tool to the right of the document name to open the [Columns](#) dialog. Select the checkbox to the left of a column name in the list to display it, and use the arrows at the top of the list to change the order of columns.
  - To filter requirements by values in a column, click the column header to open the filter pop-up. Specify an operator and a value to filter against. When using the operator = with a column containing text, \* (asterisk) can be used as a wild card.

### Note

When a filter is set on a column, a filter icon is displayed on the right of the column header. To disable the filter, click the column header and then click the [Clear Column Filter](#) link in the pop-up.

## 2.1 Requirements (RQM)

A requirement is a clear and precise description of a necessary capability or characteristic of a product or process. Requirements can have a priority, status, workload, and other properties assigned to them, and can contain sub-requirements.

To create a requirement, click the [Insert Requirement](#) tool (or, if you are in the last requirement in the grid, press the Down Arrow key). By default, the requirement is created as a sibling of the previous requirement.

To demote the requirement to a child of the previous requirement, click the [Demote](#) tool or press Shift + Alt + Right Arrow. To move it up a level in the tree, click the [Promote](#) tool or press Shift + Alt + Left Arrow.

The following properties are available on the [Info](#) facet in the [General](#) category:

Table 9:

Property	Description
Parent	[read-only] Displays the name of the parent requirement. For top-level requirements this is the model name.

Property	Description
Title	Specifies a short summary of the requirement.
Code	Generates a unique code for the requirement. You can override an individual requirement code by typing directly in this field.
Description	Specifies a detailed description of the requirement. Click the <a href="#">Pop Out</a> button to open this field in a larger floating editor.

The following properties are available in the [Detail](#) category:

Table 10:

Property	Description
Comment	Provides space for any comment on the requirement.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.
Type	Specifies the type of the requirement.
Status	Specifies the present validation status for the requirement.
Priority	Specifies the priority level attached to the requirement. Select a value in the list or type a value. The value cannot be null or negative, and is limited to one decimal (for example: 1.9).
Selected	Specifies that the requirement has been selected to be implemented in the project. If this checkbox is cleared, the requirement is excluded from the project and the sum of workloads.
Risk	Specifies the level of risk associated with implementing the requirement.
Verification	Specifies the type of testing to be applied to the development of the requirement.
Workload 1-4	Specifies four separate workloads (see <a href="#">Assigning Workloads [page 52]</a> ). Workloads for requirements with sub-requirements are read-only fields calculated as the sums of all sub-requirement workloads.

The following facets contain additional information:

- [Children](#) - Lists sub-requirements.
- [Depends On](#) - Lists users or groups allocated to the requirement and other objects the requirement depends on.
- [Impacts](#) - Lists objects the requirement impacts.

## 2.1.1 Linking Requirements with Design Objects

You can link requirements to design objects (objects from other types of models) and to other requirements using traceability links.

### Note

PowerDesigner Web unifies the concepts of traceability links and requirement traceability links, which are separate in desktop PowerDesigner.

You can create traceability links pointing from or to the requirement:

- To create a traceability link pointing from the requirement to the design object or other requirement:
  1. Select the requirement and click the *Depends On* facet in its property sheet.
  2. Click the *Add* tool in the header of the *Outgoing Traceability Links* list to open the search dialog.
  3. Search for the object that you want to link to the requirement, optionally filtering by location, object type, and other criteria (see [Referencing an Object in a Property Field or List \[page 40\]](#)), and click *Select* to add it to the *Outgoing Traceability Links* list.

### Note

The object's property sheet lists the requirement on its *Depends On* facet in the *Incoming Traceability Links* list.

- To create a traceability link pointing from the design object (or other requirement) to the requirement:
  1. Select the design object (or other requirement) and click the *Depends On* facet in its property sheet.
  2. Click the *Add* tool in the header of the *Outgoing Traceability Links* list to open the search dialog.
  3. Search for the requirement that you want to link to the object, optionally filtering by location and other criteria (see [Referencing an Object in a Property Field or List \[page 40\]](#)), and click *Select* to add it to the *Outgoing Traceability Links* list.

### Note

The requirement's property sheet lists the design object (or other requirement) on its *Depends On* facet in the *Incoming Traceability Links* list.

## 2.1.2 Assigning Workloads

A workload is the time assigned to a person or team to satisfy a requirement. Values must be greater than or equal to zero, and limited to one decimal place (for example: 3.5).

No time unit is enforced to measure workloads but, in order to properly calculate totals, you should decide on and consistently use the same unit (hour or day) for all workloads.

You assign workloads to a requirements on the *Info* facet in the *Detail* section, where there are fields to record four separate workloads.

You can only assign workloads to requirements that have no sub-requirements. Workloads for parent requirements, packages, and the model are read-only fields calculated as the sums of all their sub-requirement workloads.

## 2.2 Users and Groups (RQM)

Users are people concerned by one or more requirements. Users can be assigned to Groups, and users and groups can be associated with requirements. You create users and groups on the model property sheet [Children](#) facet.

To create a user or group:

1. Click in an empty line in the document to access the document's property sheet and then click on the [Model](#) link to go to the model's property sheet.
2. Click the [Children](#) facet. If the [Users](#) or [Groups](#) list is not visible, click the [Show/Hide Section](#) tool and select the appropriate list to display it.
3. Click the [Add](#) tool in the header of the list.

The following properties are available on the [Info](#) facet in the [General](#) category:

Table 11:

Property	Description
Name/Code/Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.
Email address	E-mail address of the user or group.

The following facets contain additional information:

- [Depends On](#) - Lists member groups and users and other objects the user or group depends on.
- [Impacts](#) - Lists groups the user or group belongs to and other objects it impacts.

### 2.2.1 Adding Users and Groups to a Group

You can add users and groups to a group from the group's property sheet.

#### Procedure

1. Open the property sheet of a group, and click the [Depends On](#) facet.
2. If the list of [Group Users](#) is not visible, click the [Show/Hide Section](#) tool and select it.
3. Click the [Add](#) tool at the top of the [Group Users](#) list, and use the [Search](#) dialog to select the user or group to add (see [Referencing an Object in a Property Field or List \[page 40\]](#)).

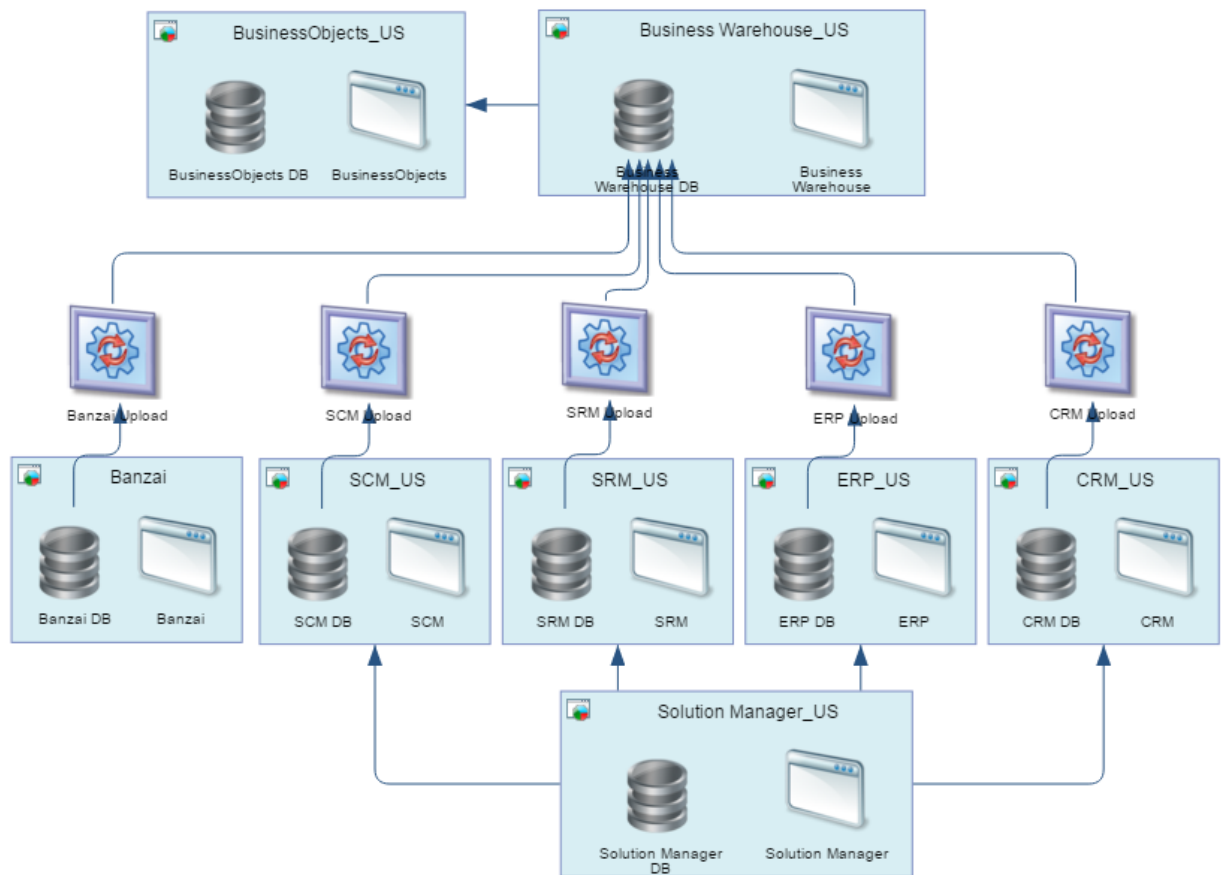
---

The user or group is now a member of the group.

### 3 Enterprise Architecture

Enterprise architecture diagrams help you analyze and document your organization, its functions and processes, the applications and systems that support them, and the physical architecture on which they are implemented.


In this example, various systems upload data to a **Business Warehouse** system:










To create an enterprise architecture diagram, click the + tile in your workspace (see [Creating a Diagram from the Workspace \[page 8\]](#)) or in a repository folder (see [Creating a Diagram \[page 13\]](#)).

- Enterprise architecture diagrams contain toolbars for each of the architecture domains. Click a toolbar to access the tools for that domain:

Table 12:

Tool	Description
	<i>Organization Architecture Toolbar</i> - (see <a href="#">Organization Architecture Modeling [page 64]</a> ).

Tool	Description
	<i>Process Architecture Toolbar</i> - (see <a href="#">Process and Function Architecture Modeling [page 70]</a> ).
	<i>Application Architecture Toolbar</i> - (see <a href="#">Application Architecture Modeling [page 74]</a> ).
	<i>Infrastructure Architecture Toolbar</i> - (see <a href="#">Infrastructure Architecture Modeling [page 87]</a> ).
	<i>Goals and Projects Toolbar</i> - (see <a href="#">Goal and EA Project Modeling [page 95]</a> ).
	<i>Link</i> - (see <a href="#">Linking EAM Objects [page 61]</a> ).
	<i>Package</i> - (see <a href="#">Packages [page 141]</a> ).
	<i>File</i> - (see <a href="#">File Objects [page 140]</a> ).

- Many objects can be decomposed into sub-objects, and some can contain or be used to group other objects (see [Structuring EAM Objects \[page 56\]](#)).
- Any object can be connected to another object via a variety of types of links with different semantic meanings (see [Linking EAM Objects \[page 61\]](#)).
- Objects defined in one diagram can be reused in another (see [Reusing Objects in an EAM \[page 63\]](#)).

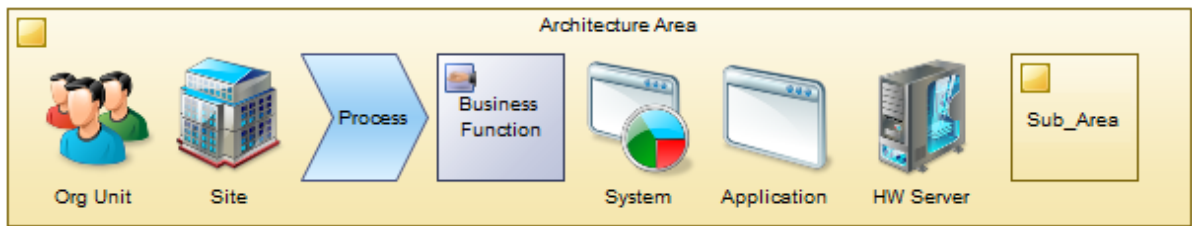
## 3.1 Structuring EAM Objects

The PowerDesigner metamodel is very rich and allows you to structure and organize your objects in flexible ways. Many enterprise architecture objects can be decomposed into sub-objects, and some can contain other objects and/or can be used to group other objects.

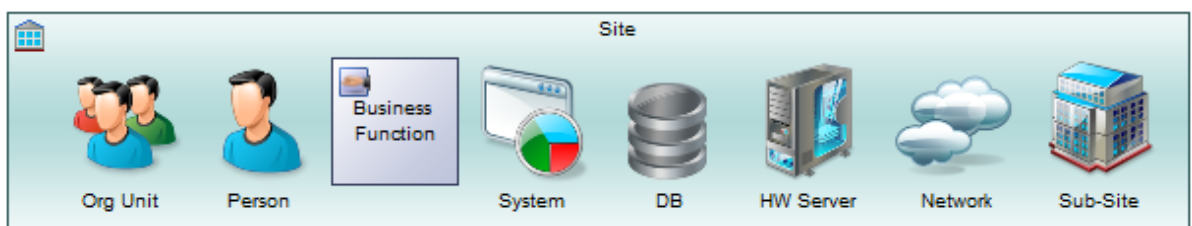
The following objects provide the principal ways for grouping other objects:

- Architecture areas - Provide logical groupings of objects (see [Architecture Areas \[page 71\]](#)). Any object can be attached to an architecture area and can appear inside the area symbol. Objects can be attached to multiple architecture areas:

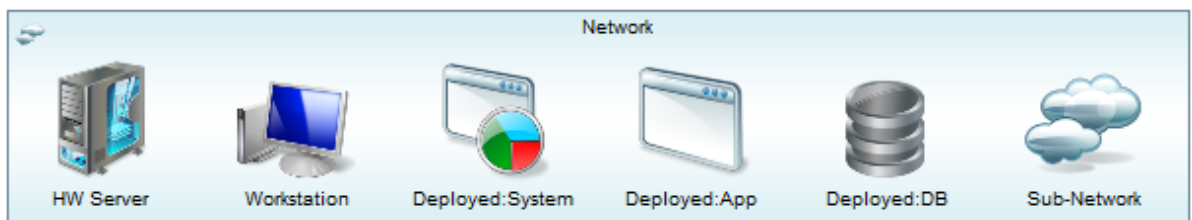




- Sites - Provide geographical groupings of objects (see [Sites \(EAM\) \[page 64\]](#)). Many types of objects can be attached to a site and can appear inside the site symbol. Organization units, roles, business functions, systems and databases can be attached to multiple sites, while people and machines can only be attached to one:



- Networks - Provide virtual groupings of objects (see [Networks \(EAM\) \[page 91\]](#)). Hardware objects and deployment instances can be attached to a network and can appear inside the network symbol:



#### **i** Note

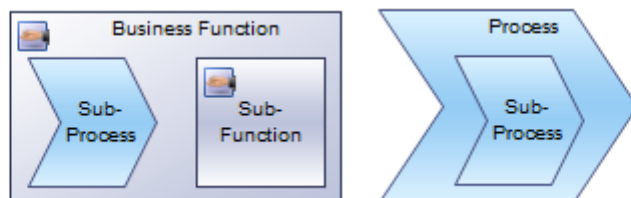
Objects associated with an architecture area, site, or network do not belong to these objects, and will not be deleted if you delete the area, site or network. However, areas can contain sub-areas, sites can contain sub-sites, and networks can contain sub-networks, and these sub-objects do belong to their parents and will be deleted if their parent is deleted.

- Organization units - Can contain sub-units and can group people (see [Organization Units \(EAM\) \[page 66\]](#)). A person can belong to multiple organization units.

#### **i** Note

Sub-units and people cannot be displayed inside their parent unit symbol in an enterprise architecture diagram. They can be shown only in an organization chart, which can be viewed, but not edited, on the Web.

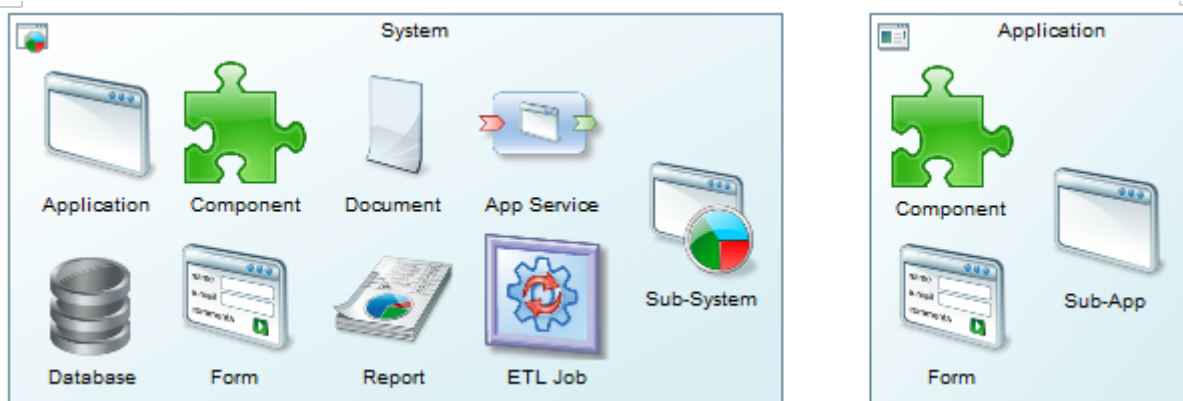
- Business functions can contain sub-functions and processes (see [Business Functions \[page 72\]](#)), and processes can contain sub-processes (see [Processes \[page 73\]](#)). Such sub-objects will be deleted if their parent is deleted.



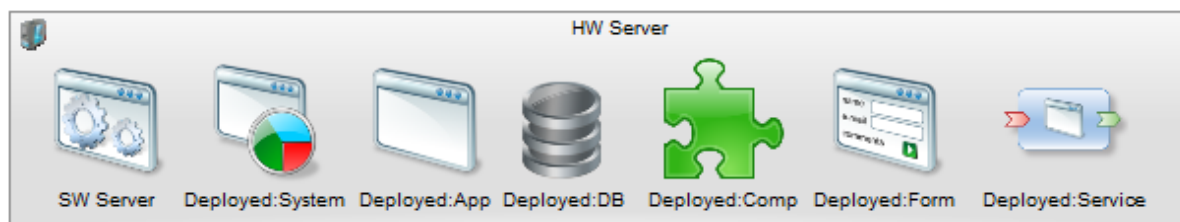
### **i** Note

Sub-processes cannot be shown inside their parent process symbol in an enterprise architecture diagram. They can be shown only in a sub-process map (see [Process Maps \[page 99\]](#)).

- Systems and applications can contain various other application architecture objects (see [Systems and Applications \(EAM\) \[page 75\]](#)), which will be deleted if you delete the parent object:



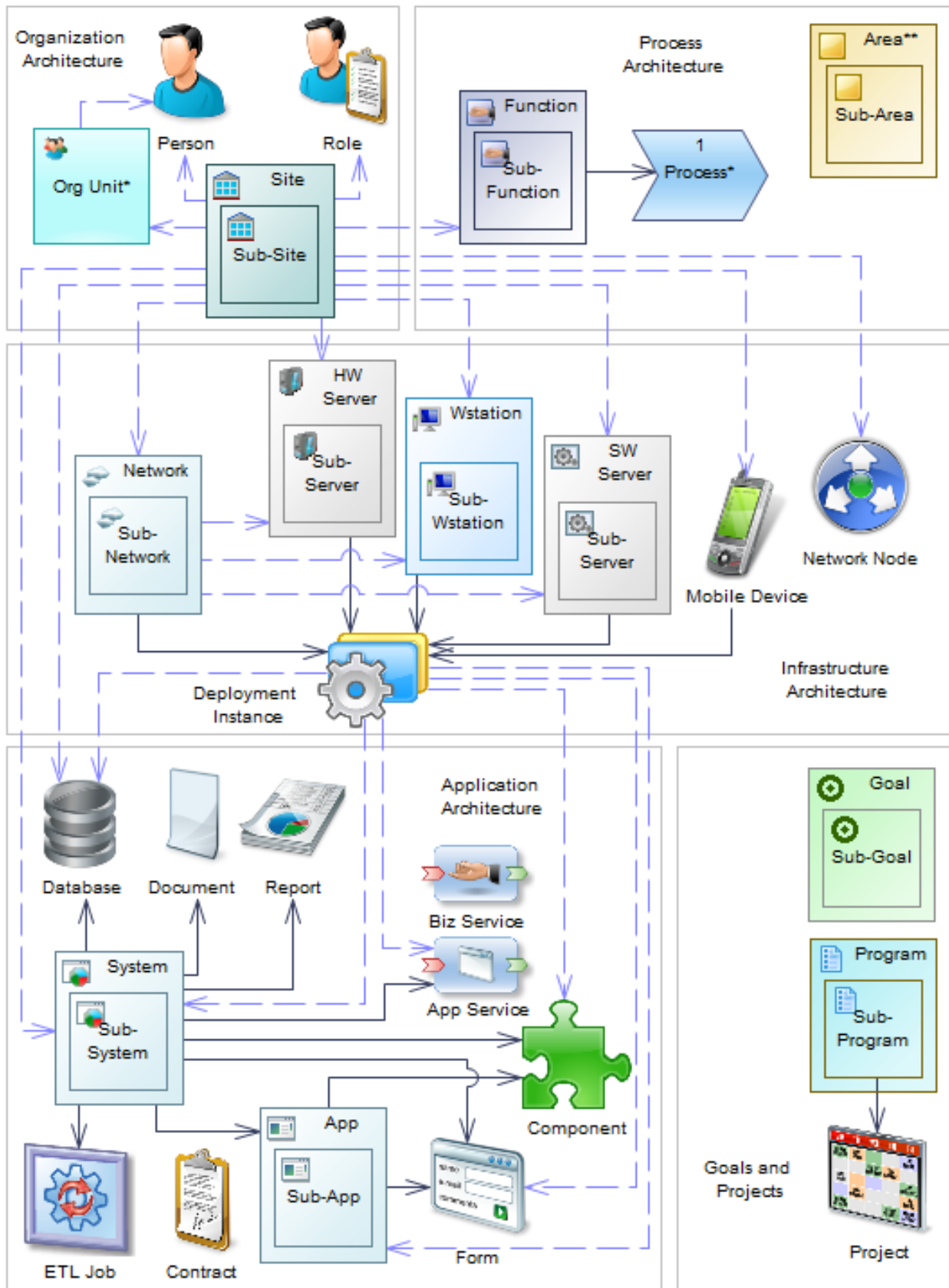
- Hardware and software servers, workstations, and mobile devices can have application architecture objects deployed to them (see [Servers, Workstations, Mobile Devices, and Network Nodes \(EAM\) \[page 88\]](#)). The deployment is modeled with deployment instances (see [Deployment Instances \(EAM\) \[page 93\]](#)). Each deployment instance is a sub-object of its parent hardware object, and will be deleted if you delete the parent, leaving the software asset itself unaffected.



In this diagram, all the main ways of decomposition, containing, and grouping objects are represented as follows:

Table 13:

Symbol	Meaning
Box-in-box	<p>Decomposition - The object can be decomposed into sub-objects, which belong to the parent object and will be deleted if the parent is deleted. For example, an area can contain sub-areas and a site can contain sub-sites. Sub-objects are displayed on the <a href="#">Children</a> facet of the parent object's property sheet.</p> <p><b>i Note</b></p> <p>*Processes can contain sub-processes but the sub-processes cannot be shown inside the parent process symbol. The structure of processes and sub-processes is shown using the dedicated process map diagram (see <a href="#">Process Maps [page 99]</a>). Similarly, organization units can contain sub-units but this relationship can only be shown in an organization chart.</p>
Solid arrow	<p>Containing sub-objects - The object can contain other objects, which belong to the parent object and will be deleted if the parent is deleted. For example, a system can contain sub-systems, applications, databases, and other software artifacts. Child objects are displayed on the <a href="#">Children</a> facet of the parent object's property sheet.</p>
Dashed arrow	<p>Grouping objects - The object can group other objects, but these grouped objects do not belong to the grouping object and will not be deleted if the grouping object is deleted. For example, a site can group people, functions, systems, servers, and various other objects. Grouped objects are displayed on the <a href="#">Depends On</a> facet of its property sheet.</p> <p><b>i Note</b></p> <p>**Architecture areas can group any artifact.</p>



## 3.2 Linking EAM Objects

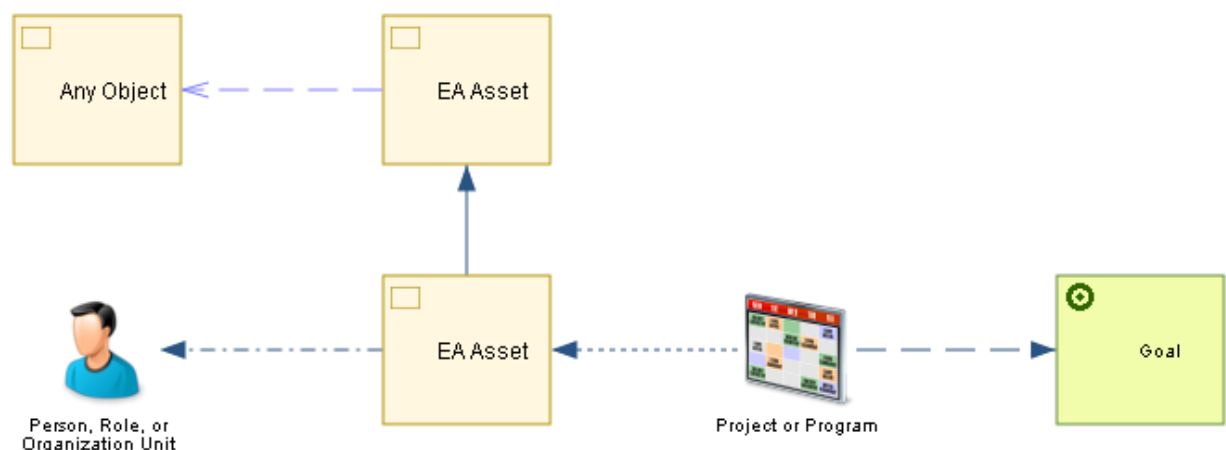
Enterprise architecture objects can be connected to each other through a variety of types of links with different semantic meanings. Any object can be connected to any other object, and the unified link tool creates a default type of link based on the source and target.

To create a link between two objects:

- Select the source object to display its context pad, click on the link tool and drag and drop the end of the link on the target object.
- Select the link tool in the bottom toolbar, click on the source object and drag and drop the end of the link on the target object.

A default link is created based on the type of the source and target object. For many source and target combinations, you can select a different link type after creation by selecting the link, clicking the *Type*, and choosing a new type.

The following kinds of links are available:



- Business flows and application and infrastructure links (solid lines) - Can be created between any combination of organization, process, application, and infrastructure architecture objects:



- Business Flows - Commonly represent a communication between people, departments and functions, and can carry documents. These links are created by default when you link organization or process architecture artifacts together.
- Application Links - Commonly represent a relationship between application artifacts. These links are created by default when an application artifact is the source or target object.

- Infrastructure Links - Commonly represent a physical (or wireless) link between infrastructure artifacts. These links are created by default when infrastructure artifacts are linked together.
- Special links - these links have a special meaning and can only be created in certain contexts:
  - Role Associations (dash-dot line) - Represent a responsibility for (or other relationship with) an artifact (see [Associating a Person, Organization Unit, or Role with an Object \[page 68\]](#)). These links are created by default when you draw a link from an artifact to an organization unit, person, or role:



- Fulfillment Links (dashed line) - Represent the fulfillment of a corporate goal by a program or project (see [Specifying the Fulfillment of Goals by a Project \[page 97\]](#)). These links are created by default when you draw a link from a program or project to a goal:



- Impact Links (dotted line) - Represent the impact that a program or project may have on an artifact (see [Specifying the Impact of a Project on EA Assets \[page 97\]](#)). These links are created by default when you draw a link from a program or project to an artifact:



- Traceability Links (dashed line) - Can be created between any object in any model and any other object in that or another model (see [Traceability Links \[page 141\]](#)):



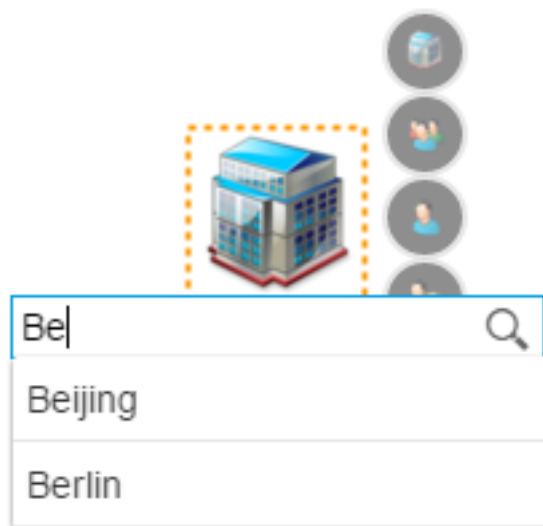
### 3.3 Reusing Objects in an EAM

It is common to build reference diagrams detailing the structure of your enterprise assets and then to reuse artifacts from these reference diagrams in other diagrams that are designed to communicate about a subset of artifacts in a particular context. Reusing an artifact from one diagram in another diagram creates a shortcut to the original artifact, preventing unnecessary duplication of information, and improving the quality and scope of impact analysis.

For example, you might develop the following reference models to document your environment:

- Process map - Detailing your business functions, processes, and sub-processes.
- Organization - Detailing your organization units, roles, and people.
- Physical environment - Detailing your sites and sub-sites and the networks, servers, and other hardware deployed to them.
- Systems and Applications - Detailing the software in use in your organization.

To reuse an artifact from a reference diagram in your diagram, create an object of the required type and begin entering the name of the artifact you want to reuse. PowerDesigner Web proposes a list of existing objects (present in the current model and the **Library** folder), containing the entered characters:



Select an object from the list or click the [Search](#) button to search for an alternate object to reuse (see [Reusing Objects in Diagrams \[page 37\]](#)). When you select an object from the list of the [Search](#) dialog, a read-only shortcut is created in your diagram pointing to the original object.

The following rules apply to using shortcuts in your diagrams:

- You can place a shortcut inside a local object (as a child or grouped object) but you cannot place a local object inside a shortcut. You can only modify the content of a shortcut in its original diagram.






- You can draw links to and from a shortcut, with the exception of traceability links, which cannot originate from a shortcut. You can only create a traceability link originating in a local object and pointing towards another local object or a shortcut.
- You can create a shortcut to an object or to any of the objects that it contains, but you cannot show the contents of an object inside its shortcut symbol. For example, if you have a site, **Europe**, which contains a sub-site, **Germany**, which contains a sub-site, **Berlin**, which contains a server, **Ber-105TX**, you can create a shortcut to any of these objects, **Europe**, **Germany**, **Berlin**, or **Ber-105TX**, but you cannot show the detail of this hierarchy in another diagram.

## 3.4 Organization Architecture Modeling

PowerDesigner Web lets you capture, analyze, visualize, and plan changes to your organization.

The following tools are available:

Table 14:

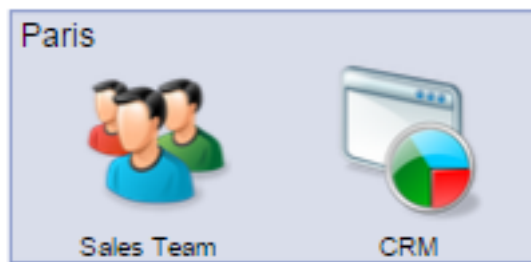
Tool	Description
	<i>Organization Architecture Toolbar</i> - Click to show or hide the tools below.
	<i>Site</i> - A physical location. See <a href="#">Sites (EAM) [page 64]</a> .
	<i>Organization Unit</i> - A group, department, function, or other collection of people or organization units. See <a href="#">Organization Units (EAM) [page 66]</a> .
	<i>Person</i> - An individual. See <a href="#">People (EAM) [page 67]</a> .
	<i>Role</i> - A set of responsibilities. See <a href="#">Roles (EAM) [page 69]</a> .

### 3.4.1 Sites (EAM)

A site is a physical location that can contain sub-sites and can geographically group people, organizations and various other objects.

In this example, the **Sales Team** organization unit and **CRM** system are located in the **Paris** site:





To create a site, click the [Site](#) tool to select it, and then click in empty space or in an existing:

- Site (to create a sub-site)
- Architecture area

You can link a site to any other object using the [Link](#) tool (see [Linking EAM Objects \[page 61\]](#)). You can add the following kinds of objects to a site:

- Sub-sites
- Organization units, people, and roles
- Business functions
- Systems and databases
- Hardware and software servers, workstations, mobile devices, networks, and network nodes



For more information about grouping and organizing EAM objects, see [Structuring EAM Objects \[page 56\]](#).

The following properties are available on the [Info](#) facet in the [General](#) category:

Table 15:

Property	Description
Name/Code/ Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.
Address / Zip code / City / Country	Specify the address of the site.

Property	Description
Phone	Specifies the telephone number of the site.
Population	Specifies the number of people at the site.

The following facets contain additional information:

- *Children* - Lists sub-sites.
- *Depends On* - Lists objects grouped in the site and other objects it depends on.
- *Impacts* - Lists objects that the site impacts.

## 3.4.2 Organization Units (EAM)

An organization unit is a department, group, or team that can contain sub-units and can group people.

In this example, the **Office of the CBO** organization unit is a stakeholder of the **ERP to Cloud** goal:



To create an organization unit, click the *Organization Unit* tool to select it, and then click in empty space or in an existing:

- Site
- Architecture area

### **i** Note

Sub-units cannot be created or displayed inside their parent in an enterprise architecture diagram. To add a sub-unit to an organization unit, use the Sub-Organizations list on the parent's *Children* facet. This relationship can be shown inside an organization chart, which can be viewed, but not edited, on the Web.

You can link a organization unit to any other object using the *Link* tool (see [Linking EAM Objects \[page 61\]](#)). You can add the following kinds of objects to an organization unit:

- Sub-units (using the Sub-Organizations list on its *Children* facet)
- People (using the People list on its *Depends On* facet)

The following properties are available on the [Info](#) facet in the [General](#) category:

Table 16:

Property	Description
Name/Code/ Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.
Manager	Specifies the manager of the organization unit. Click the <a href="#">Select</a> tool and search for a person or role (see <a href="#">Referencing an Object in a Property Field or List [page 40]</a> ).
Telephone	Specifies the telephone number of the organization unit.
Email	Specifies the email address of the organization unit.
Web site	Specifies the url for the web site of the organization unit.

The following facets contain additional information:

- [Children](#) - Lists sub-units.
- [Depends On](#) - Lists people grouped in the organization unit, roles it performs, and other objects it depends on.
- [Impacts](#) - Lists role associations implicating the organization unit (see [Associating a Person, Organization Unit, or Role with an Object \[page 68\]](#)) and other objects it impacts.

### 3.4.3 People (EAM)

A person is an individual who holds a position within an organization and plays roles in relation to artifacts.

In this example, **Mike Sanderson** is the owner of the **PAR08-T65** server:



To create a person, click the [Person](#) tool to select it, and then click in empty space or in an existing:

- Site
- Architecture area

## **i** Note

People cannot be created or displayed inside an organization unit in an enterprise architecture diagram. To add a person to an organization unit, use the People list on the organization unit's *Children* facet. This relationship can be shown inside an organization chart, which can be viewed, but not edited, on the Web.

You can link a person to any other object using the *Link* tool (see [Linking EAM Objects \[page 61\]](#)).

The following properties are available on the *Info* facet in the *General* category:

Table 17:

Property	Description
Name/Code/ Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <i>Code</i> field.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.
Manager	Specifies the manager of the person. Select a person from the list or click the New tool to the right of the field to create a new one.
Site	Specifies the site where this person is located. Click the <i>Select</i> tool and search for a site (see <a href="#">Referencing an Object in a Property Field or List [page 40]</a> ).
Job title	Specifies the job title of the person.
Telephone	Specifies the telephone number of the person.
Email	Specifies the email address of the person.

The following facets contain additional information:

- *Depends On* - Lists roles that the person performs and other objects they depend on.
- *Impacts* - Lists role associations implicating the person (see [Associating a Person, Organization Unit, or Role with an Object \[page 68\]](#)) and other objects that they impact.

### **3.4.3.1 Associating a Person, Organization Unit, or Role with an Object**

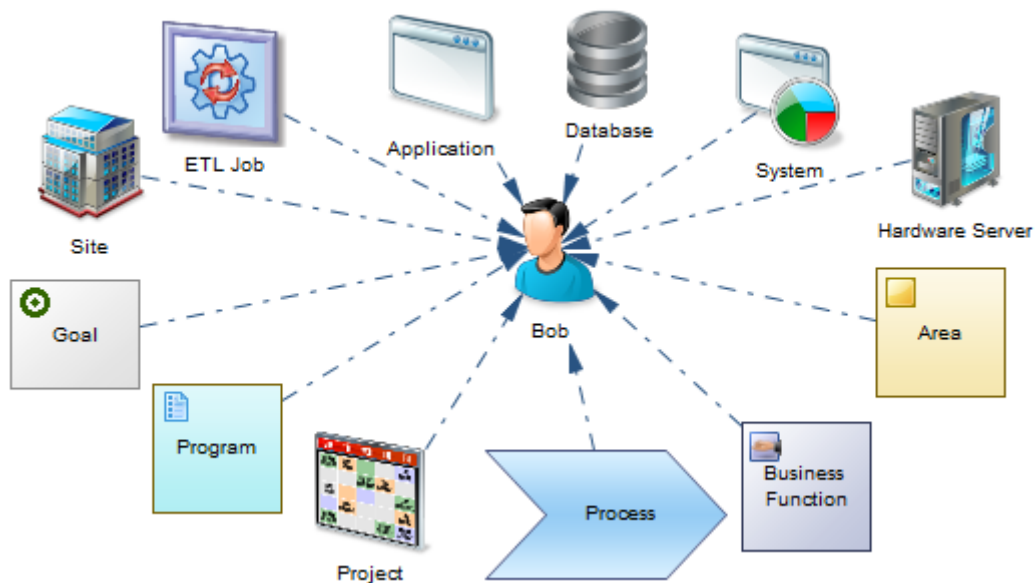
You can specify the role that a person (or an organization unit or role) plays for another object by drawing a link from the object to the person. The list of objects for which the person plays a role is available on the person's *Impacts* facet, and the list of people playing a role towards an object is listed on the object's *Depends On* facet.

## Context

For example:

- A person may be defined as the administrator of a hardware server and the manager of a site.
- An organization unit may be identified as being responsible for the Sales business function.
- A role may be designated as the contact for the Madrid site.

In this example, Bob is responsible for a wide range of objects:



### 3.4.4 Roles (EAM)

A role is a set of responsibilities. Roles can be assigned to people or organization units or can be used in place of them.

In this example, the **Presales Engineer** role is implicated in the **Prepare POC Presentation** process:



To create a role, click the [Role](#) tool to select it, and then click in empty space or in an existing:

- Site
- Architecture area

You can link a role to any other object using the [Link](#) tool (see [Linking EAM Objects \[page 61\]](#)).

The following properties are available on the [Info](#) facet in the [General](#) category:

Table 18:

Property	Description
Name/Code/Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.

The following facets contain additional information:





- [Depends On](#) - Lists people and organization units that perform the role and other objects it depends on.
- [Impacts](#) - Lists role associations implicating the role (see [Associating a Person, Organization Unit, or Role with an Object \[page 68\]](#)) and objects it impacts.

## 3.5 Process and Function Architecture Modeling

PowerDesigner Web lets you capture, analyze, visualize, and plan changes to your processes and functions.

The following tools are available:

Table 19:

Tool	Description
	<a href="#">Process Architecture Toolbar</a> - Click to show or hide the tools below.
	<a href="#">Architecture Area</a> - An abstract object for grouping other objects. See <a href="#">Architecture Areas [page 71]</a> .
	<a href="#">Business Function</a> - An aggregation of processes and/or sub-functions. See <a href="#">Business Functions [page 72]</a> .
	<a href="#">Process</a> - An activity or group of sub-processes. See <a href="#">Processes [page 73]</a> .

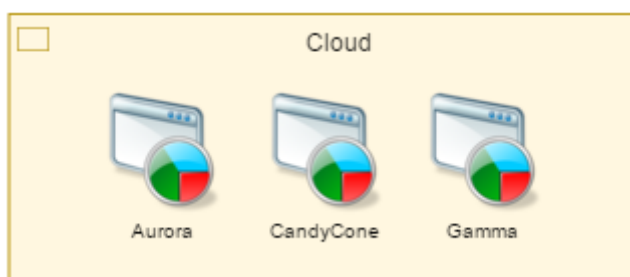
## 3.5.1 Architecture Areas

An architecture area is an abstract object that can group together other objects. The objects do not belong to the area and are just grouped in it.

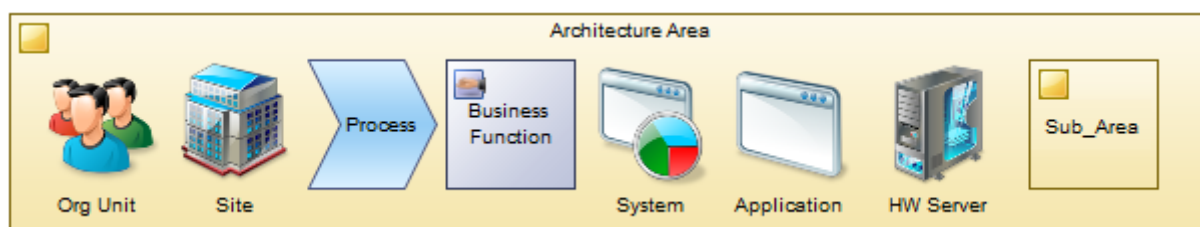
### **i** Note

Areas can also be created in a process map (see [Process Maps \[page 99\]](#)).

In this example, the **Cloud** area groups various systems together:



To create an area, click the [Architecture Area](#) tool to select it, and then click in empty space or in an existing area. You can link an area to any other object using the [Link](#) tool (see [Linking EAM Objects \[page 61\]](#)). You can add any kind of object to an architecture area.



For more information about grouping and organizing EAM objects, see [Structuring EAM Objects \[page 56\]](#).

The following properties are available on the [Info](#) facet in the [General](#) category:

Table 20:

Property	Description
Name/Code/Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.

The following facets contain additional information:

- [Children](#) - Lists sub-areas.
- [Depends On](#) - Lists objects grouped by the area and other objects it depends on.
- [Impacts](#) - Lists objects that the area impacts.

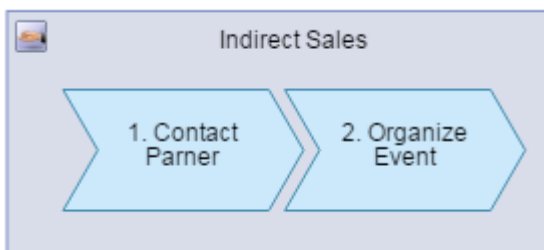
## 3.5.2 Business Functions

A business function is an aggregation of sub-functions and processes. These sub-objects belong to the function and will be deleted if you delete it.

### Note

Functions can also be created in a process map (see [Process Maps \[page 99\]](#)).

In this example, the **Indirect Sales** function contains some processes:



To create a function, click the [Business Function](#) tool to select it, and then click in empty space or in an existing:

- Business Function
- Site
- Architecture area

You can link a function to any other object using the [Link](#) tool (see [Linking EAM Objects \[page 61\]](#)). You can add the following kinds of objects to a business function:

- Sub-functions
- Processes

The following properties are available on the [Info](#) facet in the [General](#) category:

Table 21:

Property	Description
Name/Code/Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.



Property	Description
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.

The following facets contain additional information:

- [Children](#) - Lists sub-functions and child processes.
- [Depends On](#) - Lists objects that the function depends on.
- [Impacts](#) - Lists objects that the function impacts.

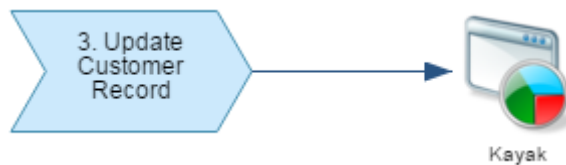
### 3.5.3 Processes

A process represents something that is done by the organization. Processes can be broken down into sub-processes and the hierarchy of processes is commonly shown in a process map.

#### Note

Processes can also be created in a process map (see [Process Maps \[page 99\]](#)).

In this example, the **Update Customer Record** process is linked to the **Kayak** system:



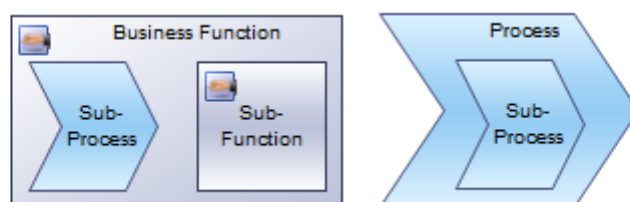
To create a process, click the [Process](#) tool to select it, and then click in empty space or in an existing:

- Business Function
- Architecture area

#### Note

Sub-processes cannot be shown inside their parent process symbol in an enterprise architecture diagram. They can be shown only in a sub-process map (see [Process Maps \[page 99\]](#)).

You can link a function to any other object using the [Link](#) tool (see [Linking EAM Objects \[page 61\]](#)).



The following properties are available on the *Info* facet in the *General* category:

Table 22:

Property	Description
Name/Code/ Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <i>Code</i> field.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.
Number ID	Specifies the number of the process in the sequence. Numbers are allotted sequentially as processes are created. If you move processes around, the numbers may no longer correspond to the desired order. You can modify the number of a process here, and the other numbers will be changed to avoid duplications and fill holes in the sequence where possible.
Reused process	Specifies the name of the reused process.

The following facets contain additional information:



- *Children* - Lists sub-processes.
- *Depends On* - Lists objects the process depends on.
- *Impacts* - Lists objects that the process impacts.











## 3.6 Application Architecture Modeling

PowerDesigner Web lets you capture, analyze, and visualize your systems, applications, databases, services, and other software assets.

The following tools are available for application architecture modeling:

Table 23:

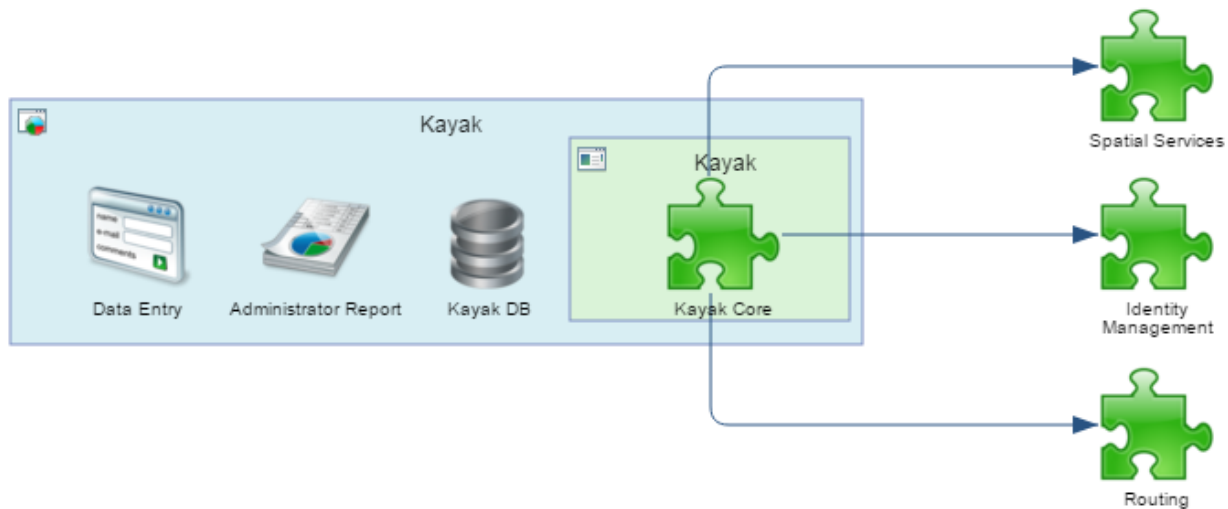
Tool	Description
	<i>Application Architecture Toolbar</i> - Click to show or hide the tools below.
	<i>System</i> - A packaged application. See <i>Systems and Applications (EAM)</i> [page 75].

Tool	Description
	<i>Application</i> - A computer program. See <a href="#">Systems and Applications (EAM) [page 75]</a> .
	<i>Database</i> - A database. See <a href="#">Databases (EAM) [page 78]</a> .
	<i>Component</i> - A replaceable part of an application. See <a href="#">Components (EAM) [page 79]</a> .
	<i>Form</i> - A UI component. See <a href="#">Forms (EAM) [page 82]</a> .
	<i>Document</i> - A document. See <a href="#">Documents, and Reports (EAM) [page 80]</a> .
	<i>Report Document</i> - A report. See <a href="#">Documents, and Reports (EAM) [page 80]</a> .
	<i>ETL Job</i> - A data extraction, transformation, and load. See <a href="#">ETL Jobs (EAM) [page 83]</a> .
	<i>Contract</i> - An agreement between services. See <a href="#">Contracts (EAM) [page 84]</a> .
	<i>Application Service</i> - An externally visible unit of functionality. See <a href="#">Application and Business Services (EAM) [page 85]</a> .
	<i>Business Service</i> - A service offered by an organization. See <a href="#">Application and Business Services (EAM) [page 85]</a> .

### 3.6.1 Systems and Applications (EAM)

These objects provide the primary building blocks for modeling your software assets. A system can encapsulate sub-systems, applications and applications services, databases, components, and forms. An application can encapsulate sub-applications, components, and forms.

In this example, the **Kayak** system contains a form, report, and database, as well as the **Kayak** application, which, in turn, contains the **Kayak Core** component, which is connected to a number of shared components:

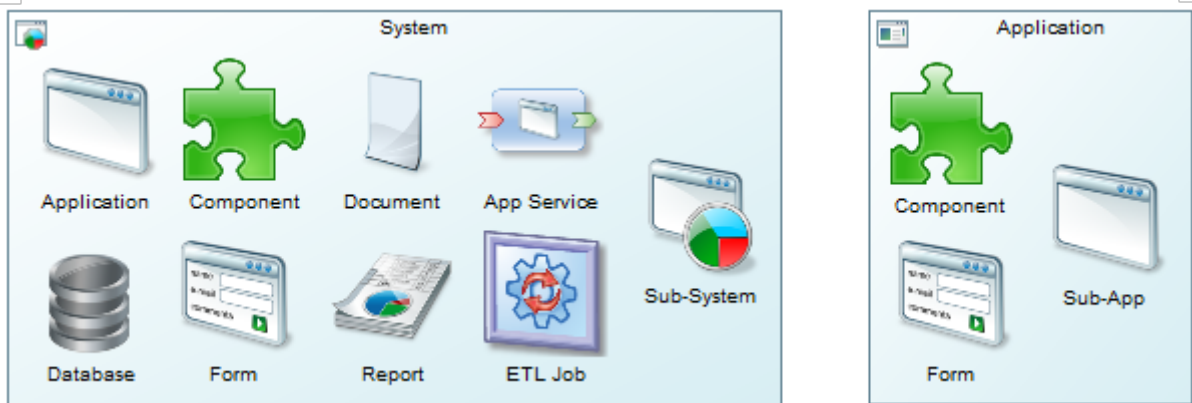


To create a system or application, click the appropriate tool to select it, and then click in empty space or in an existing:

- [system] Site
- System
- [application] Application
- Hardware or software server, workstation, mobile device, or network (as a deployment instance, see [Deployment Instances \(EAM\) \[page 93\]](#))
- Architecture area

You can link a system or application to any other object using the [Link](#) tool (see [Linking EAM Objects \[page 61\]](#)). You can add the following kinds of objects to a system or application:

- Applications/sub-applications
- Components
- Forms
- [system] Sub-systems
- [system] Databases
- [system] Documents and reports
- [system] ETL jobs
- [system] Application Services



For more information about grouping and organizing EAM objects, see [Structuring EAM Objects \[page 56\]](#).

The following properties are available on the *Info* facet in the *General* category:

Table 24:

Property	Description
Name/Code/ Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <i>Code</i> field.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.
Type	[application only] Specifies the type of application. You can choose between: <ul style="list-style-type: none"> <li>• Web</li> <li>• Rich Client</li> <li>• Office</li> <li>• Tool</li> <li>• CRM</li> <li>• ERP</li> </ul>

[applications] The *Detail* section records the programming language, version, and other details of the application.

The following facets contain additional information:

- *Children* - Lists application architecture objects contained in the system or application.
- *Depends On* - Lists objects that the system or application depends on.
- *Impacts* - Lists objects that the system or application impacts.

## 3.6.2 Databases (EAM)

Databases can be linked to PDMs, CDMs, and LDMs to model their schemas.

In this example, the **CRM DB** database is replicated daily to the **Data Warehouse** database:



To create a database, click the [Database](#) tool to select it, and then click in empty space or in an existing:

- Site
- System
- Hardware or software server, workstation, mobile device, or network (as deployment instance, see [Deployment Instances \(EAM\) \[page 93\]](#))
- Architecture area

You can link a database to any other object using the [Link](#) tool (see [Linking EAM Objects \[page 61\]](#)).

The following properties are available on the [Info](#) facet in the [General](#) category:

Table 25:

Property	Description
Name/Code/Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.
Type	Specifies the type of the database. You can choose between: <ul style="list-style-type: none"><li>• Data Warehouse</li><li>• Data Mart</li><li>• Multi-Dimensional Data Warehouse</li><li>• OLTP Database</li><li>• Virtual Database</li></ul>
DBMS / DBMS version	Specifies the DBMS of the database.

The following facets contain additional information:

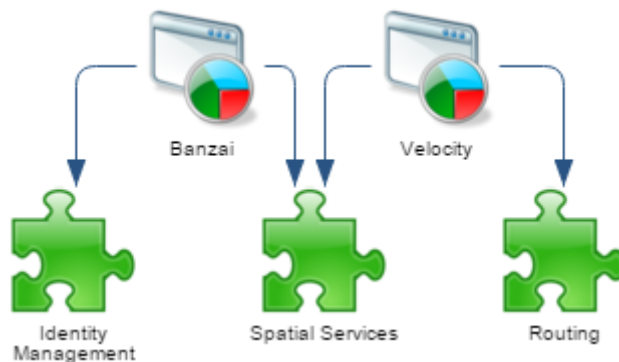
- [Depends On](#) - Lists objects that the database depends on.

- [Impacts](#) - Lists objects that the database impacts.

### 3.6.3 Components (EAM)

A component is an encapsulated, reusable, and replaceable part of an application, which can be used to implement a service or an application.

In this example, various components are consumed by the **Banzai** and **Velocity** systems:



To create a component, click the [Component](#) tool to select it, and then click in empty space or in an existing:

- System or application
- Hardware or software server, workstation, mobile device, or network (as deployment instance, see [Deployment Instances \(EAM\) \[page 93\]](#))
- Architecture area

You can link a component to any other object using the [Link](#) tool (see [Linking EAM Objects \[page 61\]](#)).

The following properties are available on the [Info](#) facet:

Table 26:

Property	Description
Name/Code/ Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.

Property	Description
Type	<p>Specifies the type of the component. You can choose between:</p> <ul style="list-style-type: none"> <li>• EJB</li> <li>• Servlet</li> <li>• Presentation</li> <li>• DataAccess</li> <li>• Controller</li> <li>• COM</li> <li>• ActiveX</li> </ul>
Programming Language	Specifies the programming language in which the component is written.

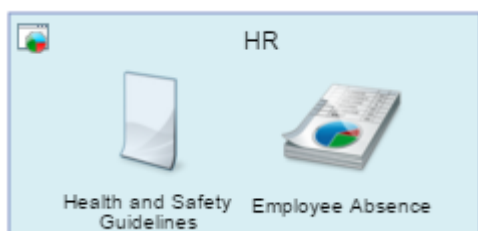
The following facets contain additional information:

- [Depends On](#) - Lists objects that the component depends on.
- [Impacts](#) - Lists objects that the component impacts.

### 3.6.4 Documents, and Reports (EAM)

Documents and reports represent structured output generated and consumed in the enterprise.

In this example, the **HR** system contains a document and a report:



To create a document or report, click the appropriate tool to select it, and then click in empty space or in an existing:

- System
- Architecture area

You can link a document or report to any other object using the [Link](#) tool (see [Linking EAM Objects \[page 61\]](#)).



The following properties are available on the [Info](#) facet in the [General](#) category:

Table 27:

Property	Description
Name/Code/ Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.
Type	Specifies the type of the document or report.
Version	[document only] Specifies the version number of the document.
Category	[report only] Specifies the category of the report. You can choose between: <ul style="list-style-type: none"> <li>• Business</li> <li>• Specification</li> <li>• Strategic</li> <li>• Technical</li> </ul>
Period	[report only] Specifies the frequency with which the report is generated. You can choose between: <ul style="list-style-type: none"> <li>• Daily</li> <li>• Weekly</li> <li>• Monthly</li> <li>• Yearly</li> </ul>
Document Format	[document only] Specifies the XML model that is used to represent the structure of the document. Select an XSM from the list or use the tools to the right of the field to create a new XSM or view the properties of the currently selected one. For more information about XML models, see <a href="#">XML Modeling</a> .

The following facets contain additional information:

- [Depends On](#) - Lists data (see [Document Data \(EAM\) \[page 82\]](#)) that the document or report contains and other objects that it depends on.
- [Impacts](#) - Lists objects that the document or report impacts.

### 3.6.4.1 Document Data (EAM)

Data objects are pieces of information that can be used or transmitted by reports, documents, and forms. You can create data objects in the [Data](#) list on the model property sheet [Children](#) facet and add them to a document using the [Data](#) list on the document property sheet [Depends On](#) facet.

The following properties are available on the [Info](#) facet in the [General](#) category:

Table 28:

Property	Description
Name/Code/Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.

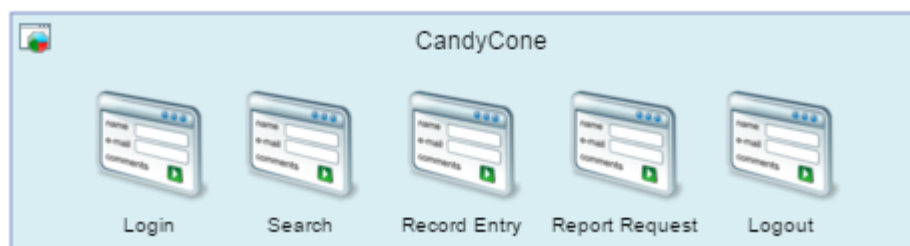
The following facets contain additional information:

- [Depends On](#) - Lists objects that the data depends on.
- [Impacts](#) - Lists documents, reports, and forms that contain the data and other objects that the data impacts.

### 3.6.5 Forms (EAM)

A form represents a UI component of a system or application.

In this example, the [CandyCone](#) system contains various forms:



To create a form, click the [Form](#) tool to select it, and then click in empty space or in an existing:

- System or application
- Hardware or software server, workstation, mobile device, or network (as deployment instance, see [Deployment Instances \(EAM\) \[page 93\]](#))
- Architecture area

You can link a form to any other object using the [Link](#) tool (see [Linking EAM Objects \[page 61\]](#)).

The following properties are available on the [Info](#) facet in the [General](#) category:

Table 29:

Property	Description
Name/Code/ Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.
Type / Style	Specify the type (mobile, Web, or window) and style of the form.

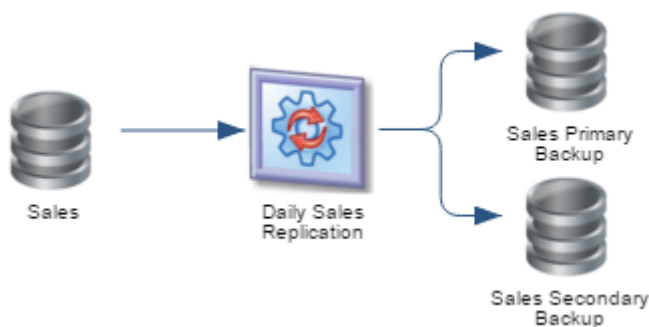
The following facets contain additional information:

- [Depends On](#) - Lists data (see [Document Data \(EAM\) \[page 82\]](#)) that the form processes and other objects that it depends on.
- [Impacts](#) - Lists objects that the form impacts.

### 3.6.6 ETL Jobs (EAM)

An ETL job represents a replication, transformation, or other movement of data.

In this example, the **Daily Sales Replication** job replicates sales data to two backup databases:



To create an ETL job, click the [ETL Job](#) tool to select it, and then click in empty space or in an existing:

- System
- Architecture area

You can link an ETL job to any other object using the [Link](#) tool (see [Linking EAM Objects \[page 61\]](#)).

The following properties are available on the [Info](#) facet in the [General](#) category:

Table 30:

Property	Description
Name/Code/Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.

The following facets contain additional information:

- [Depends On](#) - Lists source databases and other objects that the ETL job depends on.
- [Impacts](#) - Lists target databases and other objects that the ETL job impacts.

## 3.6.7 Contracts (EAM)

A contract is an agreement between services or between an asset and a stakeholder.

In this example, the **Kayak Service Level Agreement** defines a contract between the system and its stakeholders:



To create a contract, click the [Contract](#) tool to select it, and then click in empty space or in an existing:

- Architecture area

You can link a contract to any other object using the [Link](#) tool (see [Linking EAM Objects \[page 61\]](#)).

The following properties are available on the [Info](#) facet in the [General](#) category:

Table 31:

Property	Description
Name/Code/Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.

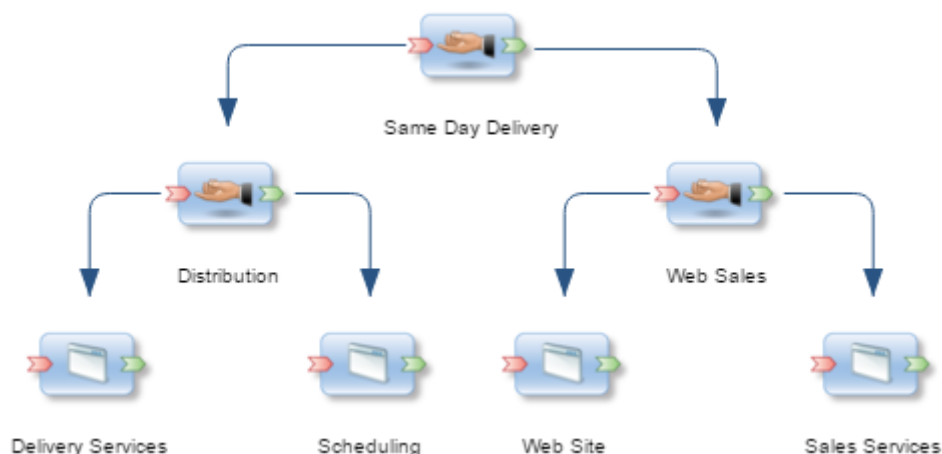
The following facets contain additional information:

- [Depends On](#) - Lists objects that the contract depends on.
- [Impacts](#) - Lists objects that the contract impacts.

## 3.6.8 Application and Business Services (EAM)

An application service is an externally visible unit of functionality, provided by one or more applications or components, and exposed through well-defined interfaces. A business service is a service offered by an organization to its customers that directly supports the work performed in a business process or function, exposed by an application-to-business interface.

In this example, the **Same Day Delivery** business service depends on other business services which are dependent on multiple application services:



To create an application or business service, click the appropriate tool to select it, and then click in empty space or in an existing:

- [application service] System
- [application service] Hardware or software server, workstation, mobile device, or network (as deployment instance, see [Deployment Instances \(EAM\)](#) [page 93])

- Architecture area

You can link an application or business service to any other object using the [Link](#) tool (see [Linking EAM Objects \[page 61\]](#)).

The following properties are available on the [Info](#) facet in the [General](#) category:

Table 32:

Property	Description
Name/Code/ Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.
Type	Specifies the type of service.  For business services, you can choose between: <ul style="list-style-type: none"> <li>• Consulting</li> <li>• Customer Service</li> <li>• Distribution Service</li> <li>• Marketing Service</li> <li>• Personal Service</li> <li>• Sales Service</li> </ul> For application services, you can choose between: <ul style="list-style-type: none"> <li>• Business Process</li> <li>• Collaboration</li> <li>• Data</li> <li>• Infrastructure</li> <li>• Integration</li> <li>• Presentation</li> </ul>
Quality of Service Level	Specifies the quality of the service. You can choose between: <ul style="list-style-type: none"> <li>• Best effort service</li> <li>• Differentiated service</li> <li>• Guaranteed service</li> </ul>
Security Level	Specifies the security of the service. You can choose between: <ul style="list-style-type: none"> <li>• High</li> <li>• Moderate</li> <li>• Low</li> </ul>

The following facets contain additional information:

- [Children](#) - Lists operations belonging to the service.
- [Depends On](#) - Lists objects that the service depends on.
- [Impacts](#) - Lists objects that the service impacts.

### 3.6.8.1 Business and Application Service Operations

An operation is an abstract description of an action supported by a service. For example the Login service may require a Get ID operation. You can create operations in the [Operations](#) list on the service property sheet [Children](#) facet.

The following properties are available on the [Info](#) facet in the [General](#) category:

Table 33:









Property	Description
Parent	Specifies the service to which the operation belongs.
Name/Code/ Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.
Operation type	Specifies the type of the operation. You can choose between: <ul style="list-style-type: none"> <li>• Notification</li> <li>• One-way</li> <li>• Request-Response</li> <li>• Solicit-Response</li> </ul>
Input	Specifies the document or data required to start the service, which can be linked to an XML model to define its format (see <a href="#">Documents, and Reports (EAM) [page 80]</a> )
Output	Specifies the document or data returned by the service, which can be linked to an XML model to define its format (see <a href="#">Documents, and Reports (EAM) [page 80]</a> )

## 3.7 Infrastructure Architecture Modeling

PowerDesigner Web lets you capture, analyze, visualize, and plan changes to the physical infrastructure that supports your activities.

The following tools are available:

Table 34:

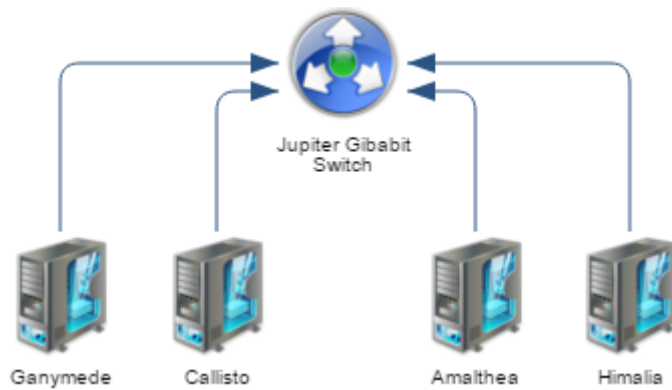
Tool	Description
	<i>Infrastructure Architecture Toolbar</i> - Click to show or hide the tools below.
	<i>Hardware Server</i> - A high availability resource machine. See <a href="#">Servers, Workstations, Mobile Devices, and Network Nodes (EAM) [page 88]</a> .
	<i>Software Server</i> - A commercial software environment. See <a href="#">Servers, Workstations, Mobile Devices, and Network Nodes (EAM) [page 88]</a> .
	<i>Workstation</i> - A client machine. See <a href="#">Servers, Workstations, Mobile Devices, and Network Nodes (EAM) [page 88]</a> .
	<i>Mobile Device</i> - A handheld client. See <a href="#">Servers, Workstations, Mobile Devices, and Network Nodes (EAM) [page 88]</a> .
	<i>Network Node</i> - A hardware component connected to a network. See <a href="#">Servers, Workstations, Mobile Devices, and Network Nodes (EAM) [page 88]</a> .
	<i>Network</i> - A LAN, WAN, or other kind of network. See <a href="#">Networks (EAM) [page 91]</a> .
	<i>Deployment Instance</i> - An instance of an object defined elsewhere. See <a href="#">Deployment Instances (EAM) [page 93]</a> .

### 3.7.1 Servers, Workstations, Mobile Devices, and Network Nodes (EAM)

A software server is a commercial software environment, which contains a set of applications and which can be deployed to a hardware server. A hardware server is a device that serves data or other support to network devices and which usually has higher specifications than client devices. A workstation is a client machine to which an application or a server can be deployed. A mobile device is a portable client used remotely to access the network. Network nodes represent other type of network objects (routers, switches, firewalls, modems, printers, faxes, etc).

In this example, various servers are connected to a gigabit switch:





To create any of these objects, click the appropriate tool to select it, and then click in empty space or in an existing:

- [hardware server] Hardware server (to create a sub-server)
- [software server] Software server (to create a sub-server)
- [software server] Hardware server or workstation
- [workstation] Workstation (to create a sub-workstation)
- [hardware server, software server, workstation, mobile device] Network
- Architecture area

You can link an application or business service to any other object using the [Link](#) tool (see [Linking EAM Objects \[page 61\]](#)). You can add the following kinds of objects to these objects:

- [hardware server] Sub-servers
- [software server] Sub-servers
- [workstation] Sub-workstations
- [hardware server, workstation] Software servers
- [hardware server, software server, workstation, mobile device] Deployment instance



For more information about grouping and organizing EAM objects, see [Structuring EAM Objects \[page 56\]](#).

The following properties are available on the [Info](#) facet in the [General](#) category:

Table 35:

Property	Description
Name/Code/ Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.
Type	Specifies the type of the object.
Site	Specifies the site to which the object is deployed. Click the <a href="#">Select</a> tool and search for a site (see <a href="#">Referencing an Object in a Property Field or List [page 40]</a> ).
Multiple	[hardware server, workstation and mobile device only] Specifies that the object represents multiple machines.
Virtual	[hardware server and workstation only] Specifies that the object represents a virtual machine. For more information about creating virtual machines, see <a href="#">Modeling Cluster Servers and Virtual Machines [page 90]</a> .

The following facets contain additional information:

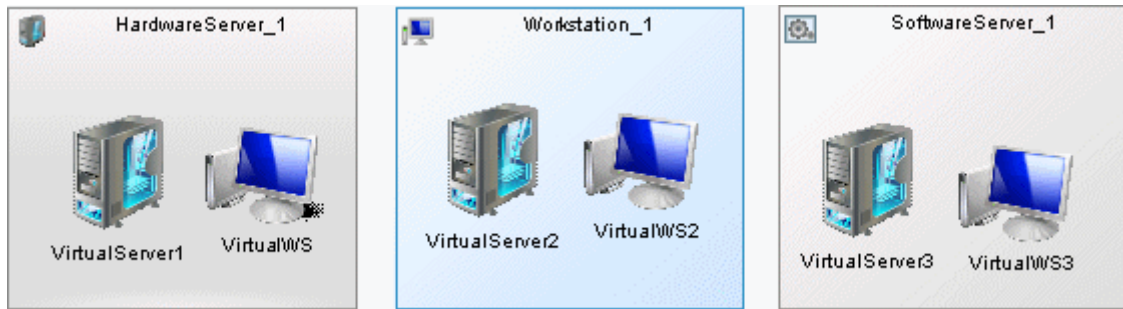
- [Children](#) - [except network nodes] Lists deployment instances and other sub-objects contained in the object.
- [Depends On](#) - Lists objects the object depends on.
- [Impacts](#) - Lists networks in which it is contained and other objects that the object impacts.

### 3.7.1.1 Modeling Cluster Servers and Virtual Machines

You can model complex machine-in-machine environments using the [Type](#) and [Virtual](#) properties.

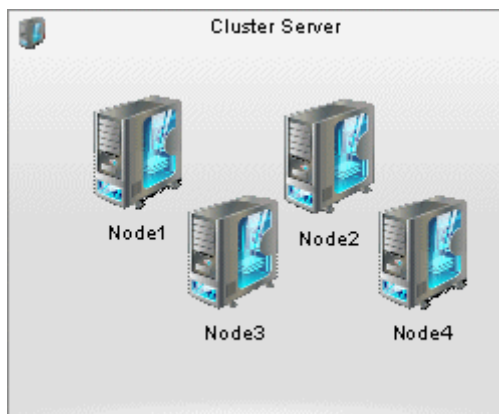
To model virtual machines, create or drag a hardware server or workstation onto a hardware or software server or a workstation and select the [Virtual](#) property for the child machines.

In the following example the hardware server, workstation, and software server each contain a virtual server and virtual workstation:



To model a cluster server, create a hardware server, set its *Type* to **Cluster Server** and then drop other hardware servers onto it to create nodes.

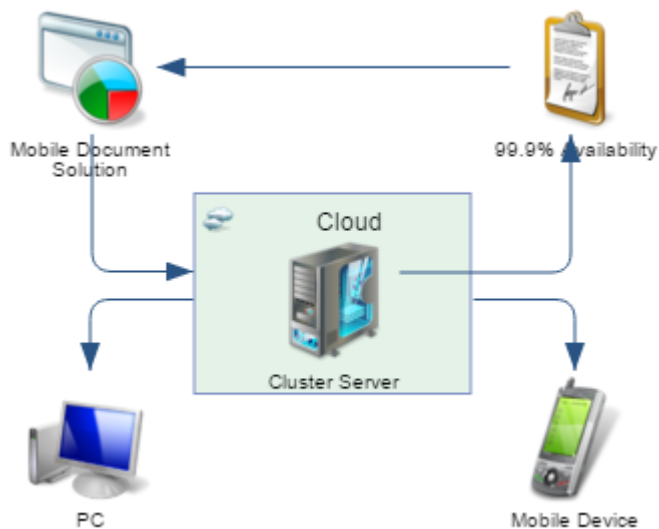
In the following example, the cluster server contains four hardware server nodes:



## 3.7.2 Networks (EAM)

A network allows computers to communicate with each other either locally or over large distances via telecommunications.

In this example, the **Cloud** supports a **Mobile Document Solution** system:



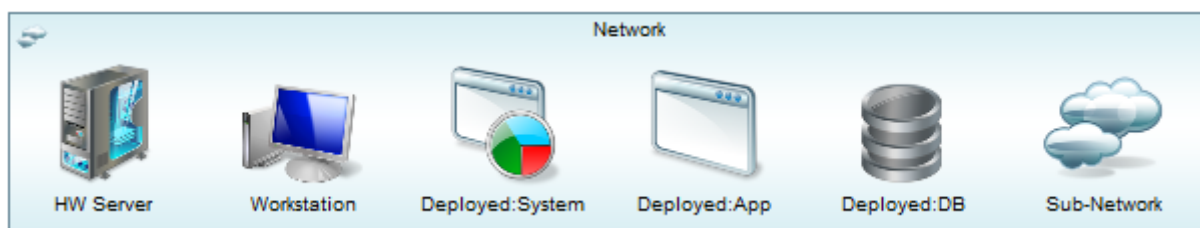
To create a network, click the [Network](#) tool to select it, and then click in empty space or in an existing:

- Network
- Architecture area

You can link a network to any other object using the [Link](#) tool (see [Linking EAM Objects \[page 61\]](#)). You can add the following kinds of objects to networks:

- Networks
- Hardware servers, software servers, workstations, mobile devices

Networks can group hardware and deployed software assets:



For more information about grouping and organizing EAM objects, see [Structuring EAM Objects \[page 56\]](#).

The following properties are available on the *Info* facet in the *General* category:

Table 36:

Property	Description
Name/Code/ Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <i>Code</i> field.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.
Type	Specifies the type of the network.
Site	Specifies the site within which the network is located. Click the <i>Select</i> tool and search for a site (see <a href="#">Referencing an Object in a Property Field or List [page 40]</a> ).

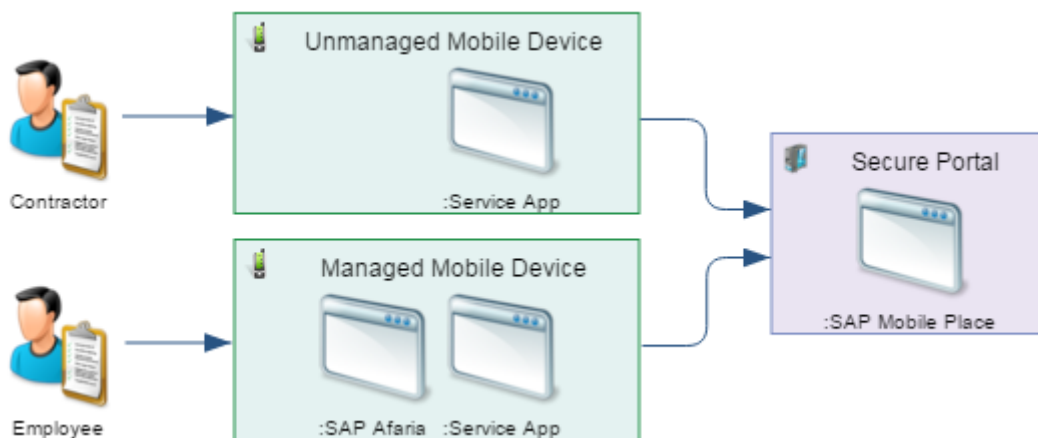
The following facets contain additional information:

- *Children* - Lists deployment instances and sub-networks.
- *Depends On* - Lists hardware and software servers, workstations and mobile devices associated with the network and other objects it depends on.
- *Impacts* - Lists objects that the network impacts.

### 3.7.3 Deployment Instances (EAM)

Deployment instances represent the deployment of software objects to physical systems. You can deploy a system, application, application service, database, component, or form to multiple servers, workstations, or mobile devices. If you do not want to specify physical systems, you can deploy your software to a software server or architecture area, or simply to the diagram background.

In this example, the **Managed Mobile Device** used by the **Employee** contains an additional deployed application:



To create a deployment instance:

1. Click the [Deployment Instance](#) tool (or any deployable application architecture tool) to select it, and then click in an infrastructure object that can contain deployed objects:

Table 37:

Deployable Objects	Infrastructure Objects Supporting Deployment
<ul style="list-style-type: none"><li>○ System</li><li>○ Application</li><li>○ Database</li><li>○ Component</li><li>○ Form</li><li>○ Application Service</li><li>○ Deployment Instance</li></ul>	<ul style="list-style-type: none"><li>○ Hardware Server</li><li>○ Software Server</li><li>○ Workstation</li><li>○ Mobile Device</li><li>○ Network</li></ul>

#### Note

You can alternatively create a deployment instance outside of an infrastructure object in empty space or in an architecture area.

2. To associate the deployment instance with its application object, click the [Select](#) tool to the right of the [Deployed Object](#) field, and use the [Search](#) dialog to select the object to be deployed (see [Referencing an Object in a Property Field or List \[page 40\]](#)).

#### Note

Dragging an existing application object onto an infrastructure object will create a deployment instance of it there.

You can link a deployment instance to any other object using the [Link](#) tool (see [Linking EAM Objects \[page 61\]](#)).

The following properties are available on the [Info](#) facet in the [General](#) category:

Table 38:

Property	Description
Name/Code/ Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.
Deployed Object	Specifies the system, application, application service, database, component or form being deployed.

The following facets contain additional information:





- [Depends On](#) - Lists objects that the deployment instance depends on.
- [Impacts](#) - Lists objects that the deployment instance impacts.

## 3.8 Goal and EA Project Modeling

PowerDesigner Web lets you visualize your organization's goals, how your EA projects will help fulfill them, and the impacts those projects will have on your enterprise assets.

The following tools are available:

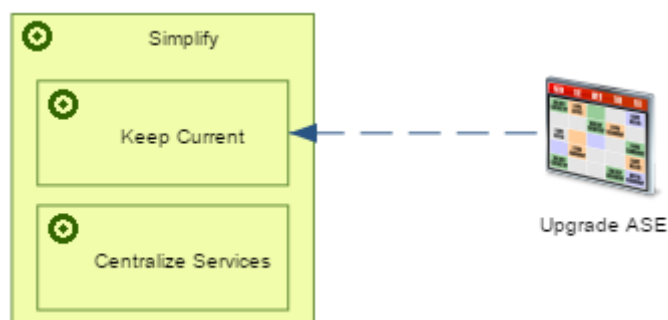
Table 39:

Tool	Description
	<a href="#">Goal and Project Toolbar</a> - Click to show or hide the tools below.
	<a href="#">Goal</a> - A mission, vision, strategy, or objective. See <a href="#">Goals (EAM)</a> [page 95].
	<a href="#">Program</a> - A high-level EA initiative. See <a href="#">Programs, Projects, and Phases (EAM)</a> [page 96].
	<a href="#">Project</a> - An EA initiative. See <a href="#">Programs, Projects, and Phases (EAM)</a> [page 96].

### 3.8.1 Goals (EAM)

Goals allow you to model your organization's mission, vision, strategy, and objectives, to show how they are related to your organization's business and IT architecture, and how they will be addressed through enterprise architecture initiatives.

In this example, the **Simplify** goal contains sub-goals, one of which is partly fulfilled by the **Upgrade ASE** project:



To create a goal, click the [Goal](#) tool to select it, and then click in empty space or in an existing goal. You can link a goal to any other object using the [Link](#) tool (see [Linking EAM Objects \[page 61\]](#)).

The following properties are available on the [Info](#) facet in the [General](#) category:

Table 40:

Property	Description
Name/Code/Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.

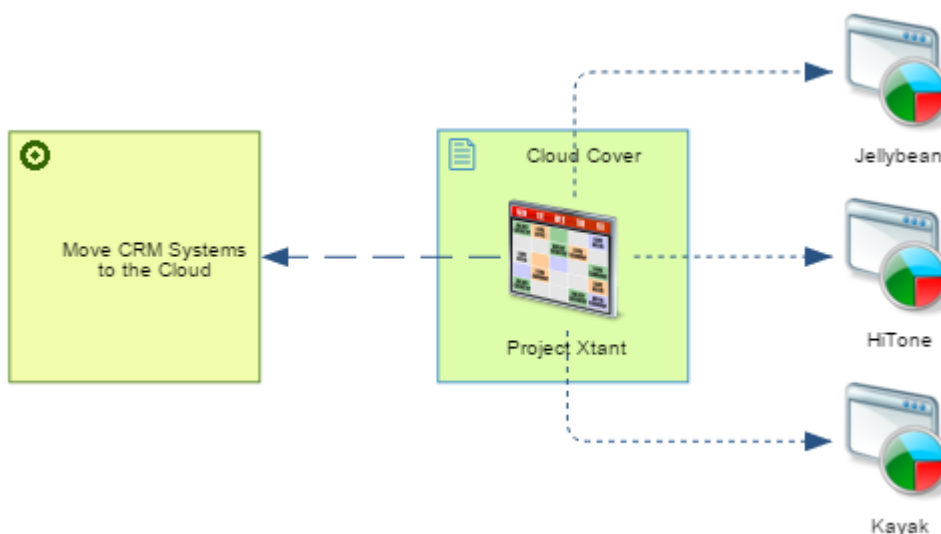
The following facets contain additional information:

- [Children](#) - Lists sub-goals.
- [Depends On](#) - Lists programs and projects fulfilling the goal and other objects it depends on.
- [Impacts](#) - Lists objects that the goal impacts.

## 3.8.2 Programs, Projects, and Phases (EAM)

Programs and projects represent EA initiatives that are intended to fulfill corporate goals and may impact elements of your organization's business and IT architecture. Programs can contain sub-programs and projects, and projects can contain phases.

In this example, the **Cloud Cover** program contains **Project Xtant**, which partially fulfills the **Move CRM Systems to the Cloud** goal, and impacts a number of systems:





To create a program or project, click the appropriate tool to select it, and then click in empty space or in an existing program. You can create sub-programs or projects inside a program, and phases (which are not shown in the diagram) inside a project. You can link a program or project to any other object using the [Link](#) tool (see [Linking EAM Objects \[page 61\]](#)).

The following properties are available on the [Info](#) facet in the [General](#) category:

Table 41:

Property	Description
Name/Code/ Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.
Start date/End date	Specify the duration of the program, project, or phase.
Progress	Specifies the current advancement of the program, project, or phase.
Status	Specifies the present status of the program, project, or phase.
IT Capital Expenditure/IT Operating Expenditure/Business Expenditure	Specify values for each of these types of expenditure for the program, project, or phase.

The following facets contain additional information:

- [Children](#) - Lists sub-programs and projects contained in a program or phases contained in a project.
- [Depends On](#) - Lists goals that will be fulfilled by the initiative and other objects it depends on.
- [Impacts](#) - Lists objects that the initiative impacts.

### 3.8.2.1 Specifying the Fulfillment of Goals by a Project

You can specify the fulfillment of goals by projects (or programs or phases) by drawing a link from the project to the goal. To specify a fulfillment percentage and comment, select the link and enter these values in its property sheet. The list of goals fulfilled by the project is available on the project's [Depends On](#) facet, and the list of projects fulfilling the goal is available on the goal's [Impacts](#) facet.

### 3.8.2.2 Specifying the Impact of a Project on EA Assets

You can specify the impact of projects (or programs or phases) on your enterprise assets (organization, process, application, and infrastructure architecture objects) by drawing a link from the project to the impacted asset. The

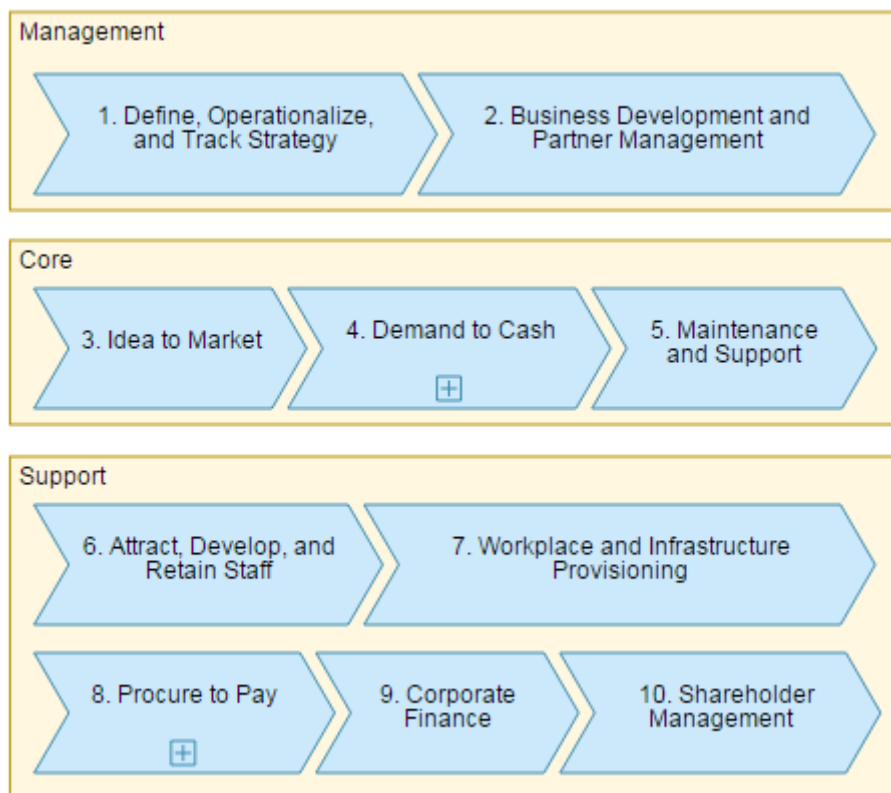
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list of assets impacted by the project is available on the project's *Impacts* facet, and the list of projects impacting an asset is available on the asset's *Depends On* facet.

## 4 Process Maps

A process map provides a graphical view of your business architecture, and helps you identify your business functions and high-level processes, independent of the people and business units who fulfill them.

In this example of a top-level process map, the groupings **Management**, **Core**, and **Support** are defined in architecture areas, and ten high-level processes are defined:



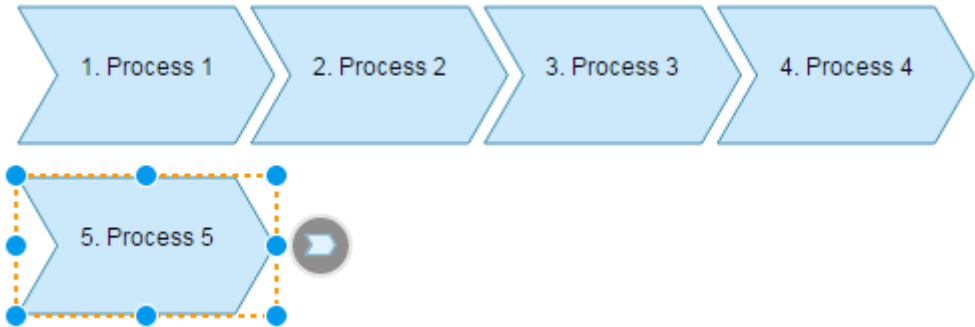



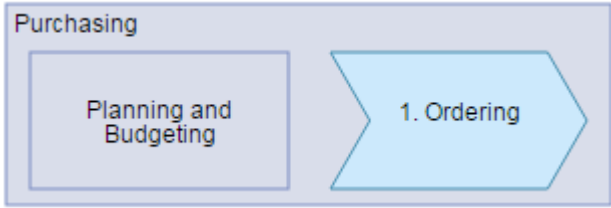

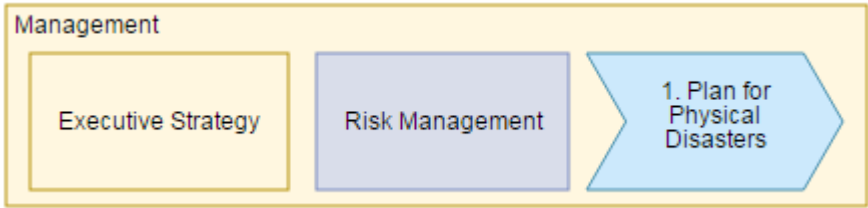

The **4. Demand to Cash** and **8. Procure to Pay** processes contain sub-maps, which you can enter by clicking the plus symbols at the base of their symbols (see [Creating a Multi-Level Process Map \[page 101\]](#)).

To create a process map, click the + tile in your workspace (see [Creating a Diagram from the Workspace \[page 8\]](#)) or in a repository folder (see [Creating a Diagram \[page 13\]](#)).

The following tools are available in process maps:

Table 42:

Tool	Description
	<p><b>Process</b> - An activity or group of sub-processes. See <a href="#">Processes [page 73]</a>.</p> <p>To create a process, click the <b>Process</b> tool to select it, and then click in empty space or in an architecture area or business function. To create a second process following the first one, click the <b>Process</b> tool in its context toolbar. You can create as many processes as necessary in a row in this way:</p>  <p>To create a second row of processes, click the <b>Process</b> tool in the end process context toolbar and drag it down below the row before releasing it (or use the <b>Process</b> tool in the bottom toolbar):</p>  <p>Processes in a row are loosely stuck together:</p> <ul style="list-style-type: none"> <li>• To align the start or end of a row of processes with another symbol, drag the first or last process (without going beyond the upper or lower bounds of the row) and drop it when the guide line appears. The other processes in the row move with it.</li> <li>• To detach a process from its row, drag it beyond the upper or lower bound of its row.</li> <li>• To change the order of a row of processes, drag one process and drop it after the process you want it to follow. The other processes will make room for it if necessary:</li> </ul> <div data-bbox="384 1576 1359 1805" style="background-color: #fff9c4; padding: 10px; margin: 10px 0;"> <p><b>i Note</b></p> <p>Processes receive a number when they are created. If you move processes around, the numbers may no longer correspond to the desired order: You can modify the number of a process in the <a href="#">Number ID</a> field of its property sheet, and the other numbers will be updated to avoid duplications and fill holes in the sequence where possible.</p> </div> <ul style="list-style-type: none"> <li>• To create a sub-map inside a process, double-click its symbol (see <a href="#">Creating a Multi-Level Process Map [page 101]</a>).</li> <li>• To link a process to a business process diagram that models its steps, use the <a href="#">Diagrams</a> facet (see <a href="#">Linking Processes to Business Process Diagrams [page 102]</a>).</li> </ul>

Tool	Description
	<p><b>Business Function</b> - An aggregation of processes and/or sub-functions. See <a href="#">Business Functions [page 72]</a>.</p> <p>To create a business function, click the <b>Business Function</b> tool to select it, and then click in empty space or in an architecture area or business function. You can create sub-functions and processes inside the function by selecting the appropriate tool and clicking in the function symbol:</p> 
	<p><b>Architecture Area</b> - An abstract object for grouping other objects. See <a href="#">Architecture Areas [page 71]</a>.</p> <p>To create an architecture area, click the <b>Architecture Area</b> tool to select it, and then click in empty space or in an existing area. You can create sub-areas, functions, and processes inside the area by selecting the appropriate tool and clicking in the area symbol:</p> 
	<p><b>File</b> - Any application file. See <a href="#">File Objects [page 140]</a>.</p>

## 4.1 Creating a Multi-Level Process Map

Process maps are commonly maintained by process analysts who, starting from a top-level overview of business areas and high-level functions, decompose top-level processes into sub-processes. Some or all of the processes in the top-level map are decomposed into sub-processes containing sub-maps and so on down through a number of levels. Architecture areas and business functions are only permitted in the top-level and cannot be created in sub-maps.

It is common practice to decompose processes to four levels in a process map, and then to model the steps of each fourth-level process in a business process diagram (see [Linking Processes to Business Process Diagrams \[page 102\]](#)).

To create a sub-map inside a process, double-click its symbol. Processes that you create in this sub-map are sub-processes of the initial process and are listed on the *Children* facet of its property sheet. Their fully-qualified number includes the number of the parent process as a prefix.

To go down into an existing submap, click the plus sign in the bottom center of the process symbol or zoom into the process symbol until it fills the screen. To go back up to the parent map, click the *Back* arrow at the top-left of the diagram viewer or zoom out till its scale is less than 20%.

#### **i** Note

Process maps and any sub-maps contained in their processes are treated as a single diagram for simplicity during publication and in the Repository browser. To bookmark a particular sub-map for easy access, pin it in the *Recently Viewed Diagrams* list in your Workspace.

## 4.2 Linking Processes to Business Process Diagrams

While you can decompose processes into sub-processes in a process map, it is common practice to model the steps of lower-level processes in a business process diagram. The process map is commonly maintained by an enterprise architect or process analyst, while the modeling of fourth-level process steps is often done by process owners.

### Context

#### **i** Note

You must create the business process diagram before you can link it to a process in your process map.

### Procedure

1. Select the process in the process map, and click the *Diagrams* facet of its property sheet.
2. Click the *Add* tool in the header of the *Related Diagrams* list to open the search dialog.
3. Search for the diagram that you want to link to the process, optionally filtering by location and other criteria (see [Referencing an Object in a Property Field or List \[page 40\]](#)), and click *Select* to add it to the *Related Diagrams* list.

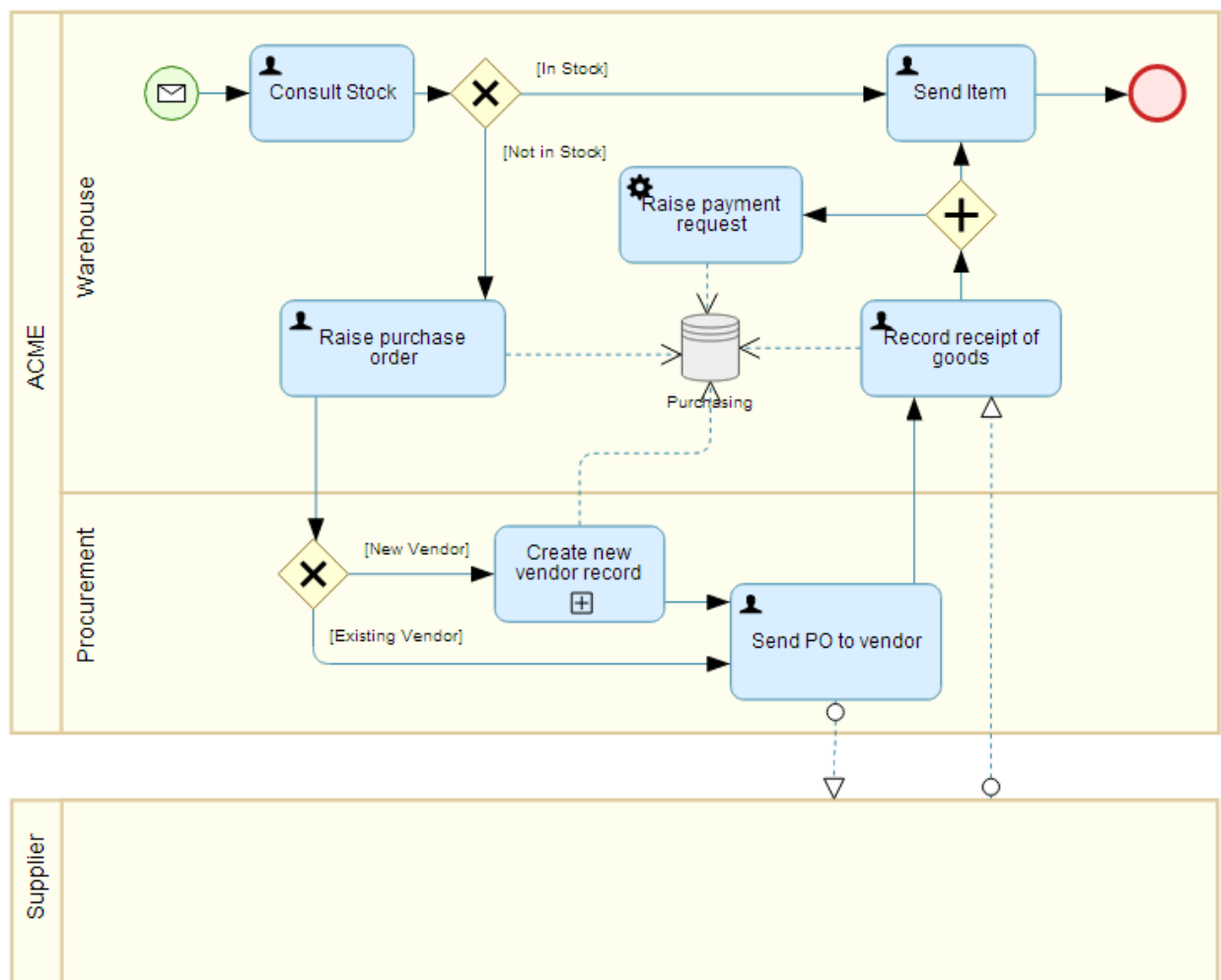
The business process diagram is now associated with the process. You can navigate to it from the process by double-clicking the process symbol.

## 5 BPMN 2.0 Descriptive

Business Process Modeling Notation (BPMN) 2.0 is a standardized graphical notation intended to promote communication between non-technical business users who must document their processes and developers seeking to implement them using business execution languages. Commonly used by process owners, BPMN 2.0 Descriptive is aimed at business users and contains a subset of the BPMN 2.0 objects suitable for business process design and analysis.

PowerDesigner provides support for two variants of BPMN 2.0. For information about BPMN 2.0 Executable, see [BPMN 2.0 Executable \[page 117\]](#).











PowerDesigner supports creating BPMN 2.0 Descriptive process diagrams, which focus on the sequence flow in a single process (which can be in a pool), and collaboration diagrams, which include two or more pools, with messages passing between them:



To create a BPMN 2.0 Descriptive diagram, click the + tile in your workspace (see [Creating a Diagram from the Workspace \[page 8\]](#)) or in a repository folder (see [Creating a Diagram \[page 13\]](#)).

The following tools are available in BPMN 2.0 diagrams:

Table 43:

Tool	Description
	Pool/Lane - Represents companies, departments, roles, sub-entities (see <a href="#">Pools and Lanes (BPMN Descriptive) [page 105]</a> ).
	Start Event - Initiates a process (see <a href="#">Start and End Events (BPMN Descriptive) [page 107]</a> ).
	Task - Represents work performed within a process (see <a href="#">Tasks (BPMN Descriptive) [page 108]</a> ).
	Gateway - Represents a decision or parallel actions and the reunification of the sequence flow (see <a href="#">Gateways (BPMN Descriptive) [page 111]</a> ).
	End Event - Terminates a process (see <a href="#">Start and End Events (BPMN Descriptive) [page 107]</a> ).
	Data Store - Represents a database, filing cabinet or other data container (see <a href="#">Data (BPMN Descriptive) [page 113]</a> ).
	Data Object - Represents a report, document, or other piece of data used in the process (see <a href="#">Data (BPMN Descriptive) [page 113]</a> ).
	Text Annotation - Allows you to add explanatory text in the diagram.
	Flow - Links objects with one of the following kinds of flow: <ul style="list-style-type: none"> <li>Sequence Flow - Links two elements (events, activities, gateways) to show the progress in a process.</li> <li>Message Flow - Links a pool (or one of its activities) to another pool (or one of its activities), and passes a message between them.</li> <li>Data Association - Links a data object to an task or event.</li> </ul>
	File Object - Represents any application file (see <a href="#">File Objects [page 140]</a> ).



## 5.1 Pools and Lanes (BPMN Descriptive)

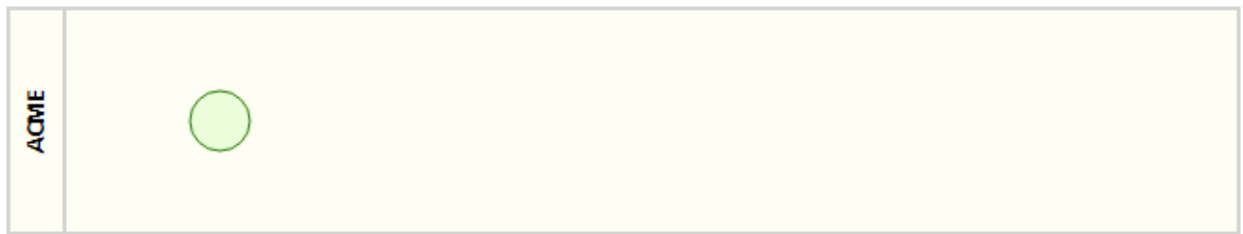
Pools represent companies, departments, or roles. Lanes represent sub-entities within these organizations and appear as swimlanes inside the pool. Many BPMN diagrams contain one or more pools, with all the other objects placed in the lanes of these pools.

### Note

Pools can be vertical (top to bottom) or horizontal (left to right). You can change the orientation of your diagram (if it does not contain any pools) by selecting ► [Menu](#) ► [Change Pool to Horizontal/Vertical](#) ►.

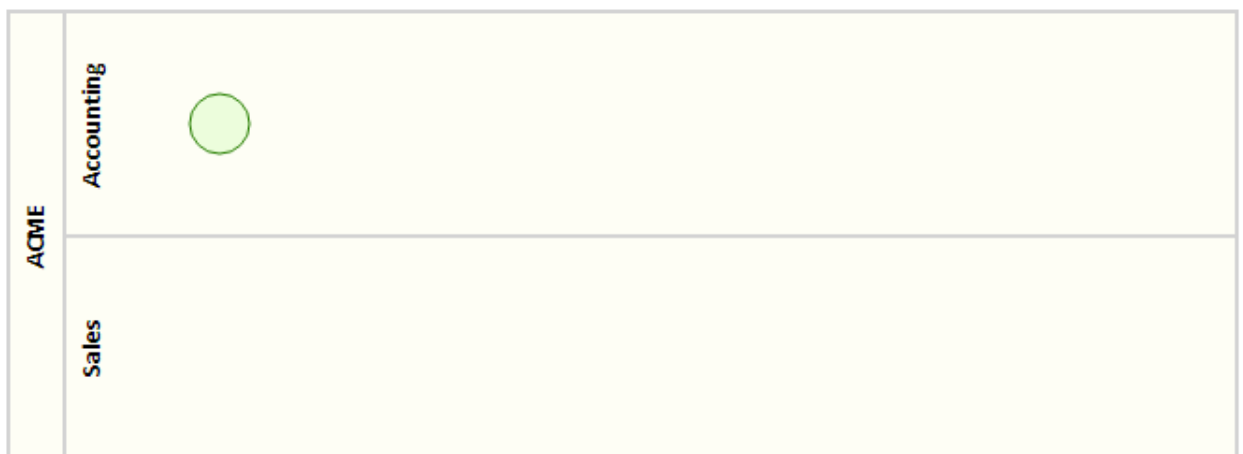
To create a pool, click the [Pool/Lane](#) tool to select it, and then click in empty space in the diagram. A start is automatically created in the pool (see [Start and End Events \(BPMN Descriptive\)](#) [page 107]).

A single pool in a diagram generally represents the organization:

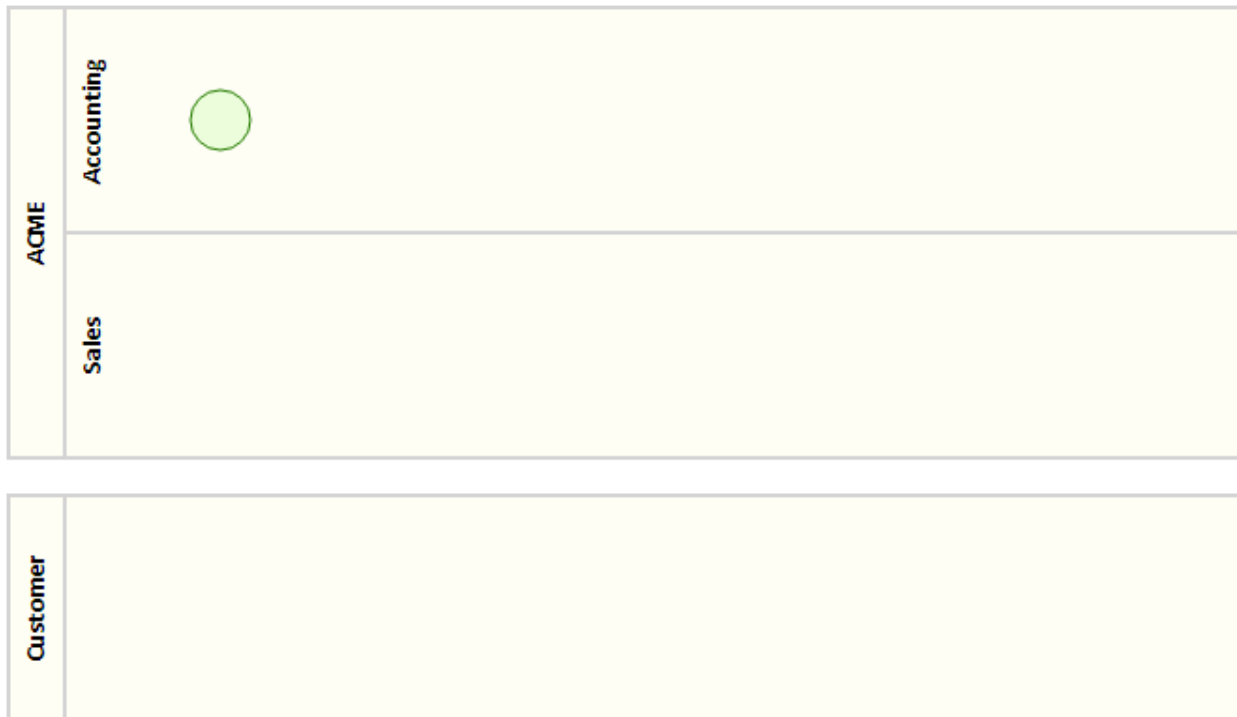


To add a lane to a pool, click the [Pool/Lane](#) tool to select it, and then hover over an existing pool in the diagram. A green line will appear to show where the lane will be added. Click to create the lane in this position.

Each lane in the primary pool represents a department or other sub-entity within the organization:



BPMN diagrams may contain a second pool to represent a partner, such as a customer or supplier with whom the organization interacts. To create a second pool, click the [Pool/Lane](#) tool to select it, and then click in empty space in the diagram:



Since you generally will not know the details of a partner's processes, the second pool is commonly treated as a "black box". No tasks or other objects are created within it, and it is linked to the first pool only via message flows.

#### **i** Note

You can drag lanes from one pool to another, or into empty space to create a new pool, and lanes can be reused and appear in multiple different pools.

Pools and lanes can have the following properties:

Table 44:

Property	Description
Name/Code/Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Multi-instance	[pools] The pool represents multiple instances of the specified role.

## 5.2 Start and End Events (BPMN Descriptive)

A process begins with a start event and terminates with one or more end events.




To create a start, click the [Start](#) tool to select it, and then click in the diagram.

### Note

A start event is created by default when you create a pool (see [Pools and Lanes \(BPMN Descriptive\)](#) [page 105]).

By default, a standard start is created. To change the type of the start, select it, click the [Properties](#) tool, and select the appropriate type. In BPMN 2.0 Descriptive, PowerDesigner supports the following types of start events:

Table 45:

Symbol	Description
	Undefined Start Event - The process simply starts without any specific triggering event.
	Message Start Event - The process begins following receipt of a message, such as an order or enquiry.
	Timer Start Event - The process begins on a specific date or at a specific time, such as Monday morning at 9am.

### Note



If you do not specify a name for your event and merely accept the default name, no name will be displayed under the symbol in the diagram. To subsequently specify a name to appear in the diagram, select the event symbol and press **F2** or enter a name in the property sheet.


To create an end:

- Select an object in the diagram and click (or click and drag) the [End](#) tool in its context toolbar to create a new end after it in the control flow, or
- Click the [End](#) tool in the bottom toolbar and then click in the diagram.

By default, a standard end is created. To change the type of end, click the [Properties](#) tool and select a type from the list. In BPMN 2.0 Descriptive, PowerDesigner supports the following types of ends:

Table 46:

Symbol	Description
	Standard End Event - The process simply ends when all of the tasks are completed.
	Message End Event - The process terminates by sending a message, such as a quotation, invoice, or report.

Symbol	Description
	Terminate End Event - All tasks in any parallel sequence flows are terminated immediately when one branch reaches a terminate end event.

Starts and ends can have the following properties:

Table 47:

Property	Description
Name/Code/Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.

## 5.3 Tasks (BPMN Descriptive)

The main contents of a process are the tasks that are performed during its execution.






To create a task:

- Select an object in the diagram and click (or click and drag) the [Task](#) tool in its context toolbar to create a new task after it in the control flow, or
- Click the [Task](#) tool in the bottom toolbar and click in the diagram.

The task is created with its default name highlighted, ready for you to enter an appropriate name.

In BPMN 2.0 Descriptive, PowerDesigner supports the following types of tasks:

Table 48:

Symbol	Description
	Standard Task - Can be used for any kind of activity.
	Service Task - A task performed by an application or web service without any human input.
	User Task - A task performed by a human interacting with a software application.
	Call Activity - A task which reuses a globally defined process. For example, you may define the login process and then reuse it in multiple processes (see <a href="#">Call Activities (BPMN Descriptive)</a> [page 110]).
	Sub-Process - A task that is, itself, broken down into subtasks (see <a href="#">Sub-Processes (BPMN Descriptive)</a> [page 109]).

Tasks can have the following properties:

Table 49:

Property	Description
Name/Code/Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Reusable process	Specifies that the task can be referenced for reuse by a call activity (see <a href="#">Call Activities (BPMN Descriptive)</a> [page 110]).
Called object	[Call Activities] Specifies the global task or process that is reused by the call activity.

### 5.3.1 Sub-Processes (BPMN Descriptive)

A sub-process is a task that is broken down into sub-tasks. For example, you may break the Log In task into the sub-tasks Enter User Name and Enter Password.

To create a sub-process:

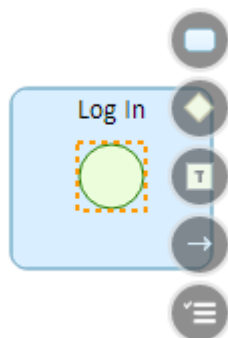
- Select an object in the diagram and click (or click and drag) the [Task](#) tool to create a new task after it in the control flow, or
- Click the [Task](#) tool in the bottom toolbar and click in the diagram.

Enter a name for the task and then click the [Properties](#) tool to change its type, and select **Sub-Process**.

The sub-process is initially empty:



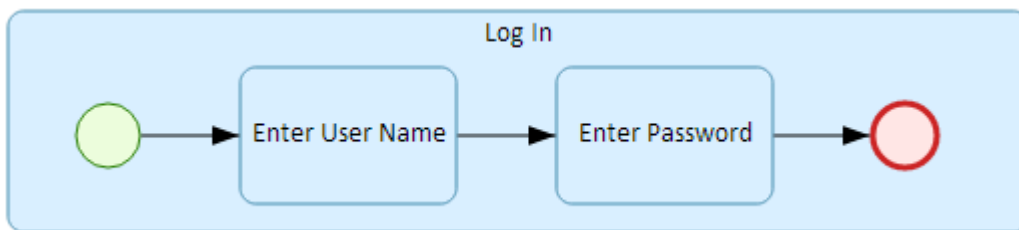
To begin to specify the details of the sub-process, click the [Start](#) tool in the bottom toolbar and click in the sub-process symbol to create the start inside it:



### **i** Note

When you hover over the sub-process, its border is highlighted in green to indicate that you are about to create an object inside it.

Add tasks and other objects as necessary to complete the definition of the sub-process:



The symbol grows to accommodate these objects, and you can resize it and reposition them as necessary.

### **i** Note

Objects created inside a sub-process are listed on the *Children* facet of its property sheet.

## 5.3.2 Call Activities (BPMN Descriptive)

Call activities are tasks that reuse an existing global process or task. For example, you may define a process called Log In and then reuse it in various other processes.

To create a call activity, first create a task:

- Select an object in the diagram and click (or click and drag) the *Task* tool in its context toolbar to create a new task after it in the control flow, or
- Click the *Task* tool in the bottom toolbar and click in the diagram.

Enter a name for the task and then click the *Properties* tool in its context toolbar to change its type, and select **Call Activity**.

To specify the task that will be reused, go to the *Called object* field on the *Info* facet, click the *Select* tool and search for a task to call (see [Referencing an Object in a Property Field or List \[page 40\]](#)).

### **i** Note

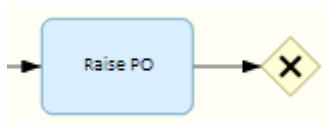
Only tasks that have the *Reusable Process* property selected can be called.

## 5.4 Gateways (BPMN Descriptive)

Gateways control the sequence flow of the process, and can split or merge the flow to show many decisions or simultaneous actions are required.

To create a gateway:

- Select an object in the diagram and click (or click and drag) the [Gateway](#) tool in its context toolbar to create a new gateway after it in the sequence flow.
- Click the [Gateway](#) tool in the bottom toolbar and click in the diagram.

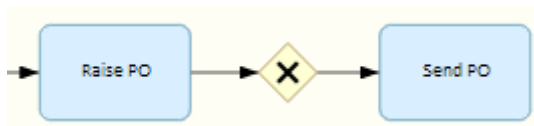


By default, an exclusive gateway is created. To change to a parallel gateway, click the [Properties](#) tool and select **Parallel Gateway**. In BPMN 2.0 Descriptive, two types of gateways are available:

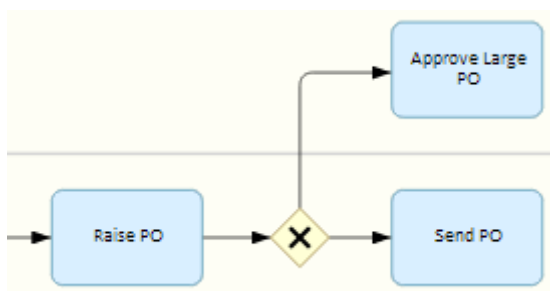
Table 50:

Symbol	Description
	Exclusive gateway - Only one outgoing branch is performed, depending on the condition.
	Parallel gateway - All outgoing branches are performed simultaneously.

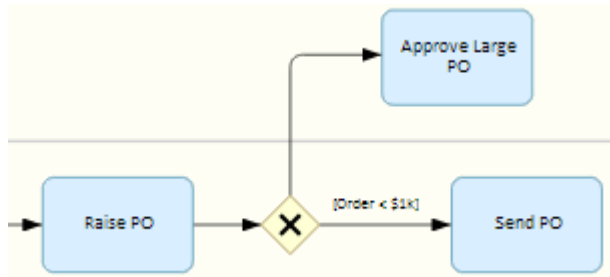
Click a tool on the gateway's context toolbar to create a task or other object after it in the control flow:



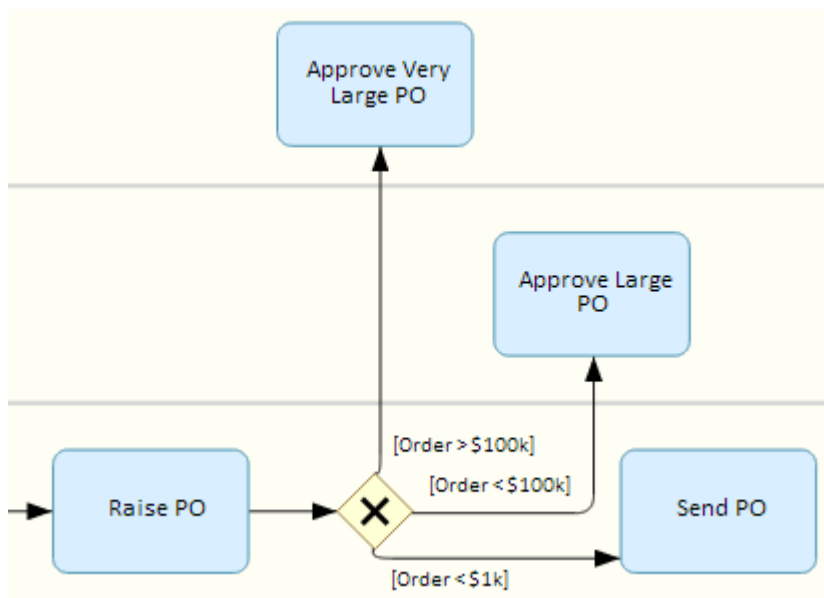
To create a second object in a new branch, reselect the gateway and click and drag a tool on its context toolbar to place the second object in a suitable position. By preference its flow should depart from a different corner of the gateway symbol:



To specify a condition on a sequence flow connecting the gateway to an object, select the flow and enter an appropriate value in the *Condition Alias* field in the *Properties* panel. The value is displayed in the diagram on the sequence flow near to the gateway:



You should add a condition to all sequence flows leaving the gateway. You can add further alternate sequence flows as necessary. In this example, once a purchase order is raised, an exclusive gateway controls the subsequent sequence flow based on the value of the order:



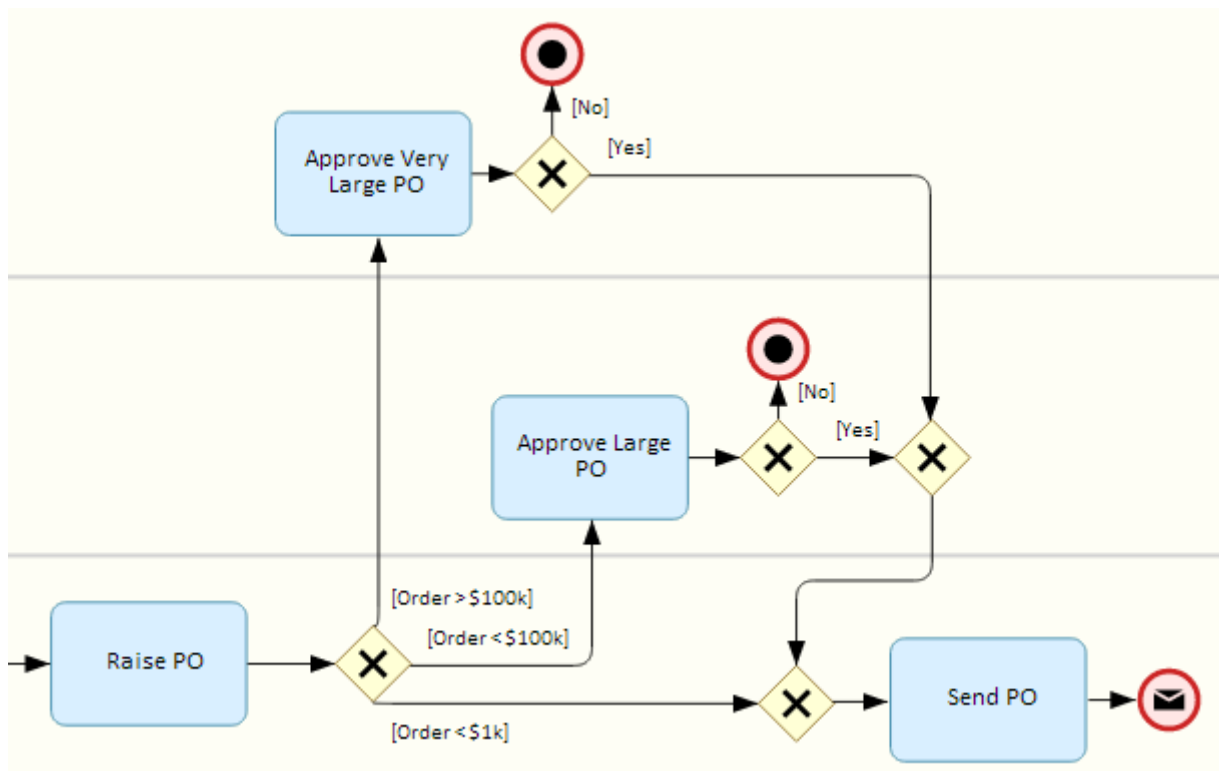
Gateways are also used to merge sequence flows when two or more parallel or exclusive flows reunite to continue the process. In this case the two types of gateway have the following meanings:

Table 51:

Symbol	Description
	Exclusive gateway - Waits for one incoming branch to complete before continuing.
	Parallel gateway - Waits for all incoming branches to complete before continuing.

In this example, one of the approval tasks will arrive at the final exclusive gateway, which then triggers the sending of the purchase order:





Gateways can have the following properties:

Table 52:

Property	Description
Name/Code/Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.



## 5.5 Data (BPMN Descriptive)

Data objects represent data used in the process.

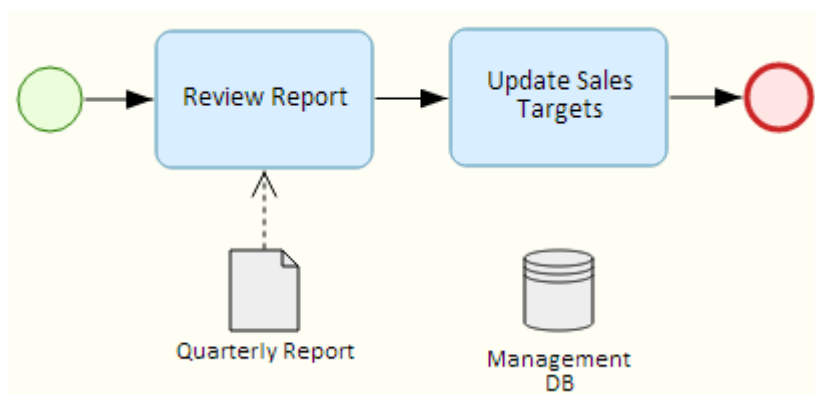
To create a data object, click the [Data Store](#) or [Data Object](#) tool in the bottom toolbar to select it and click in the diagram.

In BPMN 2.0 Descriptive, PowerDesigner supports the following types of data:

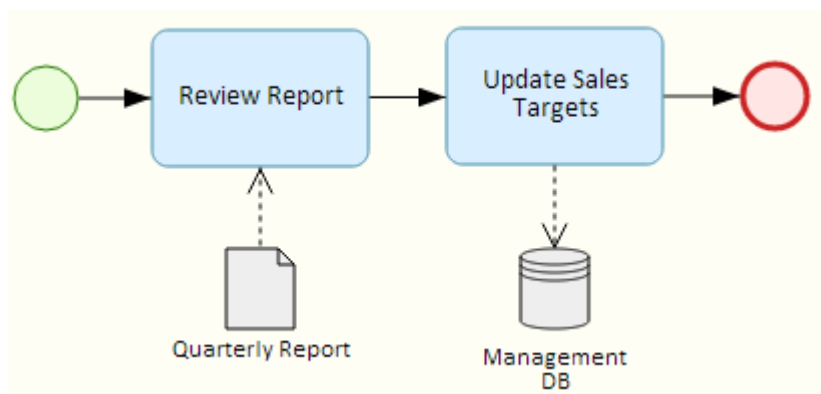
Table 53:

Symbol	Description
	Data object - Information used in the process.
	Data store - A database, filing cabinet, or other location from which the process can read or to which it can write data, and which persists beyond the lifetime of the process instance.

To show a task (or other object) reading from a data object or data store, click the data and then click and drag the Link tool from its context toolbar and drop it onto the task to create a data association (a dashed line) pointing to the task:



To show a task (or other object) writing to a data object or data store, click the task and then click and drag the Link tool from its context toolbar and drop it onto the data to create a data association pointing to the data:



Data can have the following properties:

Table 54:

Property	Description
Name/Code/Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Collection	[data objects] Specifies that the object represents a collection of elements.
Capacity / Unlimited	[data stores] Specify the capacity of the store either as a numeric value or as unlimited.

## 5.6 Sequence and Message Flows (BPMN Descriptive)

Sequence flows are solid lines with an arrow at one end, which link the elements in a process in the diagram or in a single pool and show the order in which they are performed. Message flows are dotted lines with an arrow at one end, which link two separate pools (or elements in two separate pools) and show the direction in which the message is sent.

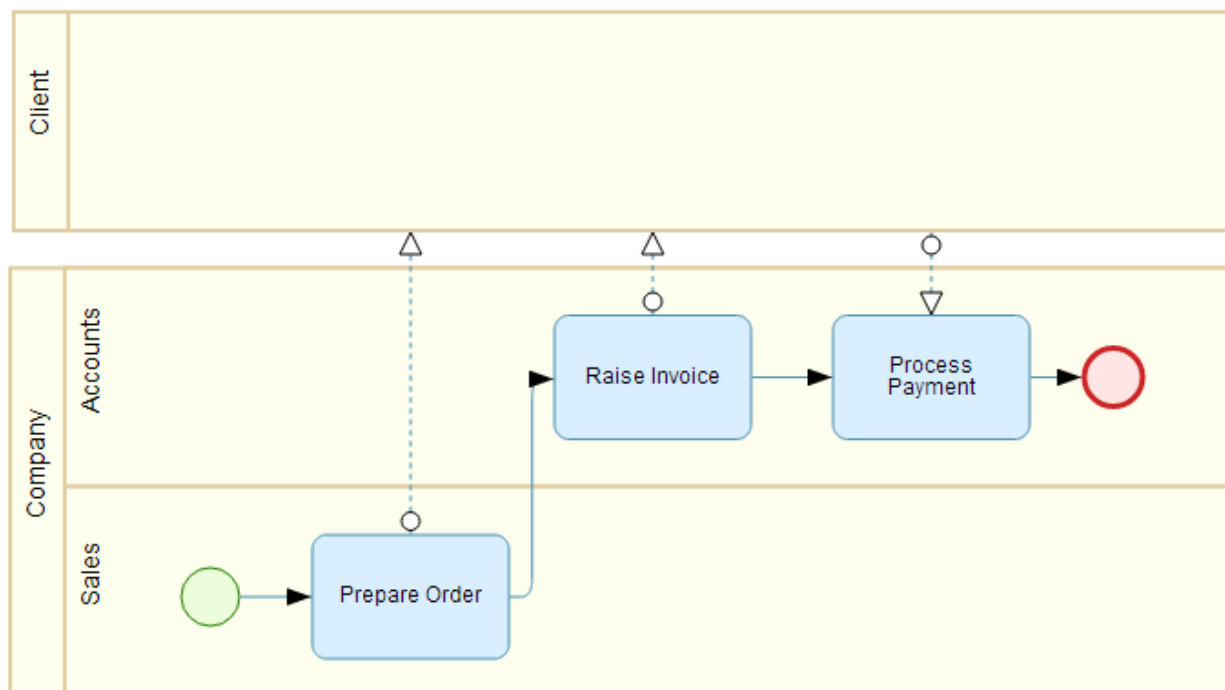
A sequence or message flow is created automatically when you create an object from the context toolbar of another object. To create a sequence flow explicitly:

- Select an object in the diagram, click the [Link](#) tool in its context toolbar, and drag it to another element in the same pool, or
- Click the [Link](#) tool in the bottom toolbar to select it, and then click and drag from one element to another in a single pool.

To create a message flow explicitly:

- Select an object in the diagram, click the [Link](#) tool in its context toolbar, and drag it to another pool (or an element in another pool), or
- Click the [Link](#) tool in the bottom toolbar to select it and then click and drag from one pool (or an element in the pool) to another pool (or an element in the other pool).

In the following example, note how the flows between tasks in a single pool are solid line sequence flows, while the flows between pools are dotted line message flows:



Sequence and message flows can have the following properties:

Table 55:

Property	Description
Name/Code/Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <i>Code</i> field.
Source/ Destination	Specify the objects that are linked by the flow. For sequence flows, the source object comes before the destination object in the process. For message flows, the source object emits the message and the destination object receives it.
Condition	[sequence flows] Specifies the condition that must be fulfilled for the process to take this branch following a gateway.

## 6 BPMN 2.0 Executable

Business Process Modeling Notation (BPMN) 2.0 is a standardized graphical notation intended to promote communication between non-technical business users who must document their processes and developers seeking to implement them using business execution languages. Commonly used by process implementers, BPMN 2.0 Executable includes all the standard BPMN 2.0 objects, and is aimed at technical modelers and those who are reverse-engineering from SAP BPM or Eclipse BPMN2 Modeler.

PowerDesigner provides support for two variants of BPMN 2.0. For information about BPMN 2.0 Descriptive, see [BPMN 2.0 Descriptive \[page 103\]](#).






PowerDesigner supports the following BPMN Executable 2.0 diagrams:







- Process diagrams - Focus on the sequence flow in a single process in a participant.
- Collaboration diagrams - Can additionally show the messages that pass between participants. You can show participants as black boxes or with processes inside them.
- Conversation diagrams - Provide an overview of the communications between participants. Conversation diagrams can be created and edited in the PowerDesigner desktop client, but are read-only in PowerDesigner Web.
- Choreography diagrams - Focus on the detail of the conversation between two or more participants, and which are often linked to specific conversation nodes. Choreography diagrams can be created and edited in the PowerDesigner desktop client, but are read-only in PowerDesigner Web.

To create a BPMN 2.0 Executable diagram, click the + tile in your workspace (see [Creating a Diagram from the Workspace \[page 8\]](#)) or in a repository folder (see [Creating a Diagram \[page 13\]](#)).

The following tools are available in BPMN 2.0 executable diagrams:

Table 56:

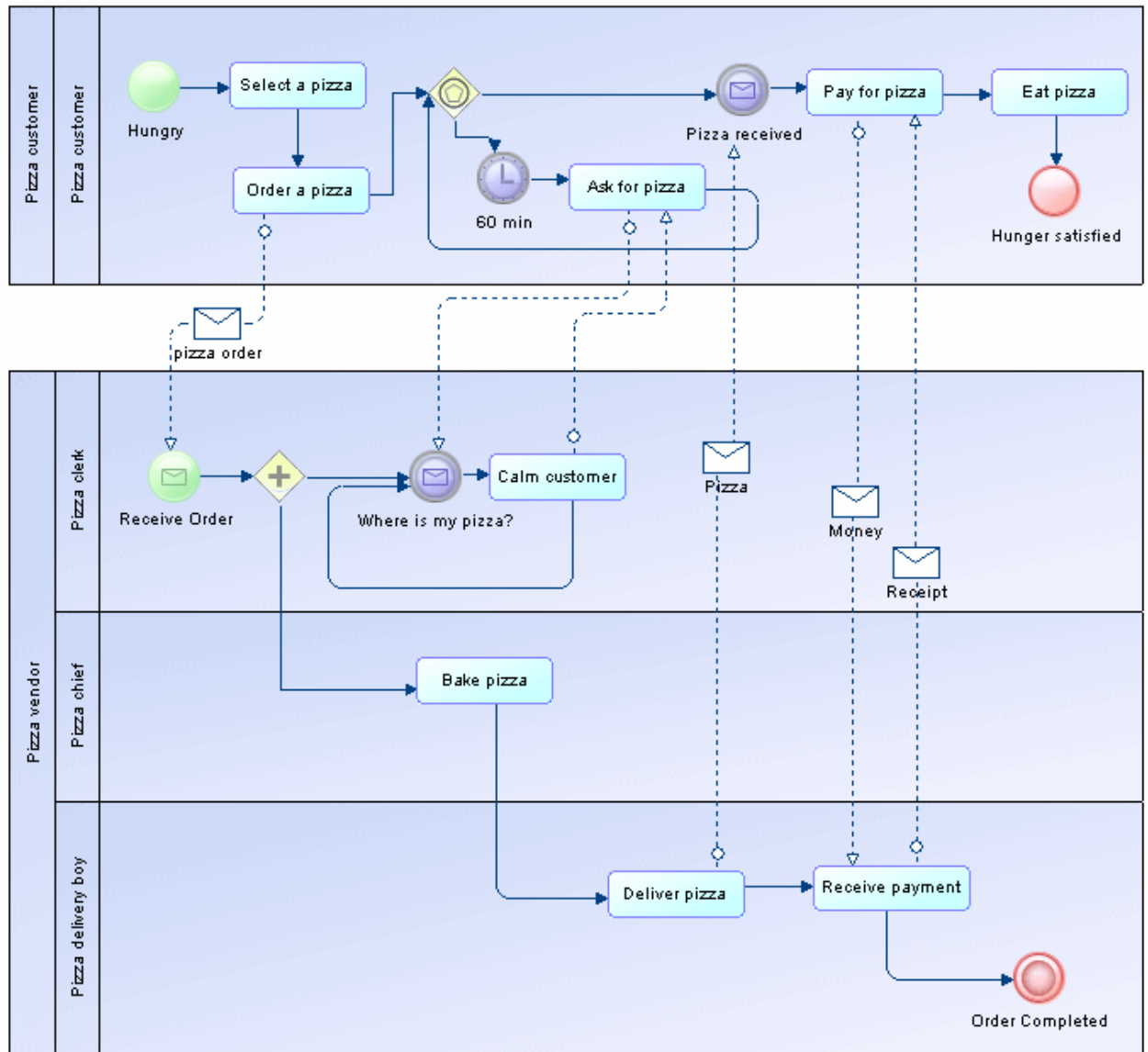
Tool	Description
	Pool/Lane - Represents companies, departments, roles, sub-entities (see <a href="#">Pools and Lanes (BPMN Descriptive) [page 105]</a> ).
	Start Event - Initiates a process (see <a href="#">Start, Intermediate, and End Events (BPMN Executable) [page 124]</a> ).
	Activity - Represents work performed within a process (see <a href="#">Activities (BPMN Executable) [page 127]</a> ).
	Intermediate Event - Happens during and influences the course of a process (see <a href="#">Start, Intermediate, and End Events (BPMN Executable) [page 124]</a> ).
	Gateway - Represents a decision or parallel actions and the reunification of the sequence flow (see <a href="#">Gateways (BPMN Executable) [page 128]</a> ).

Tool	Description
	End Event - Terminates a process (see <a href="#">Start, Intermediate, and End Events (BPMN Executable) [page 124]</a> ).
	Data Store - Represents a database, filing cabinet or other data container (see <a href="#">Data and Data References (BPMN Executable) [page 130]</a> ).
	Data Object - Represents a report, document, or other piece of data used in the process (see <a href="#">Data and Data References (BPMN Executable) [page 130]</a> ).
	Text Annotation - Allows you to add explanatory text in the diagram.
	Flow - Links objects with one of the following kinds of flow: <ul style="list-style-type: none"> <li>Sequence Flow - Links two elements (events, activities, gateways) to show the progress in a process.</li> <li>Message Flow - Links a pool (or one of its activities) to another pool (or one of its activities), and passes a message between them.</li> <li>Data Association - Links a data object to an activity or event.</li> </ul>
	File Object - Represents any application file (see <a href="#">File Objects [page 140]</a> ).

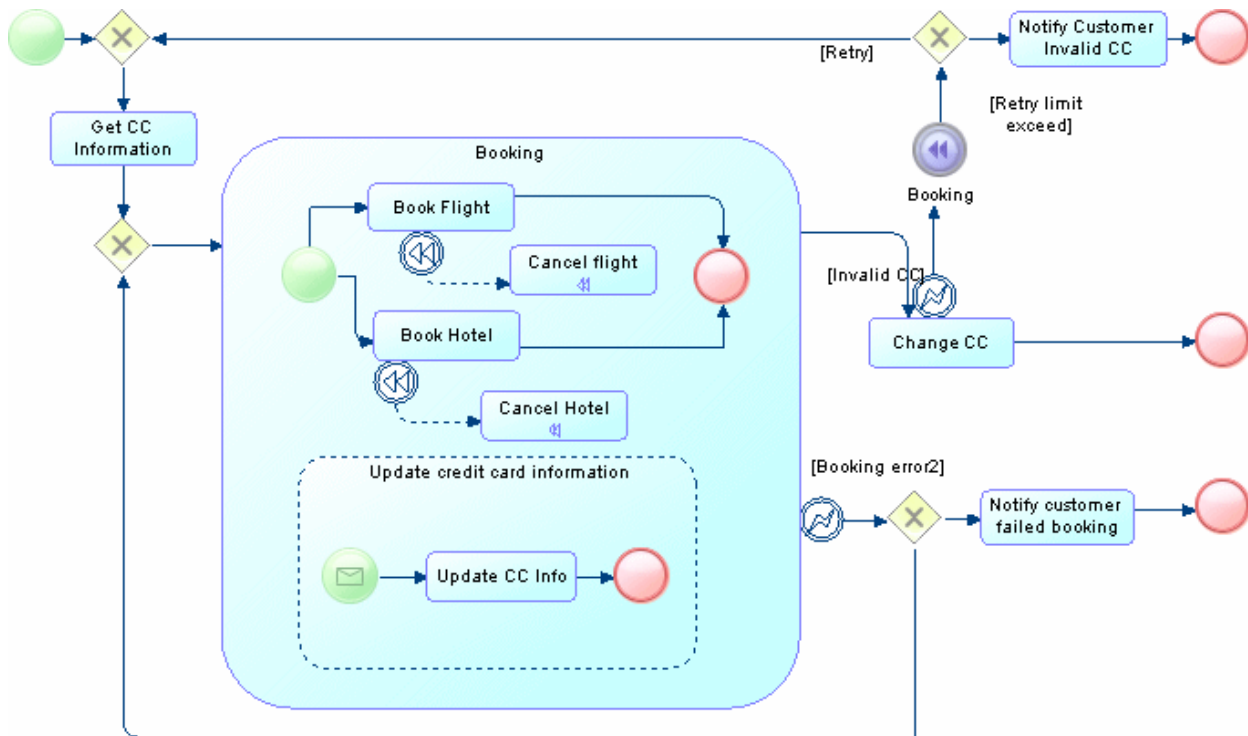
## 6.1 Collaboration and Process Diagrams (BPMN Executable)

A collaboration diagram analyzes the sequence flow of processes and the exchange of messages between participants (represented as swimlanes and pools). Each pool contains an implicit process with a start event and one or more end events. A process diagram analyzes the sequence flow in a single process in a participant (which can be shown or implicit).

In the following example collaboration diagram, the interactions between the staff of a pizza restaurant and a customer are analyzed:



In the following example process diagram, the booking process internal to a travel agency is analyzed:



## 6.2 Conversation Diagrams (BPMN Executable)

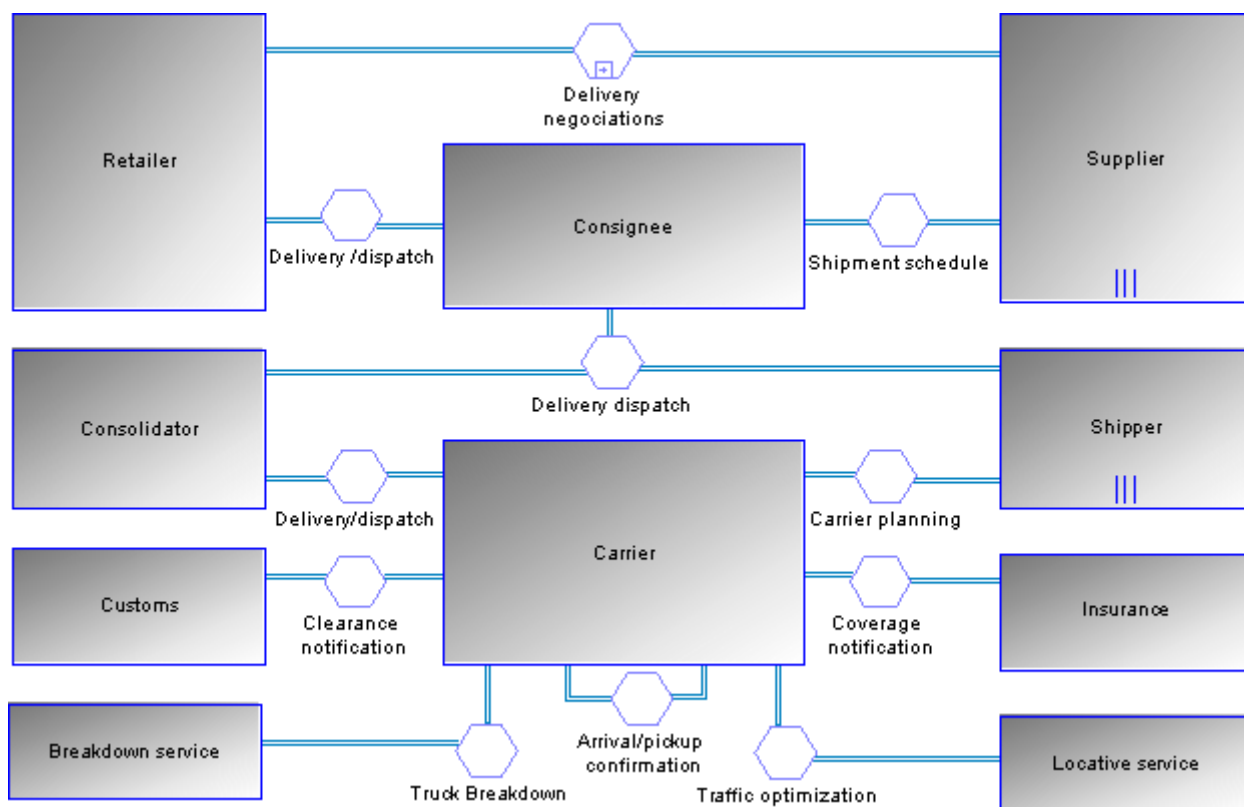
A conversation diagram focuses on the communications between participants. You cannot create or display processes or choreographies in this diagram.

### **i** Note

Conversation diagrams can be created and edited in the PowerDesigner desktop client, but are read-only in PowerDesigner Web.

In the following example, the various conversations associated with deliveries from a supplier to a retailer are analyzed:





### **i** Note

PowerDesigner does not support the display of processes within participant symbols in a conversation diagram.

Conversation nodes have the following properties:

Table 57:

Property	Description
Name/Code/Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Reusable	Specifies whether the conversation node may be reused in other contexts.
Reuse conversation	Specifies the conversation node that is being reused in this context.
Correlation key	[atomic conversations only] Specifies the correlation key (set of correlation properties drawn from the message) used to associate the conversation to a particular instance of a process (see <a href="#">Correlation Keys (BPMN Executable) [page 131]</a> ). Each flow connected to the node must have the same key as the node.

## i Note

You can associate a conversation node with a choreography diagram or with a choreography task in order to model the choreography of the messages that flow through it. Choreography diagrams and tasks associated with a conversation node are initialized with the participants linked to the node:

- To associate a choreography diagram with a conversation node from the choreography diagram, right-click the diagram background and select **Diagram > Properties**, and then select the appropriate node in the **Related node** list on the **General** tab of the diagram property sheet. Any choreography tasks you create in the diagram will be initialized with the participants associated with the node.
- To associate a choreography task with a conversation node from the task property sheet, select the appropriate node in the **Related node** list on the **General** tab of the task property sheet. The task participants will be set to the participants associated with the node.
- To associate a conversation node with an existing choreography diagram from the conversation node symbol, right-click the symbol and select **Related Diagram > <DiagramName>**. Alternately, you can create a new choreography diagram from a conversation node, by selecting **Related Diagram > New**. In both cases, to complete the link, you must open the choreography diagram property sheet and select the node in the **Related node** list. Any choreography tasks you create in the diagram will be initialized with the participants associated with the node.

Conversation links have the following properties:

Table 58:

Property	Description
Name/Code/Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <b>Code</b> field.
Participant	Specifies the participant to which the link is joined.
Conversation node	Specifies the conversation node to which the link is joined. Use the tools to the right of the list to create, browse for, or view the properties of the currently selected object.

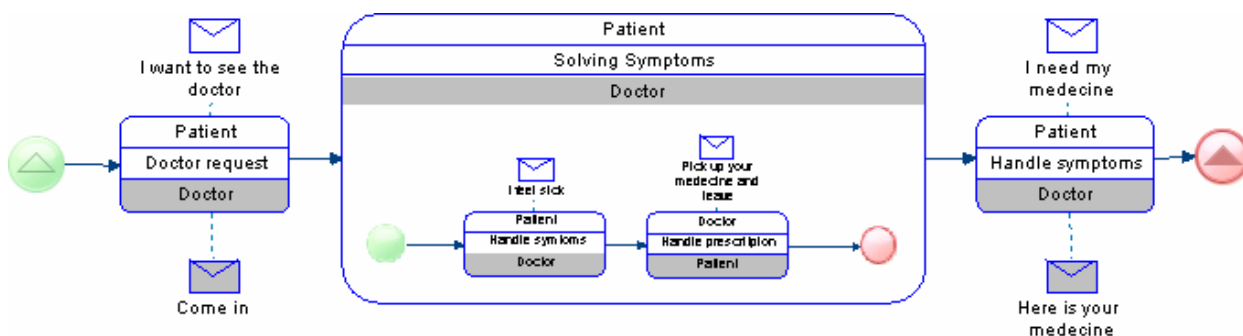
## 6.3 Choreography Diagrams (BPMN Executable)

A choreography diagram is used to analyze how participants exchange information to coordinate their interactions. A choreography diagram can be used to expand and analyze in detail the exchange of messages associated with a conversation node in a conversation diagram.

## i Note

Choreography diagrams can be created and edited in the PowerDesigner desktop client, but are read-only in PowerDesigner Web.

In the following example, the exchange of messages between a patient and a doctor is analyzed:



### **i** Note

PowerDesigner does not support the display of participant swimlanes nor the display of collaboration diagrams within choreography tasks. In addition, you cannot create intermediate events in choreography diagrams, and only one initiating and one responding participant are supported for atomic choreography tasks (though multiple participants are calculated for a task containing sub-tasks).

Choreography tasks have the following properties:

Table 59:

Property	Description
Name/Code/Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <i>Code</i> field.
Related node	Specifies the conversation node with which the choreography task is associated. Use the tools to the right of the list to create, browse for, or view the properties of the currently selected object.
Composite status	Specifies whether the task is a choreography task or choreography sub-process (which can itself contain choreography tasks, listed on the <i>Choreography Tasks</i> tab).  If you revert from a choreography sub-process back to a choreography task, then any tasks that you have created inside it will be deleted.
Reusable	Specifies whether the task may be reused in other contexts.
Reuse task	Specifies the choreography task that is being reused in this context.
Initiating and Responding participants	[atomic tasks only] Specify the participants that interact through the choreography task. The initiating participant and her message are colored white and the responding participant and her message are colored grey. Use the tools to the right of the list to create, browse for, or view the properties of the currently selected object. Select the <i>Multiple</i> check box to specify that there is more than one initiating or responding participant.
Initiating and Return messages	[atomic tasks only] Specify the messages that the participants exchange through the choreography task. Use the tools to the right of the list to create, browse for, or view the properties of the currently selected object.

Property	Description
Loop characteristics	Specifies that the task is a loop or multiple-instance (parallel or sequential) choreography task.

## 6.4 Pools and Lanes (BPMN Executable)

Pools represent companies, departments, or roles. Lanes represent sub-entities within these organizations and appear as swimlanes inside the pool. Many BPMN diagrams contain one or more pools, with all the other objects placed in the lanes of these pools.

BPMN Executable pools and lanes behave in the same way as those in BPMN Descriptive (see [Pools and Lanes \(BPMN Descriptive\) \[page 105\]](#)).

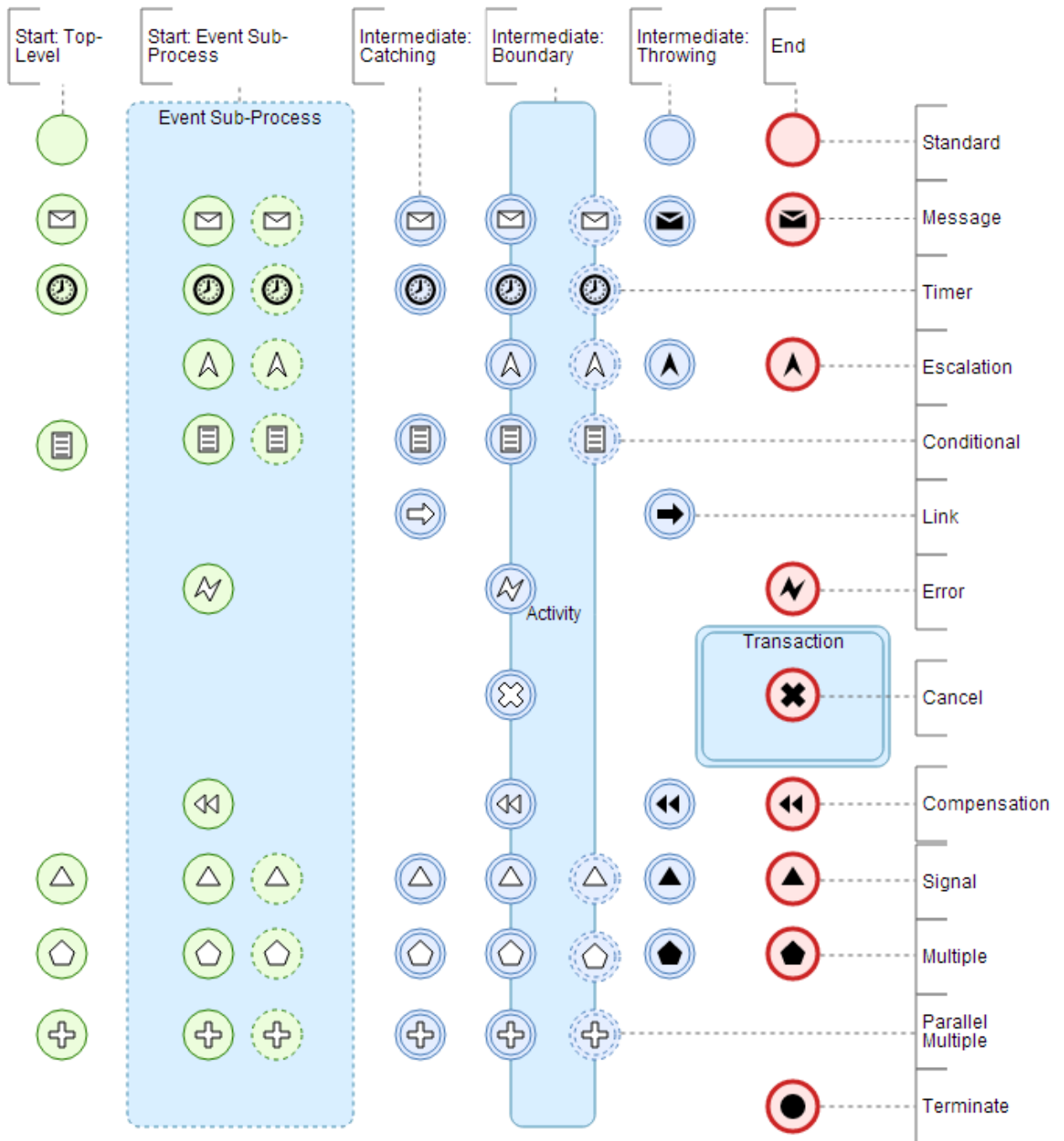
In BPMN Executable, pools and lanes can also appear in conversation diagrams as square nodes (see [Conversation Diagrams \(BPMN Executable\) \[page 120\]](#)) and in choreography diagrams, where they do not have a separate symbol but are displayed on the top or bottom band of the choreography task symbol (see [Choreography Diagrams \(BPMN Executable\) \[page 122\]](#)).

## 6.5 Start, Intermediate, and End Events (BPMN Executable)

An event is something that happens during the course of a process. Events include the start and end of an activity, and any other intermediate happenings (such as a change of state or receipt of a message) which will affect its sequence or timing.

In BPMN Executable, various different types of start, intermediate and end events can be created depending on the context, and their type is indicated by their symbols. PowerDesigner supports all the types of events defined in BPMN 2.0:

- None - Untyped events, which indicate start points, state changes, and final states.
- Message - Receiving and sending messages.
- Timer - Cyclic timer events, points in time, time spans, or timeouts.
- Escalation - Escalating to a higher level of responsibility.
- Conditional - Reacting to changed business conditions or integrating business rules.
- Link - Off-page connectors. Two corresponding link events equal a sequence flow.
- Error - Catching or throwing named errors.
- Cancel - Reacting to canceled transactions or triggering cancellation.
- Compensation - Handling or triggering compensation.
- Signal - Signaling across different processes. A signal thrown can be caught multiple times.
- Multiple - Catching one out of a set of events. Throwing all events defined.
- Parallel multiple - Catching all out of a set of parallel events.
- Terminate - Triggering the immediate termination of a process.



You can create events in the contexts shown above in the following ways:

- Start events - can be created directly in the diagram, in a pool or lane, in a standard or transaction sub-process (standard starts only), or in an event-based sub-process. Use the [Start Event](#) tool in the bottom toolbar. To change the type, click the [Properties](#) tool in its context toolbar and select the appropriate type.

#### **i** Note

Start events are not permitted in ad hoc sub-processes.

### Note

To make an event-based sub-process start event non-interrupting (with the dashed outer circle), deselect the [Interrupting](#) property.

- Intermediate catch events - can be created directly in the diagram, in a pool or lane, or in any type of sub-process. Use the [Intermediate Catch Event](#) tool in the context toolbar or the bottom toolbar to create the event. To change the type, click the [Properties](#) tool in its context toolbar and select the appropriate type.
- Intermediate boundary events - can be created on the edge of a task or of any type of sub-process. Use the [Intermediate Catch Event](#) tool in the context toolbar or the bottom toolbar, and click on the border of the task or sub-process. To change the type, click the [Properties](#) tool in its context toolbar and select the appropriate type.

### Note

To make an intermediate boundary event non-interrupting (with the dashed outer circles), deselect the [Interrupting](#) property.

- Intermediate throw events - can be created directly in the diagram, in a pool or lane, or in any type of sub-process. Use the [Intermediate Catch Event](#) tool in the context toolbar or the bottom toolbar, select the [Properties](#) tool from its context toolbar, select [Intermediate Throw Event](#) to change to the throw type, and then select the [Properties](#) tool again and select the appropriate type of throw event.
- End events - can be created directly in the diagram, in a pool or lane or in any type of sub-process. Use the [End Event](#) tool in the context toolbar or the bottom toolbar. To change the type, click the [Properties](#) tool in its context toolbar and select the appropriate type.

### Note

End events are not permitted in ad hoc sub-processes. Cancel end events are only permitted in transactions.

Executable events can have the following properties:

Table 60:

Property	Description
Name/Code/Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Interrupting	While most events interrupt the process modeled, event sub-process starts and intermediate boundary events can be specified as non-interrupting by deselecting this property. Non-interrupting events are marked by dashed outer circles.
Message	[message events] Specifies the message that is associated with the event (see <a href="#">Messages (BPMN Executable)</a> [page 132]).

### Note

If you do not specify a name for your event and merely accept the default name, no name will be displayed under the symbol in the diagram. To subsequently specify a name to appear in the diagram, select the event symbol and press **F2** or enter a name in the property sheet.

## 6.6 Activities (BPMN Executable)

Activities are work that is performed within a process.












To create an activity:



- Select an object in the diagram and click (or click and drag) the [Task](#) tool in its context toolbar to create a new activity after it in the control flow, or
- Click the [Task](#) tool in the bottom toolbar and click in the diagram.

The activity is created with its default name highlighted, ready for you to enter an appropriate name.

By default, an abstract task is created. To change the type of activity, click the [Properties](#) tool and select a type from the list. In BPMN 2.0 Executable, PowerDesigner supports the following types of activities:

Table 61:

Symbol	Description
	Abstract task - Basic unit of work.
	Send task - Sends a message to a participant external to the process. Once the message has been sent, the task is completed.
	Receive task - Waits for a message to arrive from a participant external to the process. Once the message has been received, the task is completed.
	User task - A human performer performs the task with the assistance of a software application and is scheduled through a task list manager of some sort.
	Manual task - A task that is performed without the aid of any business process execution engine or any application. For example, a telephone technician installing a telephone at a customer location.
	Business rule task - Sends input to a business rules engine and receives the output of the engine's calculations.
	Service task - Uses a Web service or automated application.
	Script task - Executed by a script interpreted by a business process engine.
	Transaction - Set of activities that logically belong together, and which might follow a specific transaction protocol.
	Call activity - Wrapper for a globally defined sub-process or task that is reused in the current process (see <a href="#">Call Activities (BPMN Descriptive)</a> [page 110]).
	Sub-process - An activity whose internal details have been modeled using activities, gateways, events, and sequence flows (see <a href="#">Sub-Processes (BPMN Descriptive)</a> [page 109]).

Symbol	Description
	Event sub-process - An activity that is activated when its start event is triggered, and can interrupt the higher level process context or run in parallel (non-interrupting) depending on the start event.
	Ad hoc sub-process - A specialized type of sub-process that is a group of activities that have no required sequence relationships, and whose sequence and number are determined by the performers of the activities.

Activities can have the following properties:

Table 62:

Property	Description
Name/Code/Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Reusable process	Specifies that the process can be referenced by a call activity (see <a href="#">Call Activities (BPMN Descriptive)</a> [page 110]).
Start quantity/ Completion quantity	Specify the number of tokens that must arrive before the activity can begin and the number of tokens that must be generated from the activity. The default value is 1 and it is only changed in very advanced modeling situations.
Loop characteristics	Specifies that the activity may be repeated in one of the following ways: <ul style="list-style-type: none"> <li>• &lt;none&gt; - default</li> <li>• Loop</li> <li>• Multi-Instance parallel</li> <li>• Multi-Instance sequential</li> </ul>
Compensation	Specifies that the activity is intended for the purposes of compensation.
Called object	[Call Activities] Specifies the global task or process that is reused by the call activity.

## 6.7 Gateways (BPMN Executable)

Gateways control the sequence flow of the process, and can merge or split the flow as dictated by the gateway conditions.








To create a Gateway:

- Select an object in the diagram and click (or click and drag) the [Gateway](#) tool in its context toolbar to create a new gateway after it in the sequence flow, or
- Click the [Gateway](#) tool in the bottom toolbar and click in the diagram.



By default, an exclusive gateway is created. To change the type of gateway, click the [Properties](#) tool and select a type from the list. In BPMN 2.0 Executable, the following types of gateways are available:

Table 63:

Symbol	Description
	Normal/Exclusive gateway - When splitting, routes the flow to one outgoing branch. When merging, waits for one incoming branch to complete before triggering the outgoing flow.
	Parallel gateway - When splitting, activates all outgoing branches simultaneously. When merging, waits for all incoming branches to complete.
	Inclusive gateway - When splitting, activates one or more branches. When merging, waits for all incoming branches to complete before merging.
	Event-based gateway - Followed by catching events or receive tasks and routes the flow to whichever of these happens first.
	Exclusive event-based gateway - Starts a new process instance for each occurrence of a subsequent event.
	Parallel event-based gateway - Starts a new process instance for the occurrence of all subsequent events.
	Complex gateway - Treats complex merging or branching behavior not covered by other gateways.

Gateways can have the following properties:

Table 64:

Property	Description
Name/Code/ Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Direction	Specifies how the gateway may be used. You can select: <ul style="list-style-type: none"> <li>• <b>Unspecified</b> - The gateway may have any number of incoming and outgoing sequence flows.</li> <li>• <b>Converging</b> - The gateway may have multiple incoming sequence flows but must have no more than one outgoing sequence flow.</li> <li>• <b>Diverging</b> - The gateway may have multiple outgoing sequence flows but must have no more than one incoming sequence flow.</li> <li>• <b>Mixed</b> - The gateway contains multiple outgoing and multiple incoming sequence flows.</li> </ul>
Expression / Expression alias	Specifies the condition that will be evaluated to decide which path the process follows following the gateway. The alias provides a short version of the condition which is displayed under the gateway in the diagram.

## 6.8 Data and Data References (BPMN Executable)

Data are physical or information items that are created, manipulated, or otherwise used during the execution of a process. Data references are objects that reference data objects for reuse.





### Note

PowerDesigner does not support the association of data objects with sequence flows.

To create data, click the [Data Store](#) or [Data Object](#) tool in the bottom toolbar to select it and click in the diagram.

In BPMN 2.0 Executable, PowerDesigner supports the following types of data:

Table 65:

Symbol	Description
	Data object / Collection data object - Information flowing through the process.
	Data input / Collection data input - External input for the entire process, which can be read by an activity.
	Data output / Collection data output - Variable available as the result of the entire process.
	Data store - Place where the process can read or write data, such as a database or filing cabinet, and which persists beyond the lifetime of the process instance.

Data can have the following properties:

Table 66:

Property	Description
Name/Code/ Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Capacity/ Unlimited	[data stores] Specify the size of the data store or the fact that it has an unlimited capacity.
Data object	[data references] Specifies the data object to reference. Select an object from the list, or use the tools to the right of this field to create, delete, select an object, or review the properties of the selected object.
State	[data references] Specifies the state of the data object. You can select: <ul style="list-style-type: none"><li>• <b>Initial</b></li><li>• <b>Processing</b></li><li>• <b>Completed</b></li></ul>
Collection	Specifies that the data object represents a collection of data, such as a list of order items.

Data associations can have the following properties:

Table 67:

Property	Description
Name/Code/Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Transformation type	Specifies the direction of the transfer of the item-aware element (see <a href="#">Item-Aware Elements (BPMN Executable)</a> [page 133]): <ul style="list-style-type: none"> <li>• <b>Input</b> - Specifies a read. The data association goes from the data object to the activity.</li> <li>• <b>Output</b> - Specifies a write. The data association goes from the activity to the data object.</li> </ul>
Source item	[ <b>Output</b> ] Specifies the item-aware element (of type <b>Data Output</b> ) defined on the activity to be transferred from it to the data object.
Target item	[ <b>Input</b> ] Specifies the item-aware element (of type <b>Data Input</b> ) defined on the activity to be transferred to it from the data object.

## 6.9 Correlation Keys (BPMN Executable)

Correlation keys are sets of correlation properties used to associate a message to a particular instance of a process.

### Note

Correlation keys can be created only in the PowerDesigner desktop client, but they can be selected and edited in PowerDesigner Web.

BPMN executable correlation keys and correlation properties can have the following properties:

Table 68:

Property	Description
Name/Code/Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.

The correlation properties regrouped in the correlation key are listed on the [Depends On](#) facet.

## 6.10 Messages (BPMN Executable)

A message represents the content of a communication between two participants, and is passed along a message flow. In choreography diagrams, an initiating message is automatically colored white, and a non-initiating message is automatically colored grey.

### Note

Messages can be created only in the PowerDesigner desktop client, but they can be selected and edited in PowerDesigner Web.

Messages can have the following properties:

Table 69:

Property	Description
Name/Code/Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <i>Code</i> field.

- *Detail* - Contains the following properties:

Table 70:

Property	Description
External definition	Specifies the location path to an external file or an URL.
Message format type	Specifies the format of the message. You can enter your own format or choose one of the following: <ul style="list-style-type: none"><li>◦ XML Schema</li><li>◦ DTD</li><li>◦ RELAX NG</li></ul>
Message format definition	Specifies the content of the message.

## 6.11 Item-Aware Elements (BPMN Executable)

Item-aware elements are variables used to store or convey information during process execution. You can associate these elements with processes, activities, and events.

### **i** Note

Item-aware elements can be created and added to an object only in the PowerDesigner desktop client, but their properties can be edited in PowerDesigner Web.

The different types of element are available in the following types of object:

Table 71:

Object	Property	Data Object / Data Reference	Data Input	Data Output
Composite processes	X	X	X	X
Tasks	X		X	X
Start events / Intermediate catching events	X			X
End events / Intermediate throwing events	X		X	

Item-aware elements can have the following properties:

Table 72:

Property	Description
Name/Code/Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.

## 6.12 Sequence and Message Flows (BPMN Executable)

Sequence flows are solid lines with an arrow at one end, which link the elements in a process in the diagram or in a single pool and show the order in which they are performed. Message flows are dotted lines with an arrow at one end, which link elements in two separate pools and show the direction in which the message is sent.

For information about creating sequence and message flows, see [Sequence and Message Flows \(BPMN Descriptive\)](#) [page 115]. BPMN executable sequence and message flows can have the following properties:

Table 73:

Property	Description
Name/Code/ Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Source/ Destination	Specify the objects that are linked by the flow. For sequence flows, the source object comes before the destination object in the process. For message flows, the source object emits the message and the destination object receives it.
Condition	[sequence flows] Specifies the condition that must be fulfilled for the process to take this branch following a gateway.
Message format	[message flows] Specifies the message that transits the flow (see <a href="#">Messages (BPMN Executable) [page 132]</a> )
Correlation key	[message flows] Specifies the correlation key used to associate the message to a particular instance of a process (see <a href="#">Correlation Keys (BPMN Executable) [page 131]</a> ). In a conversation diagram, each flow must have the same key as the conversation node to which it is connected.
Correlation property	[message flows] Specifies the correlation property that acts as the unique identifier for this instance of the message .

## 6.13 Importing and Exporting BPMN 2.0 Files

PowerDesigner can import and export BPMN 2.0 files, with a particular emphasis on supporting SAP BPM and the Eclipse BPMN2 Modeler.

### Context

PowerDesigner supports round-trip importing and exporting of SAP BPM v7.3 and higher BPMN 2.0 files. PowerDesigner Web makes your process models available for browsing and importing directly into the SAP NetWeaver Developer Studio Process Composer v7.3 EHP1 SP15 or higher.

To import a BPMN 2.0 file, navigate to the appropriate repository folder and then click the [Menu](#) tool and select [Import BPMN2 File](#).

#### Note

You can also import a BPMN 2.0 file into an existing diagram. The import will overwrite any existing content in your diagram.

To export a BPMN 2.0 diagram, click the [Menu](#) tool and then select [Export BPMN2 File](#).

The following BPMN 2.0 objects are supported in import and export:

Table 74:

Supported Objects
<ul style="list-style-type: none"> <li>• DocumentRoot, Definitions, Property, Documentation, TextAnnotation</li> <li>• Process</li> <li>• Task, GlobalTask, GlobalBusinessRuleTask, GlobalManualTask, GlobalScriptTask, GlobalUserTask, BusinessRuleTask, ManualTask, ReceiveTask, ScriptTask, SendTask, ServiceTask, UserTask</li> <li>• Transaction, CallActivity, SubProcess, AdHocSubProcess</li> <li>• Message, MessageFlow</li> <li>• Participant, ParticipantMultiplicity</li> <li>• Collaboration</li> <li>• Lane, LaneSet</li> <li>• SequenceFlow</li> <li>• MultiInstanceLoopCharacteristics, StandardLoopCharacteristics</li> <li>• Association</li> <li>• Group</li> <li>• InputOutputSpecification, InputSet, OutputSet</li> <li>• DataObject, DataStore, DataInput, DataOutput, DataState</li> <li>• DataAssociation, DataInputAssociation, DataOutputAssociation</li> <li>• DataObjectReference, DataStoreReference</li> <li>• BoundaryEvent, IntermediateCatchEvent, StartEvent, EndEvent, ImplicitThrowEvent, IntermediateThrowEvent</li> <li>• CancelEventDefinition, CompensateEventDefinition, ConditionalEventDefinition, ErrorEventDefinition, EscalationEventDefinition, LinkEventDefinition, MessageEventDefinition, SignalEventDefinition, TerminateEventDefinition, TimerEventDefinition</li> <li>• ComplexGateway, EventBasedGateway, ExclusiveGateway, InclusiveGateway, ParallelGateway</li> <li>• Operation, Interface</li> <li>• BPMNDiagram, BPMNPlane, BPMNShape, BPMNEdge, Bounds, Point</li> </ul>

The following BPMN2 objects are supported for modeling in the desktop PowerDesigner client, but are not supported for modeling in PowerDesigner Web, or for import and export:

Table 75:

Modeling Objects Not Supported in Import/Export
<ul style="list-style-type: none"> <li>• ChoreographyTask, GlobalChoreographyTask, Choreography, SubChoreography, CallChoreography</li> <li>• CorrelationKey, CorrelationPropertyBinding, CorrelationPropertyRetrievalExpression, CorrelationSubscription, CorrelationProperty</li> <li>• Conversation, SubConversation, ConversationNode, ConversationLink, GlobalConversation, CallConversation</li> </ul>

The following BPMN2 objects are not supported for modeling or in import and export:

Table 76:

Unsupported Objects
<ul style="list-style-type: none"> <li>• CorrelationPropertyBinding, CorrelationPropertyRetrievalExpression, CorrelationSubscription</li> <li>• MessageFlowAssociation, ParticipantAssociation, ConversationAssociation</li> <li>• ResourceAssignmentExpression, ResourceParameter, ResourceParameterBinding, ResourceRole</li> <li>• InputOutputBinding</li> <li>• ItemDefinition</li> <li>• ImplicitThrowEvent</li> <li>• Assignment</li> <li>• Auditing</li> <li>• ComplexBehaviorDefinition</li> <li>• Monitoring</li> <li>• Relationship</li> <li>• Rendering</li> <li>• Expression, FormalExpression</li> <li>• PotentialOwner</li> <li>• HumanPerformer</li> <li>• Category, CategoryValue</li> <li>• EndPoint</li> <li>• Error</li> <li>• Escalation</li> <li>• PartnerEntity, PartnerRole</li> <li>• Resource</li> <li>• Signal</li> <li>• Extension, ExtensionAttributeDefinition, ExtensionAttributeValue, ExtensionDefinition Import</li> </ul>

## 6.13.1 Importing from SAP BPM

PowerDesigner supports importing a SAP BPM v7.3 or higher process for editing in a new business process model.

### Procedure

1. Start SAP NetWeaver Developer Studio and expand the *Process Modeling* folder.
2. Expand the *Process* folder, right-click a process, and select *Exporting for BPMN 2.0...*
3. Select a file folder and name, and then click *Export*.
4. Open PowerDesigner Web, click the *Repository* tile, and navigate to the folder where you want to create the diagram. Click the *Menu* tool and select *Import BPMN2 File*, navigate to the file you exported from NetWeaver, select it, and click *Open* to import it as a new diagram.

#### Note

You can also import a BPMN 2.0 file into an existing diagram. The import will overwrite any existing content in your diagram.



## 6.13.2 Exporting to SAP BPM

PowerDesigner supports exporting a BPMN 2.0 business process diagram as a process to SAP BPM v7.3 or higher.

### Context

#### Note

PowerDesigner Web makes your process models available for browsing and importing directly into the SAP NetWeaver Developer Studio Process Composer v7.3 EHP1 SP15 or higher without the need to perform an export. For further information, see SAP BPM Developer's Guide *Modeling Processes with Process Composer* at [http://help.sap.com/saphelp\\_nw73ehp1/helpdata/en/ff/165a665c16482e9c282ce6b0e67776/frameset.htm](http://help.sap.com/saphelp_nw73ehp1/helpdata/en/ff/165a665c16482e9c282ce6b0e67776/frameset.htm)

### Procedure

1. In PowerDesigner Web, open your BPMN 2.0 diagram, click the *Menu* tool, and then select *Export BPMN2 File*. The BPMN 2.0 file is saved to your default download folder.
2. Start SAP NetWeaver Developer Studio and create a new *Process Composer Development Component* project.
3. Expand the *Process Modeling* folder, right-click the *Processes* folder, and select *Importing BPMN 2.0 diagram....*
4. Navigate to the file you exported from PowerDesigner, select it, and click *Open* to import it.

## 7 Common Objects

You can create these objects in any diagram unless specified otherwise.

### 7.1 Business Rules

A business rule is a written statement specifying what a system must do or how it must be structured. Rules can be derived from a government-imposed law, a customer requirement, or an internal guideline. You can attach rules to your model objects to complement your diagrams with information that is not easily represented graphically.

For example, a rule stating that "An employee belongs to only one division." can help you graphically build the link between an employee and a division. Rules often start as simple observations that develop, during the design process, into more detailed expressions. You may, for example, develop rules to explicitly define what information a customer supplies when placing an order, or how much a customer can spend based on a credit limit.

Rules can be developed from procedures that the system must respect, specifications dictating the scope of the project, and external constraints.

You can create a business rule in any type of model/diagram:

1. Navigate to the model property sheet by clicking the [Model](#) link in a diagram property sheet.
2. Click the [Children](#) facet. If the [Business Rules](#) list is not visible, add it by clicking the [Show/Hide Section](#) tool and selecting [Business Rules](#).
3. Click the [+](#) button above the [Business Rules](#) list and then click its name link to open its property sheet and complete any appropriate properties.

Business rules can have the following properties:

Table 77:

Property	Description
Name/Code/ Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.

Property	Description
Type	<p>Specifies the nature of the business rule. You can choose between:</p> <ul style="list-style-type: none"> <li>• Constraint – a check constraint on a value. In a PDM, constraint business rules can be generated in the database. For example, "The start date should be inferior to the end date of a project."</li> <li>• Definition – a property of the element in the system. For example; "A customer is a person identified by a name and an address".</li> <li>• Fact – a certainty in the system. For example, "A client may place one or more orders".</li> <li>• Formula – a calculation. For example, "The total order is the sum of all the order line costs".</li> <li>• OCL constraint [OOM only] – An Object Constraint Language expression.</li> <li>• Requirement – a functional specification. For example, "The model is designed so that total losses do not exceed 10% of total sales".</li> <li>• Validation – a constraint on a value. For example, "The sum of all orders for a client must not be greater than that client's allowance".</li> </ul>
Server expression/ Client expression	Though business rules typically start out as descriptions, as you develop your model and analyze your business problem, you can enrich them by adding technical expressions.

## 7.1.1 Attaching a Business Rule to an Object

You can attach business rules to your model objects on the [Depends On](#) facet of the object's property sheet.

### Procedure

1. In [Edit](#) mode, open the property sheet of the object and click the [Depends On](#) facet.
2. If the list of associated business rules is not visible, click the [Show/Hide Section](#) tool and select the [Associated Business Rules](#) list.
3. Click the [Add](#) tool at the top of the [Associated Business Rules](#) list, and use the [Search](#) dialog to select the object to be linked to (see [Referencing an Object in a Property Field or List \[page 40\]](#)).

The business rule is now attached to the object. You can navigate to it from the list on the object's [Depends On](#) facet. You can navigate from the rule to the object from the list of [Attached Objects](#) on the rule's [Impacts](#) tab.

## 7.2 File Objects

You can embed any application file in your model or provide a link to it. For example you could include a detailed description of your problematic by pointing to a text or Word file from your model. The file itself can be embedded in the model or referenced by it.

### Note

You can create a file in a BPMN 2.0 Descriptive or Executable diagram or in an enterprise architecture diagram.

To create a file, click the [File](#) tool to select it, and then click in empty space. You can link a file in an enterprise architecture diagram to any other object using the [Link](#) tool (see [Linking EAM Objects \[page 61\]](#)).

The following properties are available on the [Info](#) facet in the [General](#) category:

Table 78:

Property	Description
Name/Code/ Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.
Location type	Specifies the nature of the file object. You can choose from the following: <ul style="list-style-type: none"><li>• Embedded file – the file is stored within the model and is saved when you save the model. If you subsequently change the type to external, you will be warned that the existing contents will be lost.</li><li>• URL – the file is on the web and you must enter its URL in the Location field</li></ul>
Location	Specifies the path or URL to the file.
Extension	Specifies the extension of the file object. By default, the extension is set to <code>txt</code> .
Generate	Specifies to generate the file object when you generate the model to another model.
Artifact	<p>Specifies that the file object is not a piece of documentation, but rather forms an integral part of the application.</p> <p>If an artifact has an extension that is defined in the Editors page in the General Options dialog linked to the <code>&lt;internal&gt;</code> editor, a Contents tab is displayed in the artifact property sheet, which allows you to edit the artifact file in the PowerDesigner text editor.</p>

The following facets contain additional information:

- [Depends On](#) - Lists objects that the file depends on.
- [Impacts](#) - Lists objects that the file impacts.

## 7.3 Packages

Packages can be used to organize your model into different tasks and subject areas, and to assign parts of it to different development teams. Each package has a default diagram, and you can add further diagrams, model objects, and sub-packages. You can create as many packages as you need in a model and decompose a package into other packages, and so on.

### Note

You can create a package in an enterprise architecture diagram.

To create a package, click the [Package](#) tool to select it, and then click in empty space. To go into the package diagram and create objects in it, double-click the package symbol. You can link a package in an enterprise architecture diagram to any other object using the [Link](#) tool (see [Linking EAM Objects \[page 61\]](#)).

The following properties are available on the [Info](#) facet in the [General](#) category:

Table 79:

Property	Description
Name/Code/ Comment	Identify the object. The name should clearly convey the object's purpose to non-technical users, while the code, which is used for generating code or scripts, may be abbreviated, and should not normally include spaces. You can optionally add a comment to provide more detailed information about the object. By default the code is generated from the name by applying the naming conventions specified in the model options. To decouple name-code synchronization, click to release the = button to the right of the <a href="#">Code</a> field.
Stereotype	Extends the semantics of the object. You can enter a stereotype directly in this field, or add stereotypes to the list by specifying them in an extension file.
Default diagram	[package only] Specifies the diagram to display by default when you open the package.
Use parent name-space	[package only] Specifies that the package does not represent a separate namespace from its parent and thus that objects created within it must have names that are unique within the parent container. If this property is not selected, then the package and its parent package or model can both contain objects that are called Object A.

The following facets contain additional information:

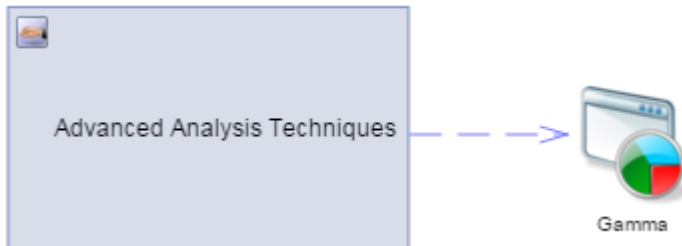
- [Children](#) - Lists objects contained in the package.
- [Depends On](#) - Lists objects that the package depends on.
- [Impacts](#) - Lists objects that the package impacts.

## 7.4 Traceability Links

Traceability links provide a flexible means for creating a connection between any object in any type of diagram and any other object in the diagram or anywhere in the repository. Traceability links have no formal semantic

meaning, but can be followed when performing an impact analysis or otherwise navigating through the model structure.

To create a traceability link between objects in an enterprise architecture diagram or process map, use the [Link](#) tool (see [Linking EAM Objects \[page 61\]](#)). If a different type of link is created by default, click on the link and then click the [Type](#) tool to change the type to **Traceability Link**. In this example, the **Advanced Analysis Techniques** business function depends on the **Gamma** system via a traceability link:



To create a traceability link in a BPMN diagram or requirement document, or to create a traceability link from an object in your diagram to any other object in the repository:

1. Select the object to display its property sheet and click the [Depends On](#) facet.
2. Click the [Add](#) tool at the top of the [Outgoing Traceability Links](#) list, and use the [Search](#) dialog to select the object to be linked to (see [Referencing an Object in a Property Field or List \[page 40\]](#)).
3. [optional] Enter a type in the [Link Type](#) column of the list to indicate the type of relation between the objects.

Every object has two lists that show the traceability links connected to it:

- [Outgoing Traceability Links](#) (on the [Depends On](#) facet) - Lists all the objects that the object points to with traceability links.
- [Incoming Traceability Links](#) (on the [Impacts](#) facet) - Lists all the objects that point to the object with traceability links.

## 8 Administering PowerDesigner Web

One or more administrators must install and configure PowerDesigner Web and manage repository users and groups. Administrators can also monitor repository logs and define extensions to make custom properties available for objects.

### 8.1 Installing the PowerDesigner Web Server

PowerDesigner Web allows you to view any PowerDesigner diagram and to create and edit certain diagrams in your Web browser. The PowerDesigner installation disc includes components that are required to browse your repository from the web, along with a standard Apache Tomcat Web server. Before beginning the installation, you should already have created your repository database and have the DBMS user name and password to hand.

#### Context

The installer will:

- Install or upgrade the PowerDesigner Web server.
- Install or upgrade the legacy *PowerDesigner Portal* server.
- Install a node.js v4.2.2 server, which makes your process models available for browsing and importing directly into the SAP NetWeaver Developer Studio Process Composer v7.3 EHP1 SP15 or higher.

#### **i** Note

You should ensure that a node.js server is not already in use on the server, as the installer may attempt to modify the existing installation or fail in its own installation.

- Install the repository to the database if it is not already present.

If the repository database server is not a Windows server or is unable to support the additional workload, then we recommend installing the PowerDesigner Web server on another machine on the same LAN segment. We recommend as a minimum, a dual-core machine, with 2-4GB of RAM.

When configuring your Java virtual machine memory, we recommend the following initial values:

Table 80:

	32-Bit Windows	64-Bit Windows		
Installed Memory	2GB	2GB	4GB	8GB
Initial Java heap size (Ms)	500 MB	500 MB	1000 MB	1000 MB
Maximum Java heap size (Mx)	1000 MB	1300 MB	3000 MB	6000 MB

	32-Bit Windows	64-Bit Windows		
Installed Memory	2GB	2GB	4GB	8GB
Maximum Permanent Generation size (MaxPermSize)	250 MB	250 MB	250 MB	250 MB

As the number of concurrent users increases or your models become larger, you may need to add more cores and memory and increase these values to maintain performance.

## Procedure

1. Navigate to and double-click `Autorun.exe` in your PowerDesigner DVD to launch the installer, and click [Install PowerDesigner Portal 16.6](#). Alternatively, if you have downloaded an install, double-click `PowerDesigner166_Portal.exe`.
2. Choose the language to install PowerDesigner Web in and then click [OK](#) to go to the welcome page.  
The chosen language will be set as the default interface language for users connecting to PowerDesigner Web, but they can choose from any of the supported languages from the login or home page.
3. Click [Next](#) to go to the license agreement page, and select the location where you are installing the software. Read the License Agreement and click the [I Agree](#) radio button to accept the terms of the agreement. If you click [I Do Not Agree](#), you cannot proceed with the Setup program and you will have to cancel the install.

### Note

You can print the License Agreement from the `Setup\Licenses` directory of the installation media.

4. Click [Next](#) to go to the directory selection page. Accept the default installation directory or choose another by clicking the [Browse](#) button.
5. Click [Next](#) to go to the application server page. By default, the installer will install a new 32-bit or 64-bit Tomcat 7 server. If you want to use one of the other supported servers, select it and specify its location. Default server ports may be provided that you must verify. At least one port is required in order to create a connection profile and connect to the repository database.

### Note

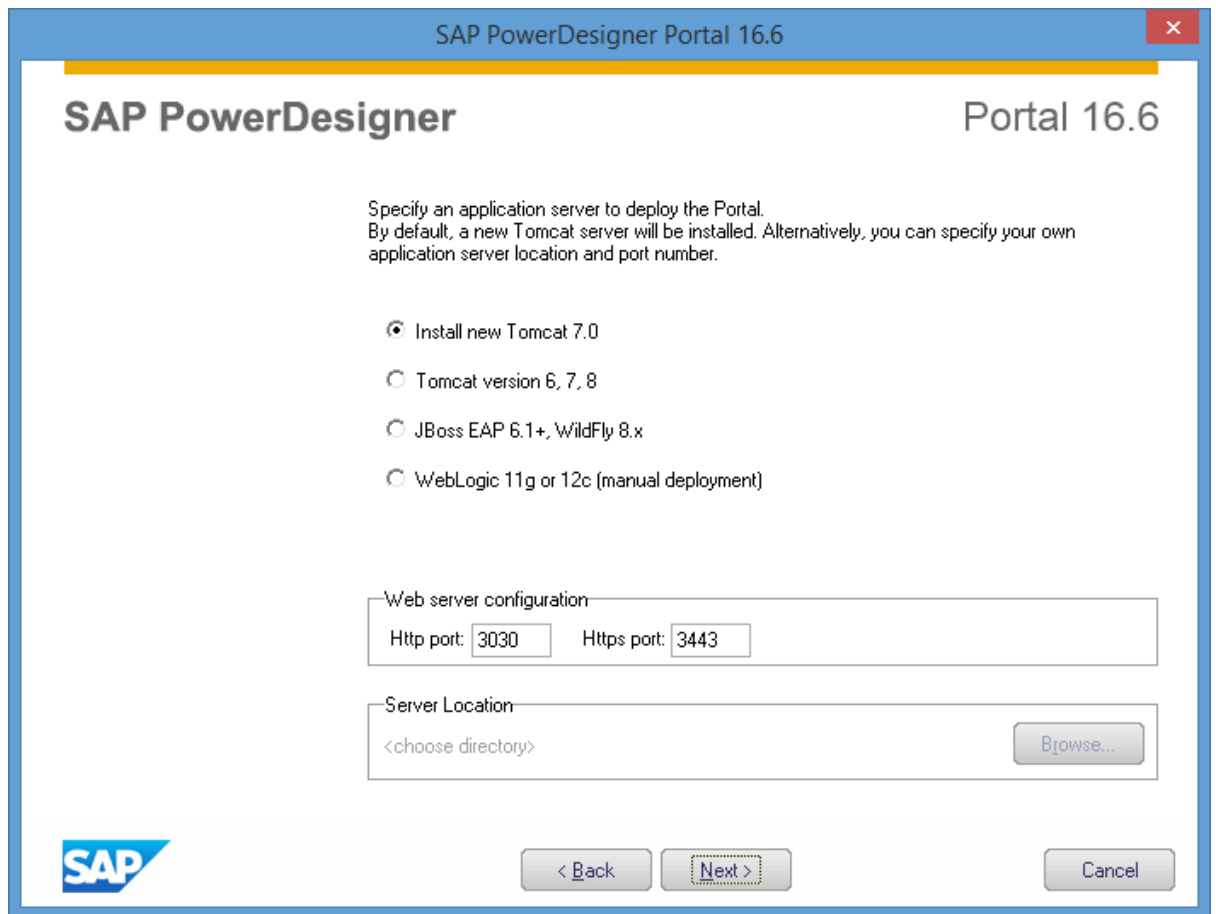
If you choose the WebLogic application server, you must deploy the archive directory (by default, the `weblogic_openfolder` directory inside your installation directory) from your WebLogic Administrative Console once the setup has completed.

### Note

If you choose an existing Tomcat server, to optimize performance, you should ensure that the following compression options are set in your **<Connector>** element in `Tomcat/conf/server.xml`:

```
compression="on"
compressionMinSize="2048"
noCompressionUserAgents="gozilla, traviata"
compressableMimeType="text/html,text/xml,application/xml,application/atom+xml,application/x-font-ttf,application/javascript,application/json,text/css"
```





6. Click [Next](#) to go to the database parameters page, which lets you enter the appropriate parameters for your database. If you select the [Use Windows Authentication](#) checkbox, you will need to select the [This account](#) option on the [Log On](#) tab of the web server service property sheet before starting the service.

7. Click [Next](#) to go to the license server page and specify the name of the computer that is used as a license server.

If you do not use a license server, you can select the [I don't have a License Server](#) option. You will be able to proceed with the installation, but you will not be able to create or edit diagrams and objects through PowerDesigner Web.

8. Click [Next](#) to go to the information page which summarizes your choices.
9. Click [Next](#) to accept the current settings and start copying files.

A progress box is displayed and setup copies files to the destination directory.

10. When the setup is complete, click [Finish](#) to exit the wizard.

The server connects to the database and detects whether the repository is already created in the database and if this is not the case, it will create it. In this situation, you must connect to the repository for the first time with the following credentials:

- [User Name](#): **ADMIN**
- [Password](#): **ChangeMe** - you will immediately be prompted to change the password.

## 8.2 Controlling Repository Access

The repository administrator is responsible for controlling access to the documents stored in the repository by creating users and groups and assigning them rights, permissions, and profiles.

### Context

Repository rights give users access to general repository features, while permissions give them access to particular locations in the repository. The following rights and permissions are available:

Table 81:

Rights (Entire Repository)	Permissions (Per Folder or Item)
<ul style="list-style-type: none"><li>• <b>Connect</b> - Connect to the repository and view diagrams in PowerDesigner Web.</li><li>• <b>Edit on Web</b> - Create and edit diagrams in PowerDesigner Web.</li><li>• <b>Edit Extensions on Web</b> - Create and edit custom properties in PowerDesigner Web. Gives access to the <a href="#">Administration/Extensions</a> tile.</li><li>• <b>Freeze Versions</b> - (only used with the desktop PowerDesigner client).</li><li>• <b>Lock Documents</b> - (only used with the desktop PowerDesigner client).</li><li>• <b>Manage Branches</b> - (only used with the desktop PowerDesigner client).</li><li>• <b>Manage Configurations</b> - (only used with the desktop PowerDesigner client).</li><li>• <b>Manage All Documents</b> - Perform any action on any document version. Implicitly includes <b>Full</b> permission on all repository documents.</li><li>• <b>Manage Users &amp; Permissions</b> - Create, modify, and delete repository users and groups, grant them rights, and add them to groups. Users with this right can list all repository documents and set permissions on them without needing explicit <b>Full</b> permission. Gives access to the <a href="#">Administration/Users</a> and <a href="#">Groups</a> tiles.</li><li>• <b>Manage Repository</b> - Create, upgrade, and delete the repository database. Gives access to the <a href="#">Administration/Settings</a> tile.</li></ul>	<ul style="list-style-type: none"><li>• <b>List</b> - View the document or folder in the repository browser and in search results. Without this permission, the folder or document is hidden from the user.</li><li>• <b>Read</b> - Also open and compare documents.</li><li>• <b>Submit</b> - Also propose changes to the document for review by a user with <b>Write</b> permission.</li><li>• <b>Write</b> - Also review changes by other users and publish changes directly.</li><li>• <b>Full</b> - Also manage permissions granted to users and groups.</li></ul> <div><p><b>Note</b></p><p>Administrators, who have implicit <b>Full</b> permission on all repository objects, will only receive diagrams for review if they have been granted explicit <b>Write</b> permission on them.</p></div>

### Procedure

1. [recommended] Connect the repository to an SMTP server to enable the automatic sending of emails for passwords, changelist submissions, and other notifications (see [Connecting to an SMTP Server for Notifications](#) [page 169]).

2. Determine how you will manage user authentication. You can choose one or more of:
  - PowerDesigner-managed authentication - Specify an appropriate password policy (see [Defining a Password Policy \[page 170\]](#)).
  - LDAP authentication - Connect the repository to an LDAP server to manage user access (see [Connecting to an LDAP Server for User Authentication \[page 164\]](#)).
  - X.509 certificate-based single sign-on - [PowerDesigner Web-only] Configure the server appropriately (see [Enabling Single Sign-On for PowerDesigner Web \[page 172\]](#)).

### **i** Note

LDAP or X.509 certificates are only used for authentication. Rights and permissions on repository folders and documents are controlled in the repository.

3. [optional] Create high-level functional groups (see [Creating Repository Groups \[page 151\]](#)) to organize users by type and assign appropriate rights to them to govern general actions that they can perform in the repository (see [Granting Rights to Users and Groups \[page 154\]](#)).

For example:

Table 82:

Groups	Rights
Administrators	Connect, Manage All Documents, Manage Users & Permissions, Manage Repository
Senior Architects	[use the PowerDesigner desktop client] Connect, Edit on Web, Freeze Versions, Lock Versions, Manage Branches, Manage Configurations
Architects	[use the PowerDesigner desktop client] Connect, Edit on Web, Freeze Versions, Lock Versions
Business Analysts	Connect, Edit on Web
Process Owners	Connect, Edit on Web, Edit Extensions on Web
Stakeholders	Connect (to provide read-only access to PowerDesigner Web).

### **i** Note

There is no requirement to create groups - you can assign rights and permissions to individual users - but we recommend that in all but the smallest deployments, you do create groups to simplify the process.

4. [optional] Apply profiles to your groups as necessary to filter the PowerDesigner interface to hide or render read-only types of models, objects, and properties, and to specify defaults for interface elements, options and preferences for different kinds of users . User profiles are developed and deployed only using the PowerDesigner desktop client but are applied to both the desktop client and PowerDesigner Web (see *Core Features Guide > Administering PowerDesigner > Customizing the PowerDesigner Interface > Using Profiles to Control the PowerDesigner Interface*).
5. Create an appropriate folder structure in the repository (see [The Repository \[page 10\]](#)) to enable you to group documents by project or in any other appropriate way, and to simplify the granting of permissions.

In this example, we imagine the following simple folder structure in which processes are organized at a high-level by line of business:

- Library
- Process Map
- Process Diagrams

- HR
  - Sales
6. Determine your review policy either at a global or project by project level. PowerDesigner supports the following kinds of policy:
    - Simple review - Change lists submitted by users with the **Submit** permission are reviewed by users with the **Write** or **Full** permission.
    - Peer review - Users with the **Write** or **Full** permission voluntarily submit change lists for review.
    - Direct check in - The **Submit** permission and change lists are not used, and users all check in changes without review.
  7. Create development groups and implement your review policies by assigning appropriate permissions to control what actions users and groups can perform on particular repository documents and folders.  
 In this example, we propose a simple group structure with permissions based on role and line of business:
    - Enterprise Architects - Have full control over all documents.
    - Process Analysts - Maintain the process map and review business process diagrams for publication in the repository.
    - Process Owners - May submit business process diagrams for their domain.
    - Stakeholders - Have read access to all documents by default.

Table 83:

Group	Library	Process Map	Process Diagrams/HR	Process Diagrams/Sales
Enterprise Architects	Full	Full	Full	Full
Process Analysts	Write	Write	Write	Write
Process Owners - HR	Submit	Read	Submit	Read
Process Owners - Sales	Submit	Read	Read	Submit
Stakeholders	Read	Read	Read	Read

8. Create as many users as necessary either manually (see [Creating Repository Users \[page 149\]](#)) or via LDAP (see [Creating Externally-Authenticated Repository Users \[page 167\]](#)) and assign them to appropriate groups (see [Adding Users and Groups to a Group \[page 153\]](#)) according to their roles and project responsibilities.  
 There is no limit to the number of groups to which a user or group can be assigned, and users benefit from the cumulative total of all the rights and permissions they receive.

## 8.2.1 Creating Repository Users

The repository administrator is responsible for creating user accounts to enable users to connect to the repository and access the content that they need.

### Context

The following standard users are automatically created in each PowerDesigner repository:

- **ADMIN** - Has all available rights and implicit **Full** permission on all repository folders.
- **\_ADMIN** - Is created as a temporary emergency user for connecting to a repository when no administrator is able to access it (see [Obtaining Emergency Access to the Repository \[page 157\]](#)).

### **i** Note

This procedure is for creating users authenticated by the repository. PowerDesigner also supports delegating authentication of users to an LDAP server (see [Connecting to an LDAP Server for User Authentication \[page 164\]](#)) and authentication by X509 certificate (see [Enabling Single Sign-On for PowerDesigner Web \[page 172\]](#)).

## Procedure

1. From the homepage, click ► [Administration](#) ► [Users](#) ►, and then click the + button to create a user and open its property sheet.
2. Enter the following properties as appropriate:

Table 84:

Property	Description
Login Name	Specifies the account name used to connect to the repository.
Managed by	By default, users must enter a password managed by PowerDesigner to connect to the repository. To allow them to enter their standard corporate password or use single-sign on, select <a href="#">External (LDAP)</a> (see <a href="#">Creating Externally-Authenticated Repository Users [page 167]</a> ).
Full Name	Specifies the real name of the user.
Email	Specifies the email address of the user. If you have specified an SMTP server (see <a href="#">Connecting to an SMTP Server for Notifications [page 169]</a> ) this address will be used to send the password.
Comment	Specifies any additional information about the user.
Status	Specifies the status of the user, which can be: <ul style="list-style-type: none"> <li>○ Active - the user can access the repository.</li> <li>○ Inactive - the user is no longer active in the repository (see <a href="#">Deactivating Users [page 156]</a>) and may not connect. The user remains in the List of Users and can be reactivated at any time.</li> <li>○ Blocked - the user has violated one of the rules of the password policy (see <a href="#">Defining a Password Policy [page 170]</a>), and cannot access the repository until an administrator unblocks her account (see <a href="#">Unblocking Blocked Users [page 156]</a>).</li> </ul>

Property	Description
Rights	<p>Select the checkboxes corresponding to the rights you want to assign. The following rights are available:</p> <ul style="list-style-type: none"> <li>○ <b>Connect</b> - Connect to the repository and view diagrams in PowerDesigner Web.</li> <li>○ <b>Edit on Web</b> - Create and edit diagrams in PowerDesigner Web.</li> <li>○ <b>Edit Extensions on Web</b> - Create and edit custom properties in PowerDesigner Web. Gives access to the <a href="#">Administration/Extensions</a> tile.</li> <li>○ <b>Freeze Versions</b> - (only used with the desktop PowerDesigner client).</li> <li>○ <b>Lock Documents</b> - (only used with the desktop PowerDesigner client).</li> <li>○ <b>Manage Branches</b> - (only used with the desktop PowerDesigner client).</li> <li>○ <b>Manage Configurations</b> - (only used with the desktop PowerDesigner client).</li> <li>○ <b>Manage All Documents</b> - Perform any action on any document version. Implicitly includes <b>Full</b> permission on all repository documents.</li> <li>○ <b>Manage Users &amp; Permissions</b> - Create, modify, and delete repository users and groups, grant them rights, and add them to groups. Users with this right can list all repository documents and set permissions on them without needing explicit <b>Full</b> permission. Gives access to the <a href="#">Administration/Users</a> and <a href="#">Groups</a> tiles.</li> <li>○ <b>Manage Repository</b> - Create, upgrade, and delete the repository database. Gives access to the <a href="#">Administration/Settings</a> tile.</li> </ul>

3. If you have not enabled delivery of passwords by email (see [Connecting to an SMTP Server for Notifications \[page 169\]](#)), click the [Change Password](#) button, enter a temporary password identically in the two fields and then click [Change Password](#). Note the temporary password for transmission to the user.
4. Click the [Groups](#) facet and add the user to any appropriate groups (see [Adding Users and Groups to a Group \[page 153\]](#)).  
All users are added to the **Public** group, from which, by default, they inherit the **Read** permission on all the contents of the repository (see [Granting Access Permissions on Repository Items \[page 155\]](#)).
5. Click [Save](#) to complete the creation of the user. If an SMTP server is configured, the password will be sent to the user at the recorded email address.  
Users must log in with their temporary password before the delay specified in the password policy (see [Defining a Password Policy \[page 170\]](#)). When they first log in they will be required to change the temporary password.

## 8.2.2 Creating Repository Groups

The repository administrator is responsible for creating groups of users in the repository. Users are added to groups in order to simplify the granting of rights and permissions and the use of profiles. You can create hierarchies of groups. For example, you could insert the Designers, Quality Assurance, and Documentation groups into the R&D group, to which you assign permissions to documents that all these groups must use.

### Context

The following standard groups are automatically created in each PowerDesigner repository:

- Administrators, [ADMN] - Has, by default, all available rights and implicit **Full** permission on all repository folders.
- All users [PUBLIC] - Has, by default, **Read** permission on the repository root. All users belong to this group and can thus, by default, browse any diagram.
- External users [EXTERNAL] - Has, by default, no rights or permissions. Users authenticated via LDAP or single-sign on (see [Connecting to an LDAP Server for User Authentication \[page 164\]](#) and [Enabling Single Sign-On for PowerDesigner Web \[page 172\]](#)) are automatically added to this group when they connect for the first time.

## Procedure

1. From the homepage, click ► [Administration](#) ► [Groups](#) ►, and then click the + button to create a group and open its property sheet.
2. Enter the following properties as appropriate:

Table 85:

Property	Description
Name	Specifies the name of the group as it will appear in the interface.
Code	Specifies the internal name of the group, which can be used in scripting.
Comment	Describes the group and its purpose.
Rights	<p>Select the checkboxes corresponding to the rights you want to assign. The following rights are available:</p> <ul style="list-style-type: none"> <li>◦ <b>Connect</b> - Connect to the repository and view diagrams in PowerDesigner Web.</li> <li>◦ <b>Edit on Web</b> - Create and edit diagrams in PowerDesigner Web.</li> <li>◦ <b>Edit Extensions on Web</b> - Create and edit custom properties in PowerDesigner Web. Gives access to the <a href="#">Administration/Extensions</a> tile.</li> <li>◦ <b>Freeze Versions</b> - (only used with the desktop PowerDesigner client).</li> <li>◦ <b>Lock Documents</b> - (only used with the desktop PowerDesigner client).</li> <li>◦ <b>Manage Branches</b> - (only used with the desktop PowerDesigner client).</li> <li>◦ <b>Manage Configurations</b> - (only used with the desktop PowerDesigner client).</li> <li>◦ <b>Manage All Documents</b> - Perform any action on any document version. Implicitly includes <b>Full</b> permission on all repository documents.</li> <li>◦ <b>Manage Users &amp; Permissions</b> - Create, modify, and delete repository users and groups, grant them rights, and add them to groups. Users with this right can list all repository documents and set permissions on them without needing explicit <b>Full</b> permission. Gives access to the <a href="#">Administration/Users</a> and <a href="#">Groups</a> tiles.</li> <li>◦ <b>Manage Repository</b> - Create, upgrade, and delete the repository database. Gives access to the <a href="#">Administration/Settings</a> tile.</li> </ul> <p>By default, groups do not have any rights.</p>

3. Click the [Members](#) facet and add any appropriate users and groups to the group (see [Adding Users and Groups to a Group \[page 153\]](#)).
4. Click the [Parents](#) facet and add the group to any appropriate groups (see [Adding Users and Groups to a Group \[page 153\]](#)).
5. Click [Save](#) to complete the creation of the group.



## 8.2.2.1 Adding Users and Groups to a Group

You can add users and groups as members of a group from either the user or the group property sheet.

### Context

There are three ways to add members to a group:

- To add a user to a group from the user's property sheet, click the [Groups](#) facet, which lists the groups to which the user belongs. Click the [+](#) tool to open a list of groups, select one or more, and then click [OK](#) to add the user to them.
- To add a group to a parent group from the child group's property sheet, click the [Parents](#) facet, which lists the groups to which the group belongs. Click the [+](#) tool to open a list of groups, select one or more, and then click [OK](#) to add the group to them.
- To add a user or group to a group from the parent group's property sheet, click the [Members](#) facet, which lists the users and groups which are members of the group. Click the [Add](#) tool to open a list of users and groups, select one or more, and then click [OK](#) to add them to the group.

## 8.2.2.2 Deleting a Group

When you delete a group from the repository you do not delete the members (either users or groups) of the group.

### Procedure

1. From the homepage, click ► [Administration](#) ► [Groups](#) ►.
2. Select a group in the list and click the [Delete](#) tool. The group is removed from the list, and:
  - Any document permissions granted to the group are revoked.
  - Any members of the group lose whatever rights or permissions they had inherited from the group.
  - The group is removed from membership of any groups to which it belonged.
3. Click [Save](#) to save your changes.

## 8.2.3 Granting Rights to Users and Groups

A new user has only the **Connect** right assigned by default and belongs only to the **PUBLIC** group. The repository administrator can grant additional rights to the user either directly or by adding her to other groups.

### Context

#### Note

The rights a user or group receive when they become members of a group (see [Adding Users and Groups to a Group \[page 153\]](#)) are cumulative. For example, a user with the **Manage Branches** right will not lose this right when he becomes a member of a group that has only the **Freeze Versions** and **Lock Versions** rights.

User rights are associated with document permissions (see [Granting Access Permissions on Repository Items \[page 155\]](#)) to define the actions a user can effectively perform on a document.

### Procedure

1. From the homepage, click ► [Administration](#) ► [Users](#) ► (or ► [Administration](#) ► [Groups](#) ►), and click the appropriate user or group in the list to open its property sheet.
2. Select the check boxes corresponding to the rights you want to assign. The following rights are available:
  - **Connect** - Connect to the repository and view diagrams in PowerDesigner Web.
  - **Edit on Web** - Create and edit diagrams in PowerDesigner Web.
  - **Edit Extensions on Web** - Create and edit custom properties in PowerDesigner Web. Gives access to the [Administration/Extensions](#) tile.
  - **Freeze Versions** - (only used with the desktop PowerDesigner client).
  - **Lock Documents** - (only used with the desktop PowerDesigner client).
  - **Manage Branches** - (only used with the desktop PowerDesigner client).
  - **Manage Configurations** - (only used with the desktop PowerDesigner client).
  - **Manage All Documents** - Perform any action on any document version. Implicitly includes **Full** permission on all repository documents.
  - **Manage Users & Permissions** - Create, modify, and delete repository users and groups, grant them rights, and add them to groups. Users with this right can list all repository documents and set permissions on them without needing explicit **Full** permission. Gives access to the [Administration/Users](#) and [Groups](#) tiles.
  - **Manage Repository** - Create, upgrade, and delete the repository database. Gives access to the [Administration/Settings](#) tile.
3. Click [Save](#) to save your changes.

## 8.2.4 Granting Access Permissions on Repository Items

The repository administrator or a user with **Full** permission on a document or folder can grant permissions on it. Permissions can be granted on the repository root, folders, and models, but not on individual diagrams or objects.

### Context

A user wanting to browse and edit documents in the repository must have at least the following permissions:

- Browsing - **Read** permission. When you create a user, she is inserted into the **Public** group, which by default is granted **Read** permission on the repository root.
- Creating or editing a diagram - **Submit** on the target folder to propose a new diagram or edits to an existing diagram, or **Write** to publish them directly.

#### Note

Object permissions should be viewed in conjunction with the rights granted to users or groups (see [Granting Rights to Users and Groups \[page 154\]](#)).

### Procedure

1. From the homepage, click [Repository](#), navigate to the item, and click its [Permissions](#) facet.
2. Click the **+** button to open a list of available users and groups, select one or more, and click [OK](#) to add them to the list.
3. For each user or group, select the permission you want to grant in the [Granted Permission](#) column. The following permissions are available:
  - **List** - View the document or folder in the repository browser and in search results. Without this permission, the folder or document is hidden from the user.
  - **Read** - Also open and compare documents.
  - **Submit** - Also propose changes to the document for review by a user with **Write** permission.
  - **Write** - Also review changes by other users and publish changes directly.
  - **Full** - Also manage permissions granted to users and groups.

#### Note

Administrators, who have implicit **Full** permission on all repository objects, will only receive diagrams for review if they have been granted explicit **Write** permission on them.

The [Effective Permissions](#) column shows the highest level of permission that each user or group has on the item either directly or via a group.

4. [optional] Click the [Copy Permissions to All Children](#) tool to propagate changes to the item's children.

When you create a folder or diagram, the permissions defined on its parent folder are propagated to it. However, subsequent changes made to the permissions for the parent are not applied to its children unless

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you click this tool. For example, if you grant **Write** permission on the **Major Project** folder, to the **Development Team 2** group, then they will not automatically be granted **Write** access on its existing contents.

## 8.2.5 Unblocking Blocked Users

The repository administrator or a user with the **Manage Users & Permissions** right can unblock users blocked for password policy violations.

### Procedure

1. From the homepage, click ► **Administration** ► **Users** ► and click the appropriate user in the list to open its property sheet.
2. Click the **Change Password** button. If an SMTP server is configured, the password will be sent to the user at the recorded email address. Otherwise, enter a temporary password identically in the two fields and note it for transmission to the user.

Users must log in with their temporary password before the delay specified in the password policy (see [Defining a Password Policy \[page 170\]](#)). When they first log in they will be required to change the temporary password.

## 8.2.6 Deactivating Users

The repository administrator or a user with the **Manage Users & Permissions** right can deactivate users. An inactive user cannot connect to the repository, but the information about his checkins and other repository actions remains available to other users.

### Context

#### Caution

A user cannot deactivate himself, even if he has the **Manage Users & Permissions** right.

### Procedure

1. From the homepage, click ► **Administration** ► **Users** ►, and click the **Edit** tool.

2. Locate the user in the list and then select its checkbox in the *Deactivated User* column.

The user remains in the list but may no longer connect to the repository. If an inactive user is later reactivated he will have lost all previous rights, permissions, and group memberships, and will begin with only the **Connect** right.

## 8.2.7 Obtaining Emergency Access to the Repository

In the event that no administrator is able to log in to a running repository, you can create an emergency administrator account to regain access.

### Procedure

1. If the repository proxy is not already in use in your environment, install it on the repository server or a nearby machine for which you are an administrator (see *Installation Guide > Installing the Repository Proxy*).
2. Launch the Repository Proxy Configuration utility (`pdproxyconf16.exe`).

#### Note

On a Windows 7 machine, you must open the utility by right-clicking its icon or menu item and selecting *Run as administrator*.

3. If an instance is not already available for the repository in question, create one, specifying the appropriate data source, user name, password, and port to connect to the repository database.
4. Select the appropriate instance and click the *Create Emergency User* button to open the Emergency Password dialog, and then select *Show password* to see an automatically generated password, for use with the special `_ADMIN` account.
5. Navigate to the PowerDesigner Web homepage, enter `_ADMIN` as the login name and the generated password in the Password field, and click *OK*.

#### Note

If you do not access the repository within 15 minutes, you must repeat the procedure to generate a new temporary password.

6. Reset the administrator's password or create a new administrator account as appropriate (see *Creating Repository Users [page 149]*).
7. Return to the homepage, click the `_ADMIN` user next to the menu tool and select *Log Out* to disconnect the emergency user from the repository. The emergency user is deleted after disconnection.

## 8.3 Monitoring Repository Activities

A repository administrator can review lists of general repository activities, change lists, and file locks.

To access these lists, click ► [Administration](#) ► [Activities](#) ▾ and then click the appropriate tile:

- [Log](#) - Lists operations performed on repository documents, including creations, change list submissions and approvals, moves, and deletions.
- [Change Lists](#) - Lists all change lists that have been created in the repository, including those that have a status of **Draft**, **Submitted**, **Approved**, and **Rejected**.
- [Locks](#) - Lists the repository documents that are currently locked in the repository. To remove a lock from a document, select it by clicking in the leftmost column of its entry and click the [Remove Lock](#) tool.

To reorder any of these lists by values in a column, click in the column header. Some columns also support filtering on their values. To filter the list by values in any of its text fields, enter two or more characters in the search box above it.

## 8.4 Creating Custom Properties

Users with the **Edit Extensions on Web** right can define new custom properties for modeling objects. When you define a custom property it becomes immediately available to all objects of the specified type in all models of that type on their [Info](#) facet, in a section entitled [Custom Properties](#).

### Context

### Procedure

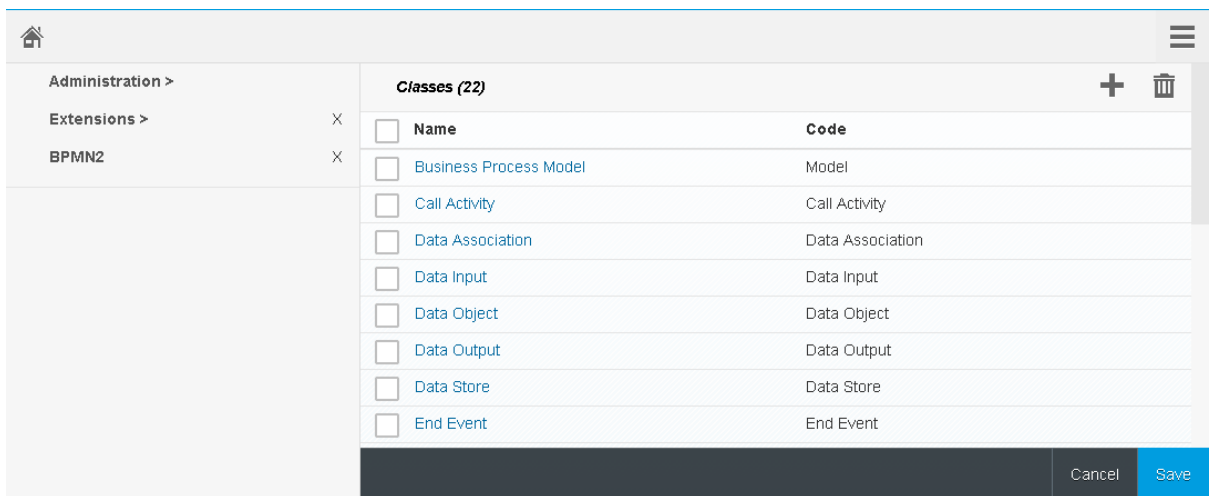
1. From the homepage, click ► [Administration](#) ► [Extensions](#) ▾. The list of extensions contains:
  - **BPMN2** - To add custom properties to BPMN 2.0 Descriptive and Executable process diagram objects.
  - **Enterprise Architecture** - To add custom properties to enterprise architecture diagram objects.
  - **Process Map** - To add custom properties to process map objects.
  - **Requirements** - To add custom properties to requirements documents objects.

2. Click the name of the extension you want to edit to open it.

The extensions list all the classes of objects available to define custom properties for.


3. If the object type for which you want to define a new property is present in the list, click it to open it in the editor. If it is not present, click the + button, and click the object type to add it and open it in the editor.

In this example, the classes in the **BPMN2** extension are listed:



4. Click the + button to define a new property for the object type, and enter:

Table 86:

Property	Description
Name	Specifies the name of the property as it will appear in the interface.
Code	<p>Specifies the internal name of the property, which must not contain spaces or the dot character and must be unique for this class of objects.</p> <div>  <b>Caution</b>            If you change the code after the property is in use, then any values set in models will be lost.         </div>
Data type	<p>You can choose between:</p> <ul style="list-style-type: none"> <li>Boolean - Yes/No values</li> <li>Integer - Whole number values</li> <li>String - Single-line textual values</li> <li>Text - Multiline textual values</li> <li>Object - Link to another object</li> </ul>
Default value	Specifies the value of the property that will be set in the interface by default.
Object type	[object] Specifies the type of object that can be selected for the property. Click the tool to select the object type from a list.

In this example, a new boolean property is created for the **Data Store** class:

The screenshot shows the 'High Security' configuration page in the PowerDesigner Web Administration interface. The left sidebar contains a navigation menu with the following items: 'Administration >', 'Extensions >', 'BPMN2 >', 'Data Store >', and 'High Security'. The main content area is titled 'High Security' and features an 'Info' icon. Below this is a 'General' tab with four input fields: 'Name' (High Security), 'Code' (HighSecurity), 'Data Type' (Boolean), and 'Default Value' (No). At the bottom right are 'Cancel' and 'Save' buttons.

5. Click [Save](#) to save your changes.

The custom property is immediately available to all objects of the specified type in all models of that type created in PowerDesigner Web on their [Info](#) facet, in a section entitled [Custom Properties](#):



<b>Info</b>	0 Children	0 Depends On	0 Impacts	0 Diagrams
-------------	------------	--------------	-----------	------------

▼

General

Name:

HR

Comment:

Capacity:

0

Unlimited:

☒

>

Definition

▼

Custom Properties

High Security:

☒

#### **i** Note

Each item in the PowerDesigner Web list of extensions is stored in the repository as a dedicated PowerDesigner extension file (.xem), which is automatically attached to any appropriate model opened in the PowerDesigner desktop client to display the custom properties. Editing these PowerDesigner Web extension files in the PowerDesigner desktop client Resource Editor is not supported.

#### **i** Note

Models created prior to v16.5 SP05 and models created in the PowerDesigner desktop client will not automatically display custom properties. To enable them, you must check the model out with the desktop client, manually attach the appropriate extension file, and check it in again.

## 8.5 Configuring the PowerDesigner Web Server

The repository administrator is responsible for configuring the PowerDesigner Web server and for maintaining its connections to the database, license, LDAP, and SMTP servers.

The following parameters can be set from the homepage by clicking ► [Administration](#) ► [Settings](#) ► [Core Settings](#) ►:

Table 87:

Parameter	Description
Repository name	Specifies the name of the repository.
Repository description	Describes the repository.
Session timeout	Specifies the amount of time that the browser session is permitted to be idle before it is automatically logged out. Default 15 minutes.
Refresh interval	Specifies the amount of time between the browser checking for changes in the repository database. Default 5 minutes.
Maximum users	Specifies the maximum number of users that may connect to PowerDesigner Web at any one time. Default 10 users.

### 8.5.1 Connecting to the Database Server

A database server and database to contain the repository must be specified during installation, but you can change this connection to make PowerDesigner Web point to a different repository database.

#### Context

The primary database server parameters are available through the standard administration interface, but logging and caching parameters can only be modified by editing the configuration files on the host server (see [Configuring Other PowerDesigner Web Parameters \[page 175\]](#)).

#### Procedure

1. From the homepage, click ► [Administration](#) ► [Settings](#) ► [Database Server](#) ►.
2. Set the following General parameters:

Table 88:

Param Name	Description
Database type	<p>Specifies the type of DBMS that hosts the repository.</p> <div> <b>Note</b>            If you want to change the database type, you must copy the appropriate JDBC driver jar to the Tomcat\webapps\powerdesigner-web\WEB-INF\lib directory and restart the server before modifying this value.         </div>
Database driver	Specifies the JDBC driver class used to connect to the repository database.
Host	Specifies the name of the host machine for the repository database. In certain environments, a fully qualified domain name may be required.
Port	Specifies the port number of the host machine through which the repository database is available.
Database name	Specifies the name of the repository database.
User name	Specifies the database user name that the repository uses to access the DBMS.
Password	Specifies the database password that the repository uses to access the DBMS. This must be entered normally, and will be encrypted as soon as the server connects to the database.

3. [optional] Set the following advanced database parameters:

Table 89:

Param Name	Description
Isolation level	Specifies the isolation level used to isolate transactions in a multi-user environment. By default, level 1 is used for SAP® SQL Anywhere® and level 2 for SAP® Adaptive Server® Enterprise. See your DBMS documentation for information about the behavior of each level in your environment.
Initial pool size	Specifies the initial number of connections in the connection pool. The default is 1.
Min idle	Specifies the minimum number of connections that can remain idle in the pool, without extra ones being created. Specify 0 to create none. The default is 1.
Max idle	Specifies the maximum number of connections that can remain idle in the pool, without extra ones being released. Specify -1 for no limit. The default is 3.
Max wait	Specifies the maximum number of milliseconds that the pool will wait when there are no available connections for a connection to be returned before throwing an exception. Specify -1 to wait indefinitely. The default is 2.
Max active	Specifies the maximum number of active connections that can be allocated from this pool at the same time. Specify -1 for no limit. The default is 10.

Param Name	Description
Max bytes per char	For non-Oracle unicode or multi-byte character set databases, specify the bytes per character used by the database: <ul style="list-style-type: none"> <li>1-byte - For SBCS (Single-Byte Character Set)</li> <li>2-byte - [default] For DBCS (Double-Byte Character Set)</li> <li>3-byte - For Unicode or MBCS (Multi-Byte Character Set)</li> </ul>
Charset	[ASE only] Specifies the character set used by the database.

- Click [Save](#) to save your changes. You must restart the *PowerDesigner Portal Server* for changes to take effect.

## 8.5.2 Connecting to a License Server

To enable creation and editing of diagrams, a repository administrator must specify a connection to a SySAM license server. A license server is generally specified during installation, but you can specify or change this connection at any time.

### Procedure

- From the homepage, click ► [Administration](#) ► [Settings](#) ► [License Server](#) ►.
- Modify any appropriate parameters in the [General](#) group box:

Table 90:

Parameter	Description
Host	Specifies the license server host machine.
Port	Specifies the port to be used.

- Click [Save](#) to save your changes.

## 8.5.3 Connecting to an LDAP Server for User Authentication

A repository administrator can delegate the authentication of repository users to an LDAP server. PowerDesigner supports authentication via Active Directory and a number of other LDAP implementations. You can optionally allow automatic creation of repository accounts when an LDAP user connects to the repository for the first time.

## Context

### Note

LDAP integration provides only authentication. Authorization is always managed via the rights and permissions granted within the repository environment.

## Procedure

1. From the homepage, click ► [Administration](#) ► [Settings](#) ► [LDAP Server](#) ►.
2. Select the appropriate [Server type](#) from the list to set default values for the other parameters.  
For Active Directory, if your environment supports anonymous binding, you may be able to connect without further configuration. Click the [Test Connection](#) button and follow the instructions on the dialog. If your connection succeeds then consider enabling the [Use Secure Socket Layer \(SSL\)](#) and [Auto-create user accounts in repository](#) options and go directly to step 5 [page 167].
3. Modify any appropriate parameters in the [General](#) group box:

Table 91:

Parameter	Description
Server type	<p>Specifies the type of the LDAP server and sets default values for the server. The following types are available:</p> <ul style="list-style-type: none"><li>○ Active Directory - if your environment supports anonymous binding, you may be able to connect without further configuration. Click the <a href="#">Test Connection</a> button and follow the instructions on the dialog.</li><li>○ Netscape Directory Server</li><li>○ OpenLDAP</li><li>○ Oracle Directory Server</li><li>○ Other</li></ul> <p>If you edit any parameters and want to revert to the defaults, click the <a href="#">Default Settings</a> button.</p>
Provider URL	<p>Specifies the URL for the LDAP provider. By default, for Active Directory, PowerDesigner will automatically detect the nearest LDAP server and use this for authentication, initializing this field to:</p> <pre>LDAP://_ldap.&lt;domain&gt;:389</pre> <p>For other servers, this field is initialized to:</p> <pre>LDAP://ldap.&lt;domain&gt;:389</pre> <p>and you should replace <code>ldap</code> with the name or IP address of your LDAP server.</p>

Parameter	Description
Use Secure Socket Layer (SSL)	<p>Instructs PowerDesigner to connect to the LDAP server using SSL, changing the LDAP provider port to the standard secure 636. If you have deployed the <a href="#">PowerDesigner Portal</a>, you must obtain and register a certificate authority certificate in the Java installation.</p> <p><b>i Note</b></p> <p>Users installing PowerDesigner may need to contact their administrator to obtain a certificate and use <code>\Windows\System32\certmgr.msc</code> to register it. Right-click <a href="#">Trusted Root Certification Authorities</a> and select <b>All Tasks &gt; Import</b>, then follow the wizard instructions.</p>
Default search base	<p>Specifies the level at which the query begins its search for users in the LDAP tree. By default this is initialized to the domain components (DCs) of the LDAP server. For example:</p> <pre>dc=acme, dc=com</pre> <p>You could include the location of the User directory such as <code>OU=Users, dc=devpd, dc=local</code>. If the location of the User directory is not specified here, then you must include it in the <a href="#">Authentication Search Base</a>.</p>
Anonymous bind	<p>[default] Specifies that the LDAP server supports anonymous access. If you deselect this parameter, you must specify a bind user distinguished name (DN) and password for an account that has permissions to query the LDAP server.</p> <p><b>i Note</b></p> <p>If the Bind user DN is in the same DN as the <a href="#">Authentication search base</a> then you can simply enter the user id for the search. Otherwise, you must enter the full DN for that account. For example, if the <a href="#">Default search base</a> is <code>ou=people, dc=Onebridge, dc=qa</code>, and you have a user <code>cn=csitest, cn=users, dc=Onebridge, dc=qa</code>, then the Bind DN must be <code>cn=csitest, cn=users, dc=Onebridge, dc=qa</code>.</p>
Auto-create user accounts in repository	<p>Specifies that any users corresponding to the LDAP authentication search filter can connect to the repository, and will have an account created for them in the repository when they do so. If you do not select this option, then an administrator must create an account for each user before they can connect.</p>

4. Modify any appropriate parameters in the [Authentication](#) group box:

Table 92:

Parameter	Description
Search filter	<p>Specifies the LDAP query that selects users for authentication. By default this is initialized to (for Active Directory):</p> <pre>(&amp;(objectClass=person)(userPrincipalName={uid}))</pre> <p>and for other servers:</p> <pre>(&amp;(objectClass=person)(cn={uid}))</pre> <p>To determine an alternative filter, you must know the properties of the users defined in the Active Directory, and which property (for example, name or samAccountName) is being used as the login name.</p>
Search base	<p>Specifies the location of the User list in your LDAP server. By default this is initialized to the same value as the <a href="#">Default search base</a>. If the default search base does not include your users you must specify an appropriate search base here. Users may be in a common node such as <code>cn=Users</code> or an organization unit such as <code>OU=Users</code>. To determine the correct search base, you should use an LDAP browser to look at the full distinguished name of a user. Note that your Bind DN may be a user in a different node in the tree than general users so it is very important that you have the correct information for each.</p>
Search scope	<p>Specifies the scope of the authentication search. You can choose between:</p> <ul style="list-style-type: none"> <li>◦ <code>subtree</code> - [default] the search begins at the level of the Search base and also searches any subnodes.</li> <li>◦ <code>onelevel</code> - only the level specified in the Search base is searched</li> </ul>
Authentication method	<p>Specifies the method to use for authentication requests. You can choose between:</p> <ul style="list-style-type: none"> <li>◦ <code>simple</code> - [default] clear text authentication. If SSL is enabled, then the password will be encrypted.</li> <li>◦ <code>DIGEST-MD5</code> - hashed password authentication. If you select this option, you must specify a digest format.</li> </ul>

5. Click [Save](#) to save your changes.

#### **i** Note

If you have not selected the [Auto-create user accounts in repository](#) option, you must create repository accounts for each user that you want to be able to connect. Even if you select this option, we recommend that you create appropriate user accounts in advance in order to grant appropriate rights and permissions on your various repository folders and documents. LDAP users connecting to the repository are automatically added to the **External users** and **All users** groups, and are limited, by default, to read access on the repository.

## 8.5.3.1 Creating Externally-Authenticated Repository Users

If you have connected the repository to an LDAP server and selected the [Auto-create user accounts in repository](#) option or have enabled single sign-on, any users with valid accounts in your organization can, by default, connect

to and browse the repository using PowerDesigner Web. You can modify this default behavior by changing the rights and permissions of the **External users** group, or provide specific rights and permissions for some users by pre-creating repository user accounts for them.

## Context

For example, if you want to allow any user connecting to the repository to create and edit diagrams in the **Processes** folder and submit them for approval, you would:

- Grant the **External users** group the **Edit on Web** right (see [Granting Rights to Users and Groups \[page 154\]](#)).
- Grant the **External users** group **Submit** permission on the **Processes** folder (see [Granting Access Permissions on Repository Items \[page 155\]](#)).

In many environments, you will want to grant different rights to different groups of users, or provide them with different permissions. For example you may want to allow users to submit changes only for processes in their particular line of business based on sub-folders beneath the **Processes** folder. In this or other more complicated cases (or if you want to restrict which users can connect to the repository and have not selected the [Auto-create user accounts in repository](#) option), you should create accounts for your anticipated users before inviting them to connect.

## Procedure

1. From the homepage, click ► [Administration](#) ► [Users](#) ►, click the [Edit](#) tool and then click the + button to open the new user's property sheet.
2. Enter the user's corporate account name in the [Login name](#) field, select [External \(LDAP\)](#), and click the [Check Name](#) button to verify the login name and auto-fill the remaining fields, which are set, with the exception of [Comment](#), to read-only.

### Note

You may need to enter your own corporate account name and password to connect to the LDAP server, even if your connection is configured for anonymous binding.

3. In the [Rights](#) panel, select the check boxes corresponding to the rights you want to assign. The following rights are available:
  - **Connect** - Connect to the repository and view diagrams in PowerDesigner Web.
  - **Edit on Web** - Create and edit diagrams in PowerDesigner Web.
  - **Edit Extensions on Web** - Create and edit custom properties in PowerDesigner Web. Gives access to the [Administration/Extensions](#) tile.
  - **Freeze Versions** - (only used with the desktop PowerDesigner client).
  - **Lock Documents** - (only used with the desktop PowerDesigner client).
  - **Manage Branches** - (only used with the desktop PowerDesigner client).
  - **Manage Configurations** - (only used with the desktop PowerDesigner client).



- **Manage All Documents** - Perform any action on any document version. Implicitly includes **Full** permission on all repository documents.
  - **Manage Users & Permissions** - Create, modify, and delete repository users and groups, grant them rights, and add them to groups. Users with this right can list all repository documents and set permissions on them without needing explicit **Full** permission. Gives access to the *Administration/Users* and *Groups* tiles.
  - **Manage Repository** - Create, upgrade, and delete the repository database. Gives access to the *Administration/Settings* tile.
4. Click the *Groups* facet and add the user to any appropriate groups (see [Adding Users and Groups to a Group \[page 153\]](#)).  
All externally-authenticated users are added to:
    - **All users (PUBLIC)** groups, from which they inherit, by default, **Read** permission on all the contents of the repository.
    - **External users (EXTERNAL)** - from which they inherit, by default, the **Connect** right.
  5. Click *Save* to complete the creation of the user.

## 8.5.4 Connecting to an SMTP Server for Notifications

A repository administrator can automate the sending of emails for passwords, changelist submissions, and other notifications to users by specifying an SMTP server. If an SMTP server is not specified, the administrator must distribute passwords manually and notifications related to the creation of comments and the submission and approval of change lists cannot be sent.

### Procedure

1. From the homepage, click ► *Administration* ► *Settings* ► *SMTP Server* ►.
2. Enter appropriate values for each of the following settings:

Table 93:

Setting	Description
SMTP host	Specifies the host name of the SMTP server used to send mail.
SMTP port	Specifies the port number of the SMTP server used to send mail.
Sender's email address	Specifies the email address from which to send mails.
Use Secure Socket Layer (SSL)	Specifies to connect to the SMTP mail server through SSL.
Server requires authentication	Specifies that the SMTP server requires authentication. If you select this option, then you must specify an SMTP account and password, and can instruct PowerDesigner to use Secure Password Authentication (SPA).

3. Click *Save* to save your changes.

## 8.5.5 Defining a Password Policy

In environments where PowerDesigner manages user passwords, the repository administrator is responsible for defining a password policy to ensure that passwords are sufficiently secure and are changed at appropriate intervals.

### Context

#### Note

The password policy governs only users who are not managed by LDAP (see [Creating Externally-Authenticated Repository Users \[page 167\]](#)) or single sign-on (see [Enabling Single Sign-On for PowerDesigner Web \[page 172\]](#)).

### Procedure











1. From the homepage, click  [Administration](#)  [Settings](#)  [Password Policy](#) .
2. Select policy settings as appropriate:

Table 94:

Setting	Description
Password length	Specifies the minimum and maximum permitted length of passwords. This option cannot be disabled. The minimum length for a password is 6 characters.
Password must contain	Specifies that passwords must contain at least one of each of the character types selected.
Disallow reuse of previous  passwords	Prevents users from reusing the specified number of old passwords.
Enforce changing of passwords after  days	Requires that users change their passwords after the specified number of days.
Block inactive users after  days without connection	Blocks users if they try to log in after the specified number of days of inactivity.
Temporarily block users for  minutes after  failures to log in	Blocks users for the specified number of minutes if they submit an invalid combination of username and password the specified number of times.
Temporary passwords issued by an administrator are valid for  days	Specifies the period for which temporary passwords (which are issued when a user is created or unblocked) are valid. Users attempting to use a temporary password after this time will be blocked.

3. Click [Save](#) to save your changes.


If your policy becomes more restrictive, users whose passwords are no longer compliant will be instructed to change their password when next they connect.

## 8.5.6 Enabling SSL for PowerDesigner Web

We recommend that you enable SSL for the PowerDesigner Web server in order to encrypt its communications with client browsers.

### Context

#### Note

This procedure only enables SSL. To configure the server for single-sign on (including SSL), see [Enabling Single Sign-On for PowerDesigner Web \[page 172\]](#). For Tomcat documentation about enabling SSL, see <http://tomcat.apache.org/tomcat-7.0-doc/ssl-howto.html> .

### Procedure


1. Open a command prompt with administrator's privileges and navigate to `JAVA_HOME/bin`, where your `keytool` is located.
2. Create a self-signed key pair to identify the server:

```
keytool -genkeypair -alias serverkey -keyalg RSA -dname  
"CN=<ServerName>,OU=<OrgUnit>,O=<Org>,L=<Locality>,S=<State>,C=<Country>" -keypass  
<SecurePassword> -keystore "<InstallDir>\keystore\server.jks" -storepass  
<SecurePassword>
```

Where:

- `-dname "CN=<ServerName>,OU=<OrgUnit>,O=<Org>,L=<Locality>,S=<State>,C=<Country>"` - should provide appropriate metadata to identify your server.
- `-keystore "<InstallDir>\keystore\server.jks"` - is the path to the keystore which, by default, will be at `C:\Program Files\SAP\PowerDesigner Portal 16\keystore\server.jks`. This command will create the keystore at this location if it does not already exist.
- `-keypass <SecurePassword>` and `-storepass <SecurePassword>` - must be identical and are the secure password that you define for the server key and keystore.

#### Note

A self-signed key pair is sufficient for testing, but users accessing your server will receive a security warning. To securely identify your server, you must request a certificate signed by your certification authority and import it into your keystore (see <https://docs.oracle.com/javase/7/docs/technotes/tools/solaris/keytool.html> ).

3. Edit the `Tomcat/conf/server.xml` file to enable ssl and configure the keystore.

Create a **<Connector>** element with the following values:

```
< Connector
```

```

protocol ="org.apache.coyote.http11.Http11Protocol"
port ="8443"
SSLEnabled ="true"
scheme ="https"
secure ="true"
clientAuth ="false"
sslProtocol ="TLS"
keystoreFile ="<InstallDir>\keystore\server.jks"
keystoreType ="JKS"
keystorePass ="<SecurePassword>"
compression="on"
compressionMinSize="2048"
noCompressionUserAgents="gozilla, traviata"
compressableMimeType="text/html,text/xml,application/xml,application/atom
+xml,application/x-font-ttf,application/javascript,application/json,text/css"/>

```

Where:

- **port** - can be set to any appropriate value.
- **clientAuth** is set to **false** to allow a standard login if the certificate cannot be found.
- **keystoreFile** points to your keystore (by default at C:\Program Files\SAP\PowerDesigner Portal 16\keystore\server.jks).
- **keystorePass** is the **<SecurePassword>** defined for your keystore.
- The compression options are the standard options set by the PowerDesigner Web installer to optimize performance.

#### **i** Note

To restrict access to this port only, comment out any other connector elements.

## 8.5.7 Enabling Single Sign-On for PowerDesigner Web

In environments where X.509 client authentication is in place, an administrator can enable PowerDesigner Web to authenticate users by the user certificate stored on their client machine. The client browser sends a certificate issued by a trusted certificate authority to identify the user and they are logged in automatically, without the need to manually enter their credentials.

### Context

#### **i** Note

This procedure includes enabling SSL.

### Procedure

1. Open a command prompt with administrator's privileges and navigate to `JAVA_HOME/bin`, where your `keytool` is located.

2. Create a self-signed key pair to identify the server:

```
keytool -genkeypair -alias serverkey -keyalg RSA -dname  
"CN=<ServerName>,OU=<OrgUnit>,O=<Org>,L=<Locality>,S=<State>,C=<Country>" -keypass  
<SecurePassword> -keystore "<InstallDir>\keystore\server.jks" -storepass  
<SecurePassword>
```

Where:

- **-dname** "CN=<ServerName>,OU=<OrgUnit>,O=<Org>,L=<Locality>,S=<State>,C=<Country>" - should provide appropriate metadata to identify your server.
- **-keystore** "<InstallDir>\keystore\server.jks" - is the path to the keystore which, by default will be at C:\Program Files\SAP\PowerDesigner Portal 16\keystore\server.jks. This command will create the keystore at this location if it does not already exist.
- **-keypass** <SecurePassword> and **-storepass** <SecurePassword> - must be identical and are the secure password that you define for the server key and keystore.

#### **i** Note

A self-signed key pair is sufficient for testing, but users accessing your server will receive a security warning. To securely identify your server, you must request a certificate signed by your certification authority (see <https://docs.oracle.com/javase/7/docs/technotes/tools/solaris/keytool.html> ).

3. Obtain the client certificate issuer key (\*.cer) for your organization and import it into your keystore:
  - a. In Chrome, select **Menu > Settings > Show advanced settings** and then click **Manage certificates**.
  - b. Select the certificate that you use to identify yourself in your organization and click **View**.
  - c. Click the **Certification Path** tab to show the path from the selected certificate to the certification authorities that issue the certificate, select the root certificate and click **View**.
  - d. Click the **Details** tab and click **Copy to File**. Follow the instructions in the **Certificate Export Wizard** to save the certificate as a file.
  - e. Execute the following command to import the certificate into your keystore:

```
keytool -importcert -keystore "<InstallDir>\keystore\server.jks" -alias  
<cacertalias> -file <file>.cer -storepass <SecurePassword>
```

Where:

- **-alias** <cacertalias> - defines the alias for your certification authority certificate in your keystore.
  - **-file** <file>.cer - specifies the path to the certificate authority certificate.
4. Edit the Tomcat/conf/server.xml file to enable client authentication and configure the keystore/truststore.

Create a **<Connector>** element with the following values:

```
< Connector  
  protocol = "org.apache.coyote.http11.Http11Protocol"  
  port = "8443"  
  SSLEnabled = "true"  
  scheme = "https"  
  secure = "true"  
  clientAuth = "want"  
  sslProtocol = "TLS"  
  keystoreFile = "<InstallDir>\keystore\server.jks"  
  keystoreType = "JKS"  
  keystorePass = "<SecurePassword>"
```

```
truststoreFile ="<InstallDir>\keystore\server.jks"  
truststoreType ="JKS"  
truststorePass ="<SecurePassword>"  
compression="on"  
compressionMinSize="2048"  
noCompressionUserAgents="gozilla, traviata"  
compressableMimeType="text/html,text/xml,application/xml,application/atom  
+xml,application/x-font-ttf,application/javascript,application/json,text/css"/>
```

Where:

- **port** - can be set to any appropriate value.
- **clientAuth** is set to **want** to allow a standard login if the certificate cannot be found.
- **keystoreFile** and **truststoreFile** point to your keystore (by default at C:\Program Files\SAP\PowerDesigner Portal 16\keystore\server.jks).
- **keystorePass** and **truststorePass** are the **<SecurePassword>** defined for your keystore.
- The compression options are the standard options set by the PowerDesigner Web installer to optimize performance.

#### Note

To restrict access to this port only, comment out any other connector elements.

5. Restart the *PowerDesigner Portal Server* and direct your users to connect using https and the new port number. For example:

**<https://pdserver.acme.com:8443/powerdesigner-web/resources/index.html>**

Users connecting to PowerDesigner Web from a Windows client with an appropriate certificate and using a supported version of Internet Explorer or Chrome should be logged in automatically. Users with other browsers such as Firefox, which cannot read from the Windows certificate store, or on other operating systems, will require additional steps to enable single sign-on.

#### Note

Users can browse the repository without taking a license. If a user creates a diagram, or edits an existing diagram, they will automatically take a license if one is available. If their session times out (by default, after 15 minutes), they will silently return their license. If they then return to their browser and continue editing, they will silently reacquire a license if one is available.

6. [optional] To customize the rights and permissions that users are granted, consider changing the default rights and permissions granted to the **External users** group or pre-creating user accounts for individual users (see [Creating Externally-Authenticated Repository Users \[page 167\]](#)).

## 8.5.8 Configuring the Full-Text Search Index

Repository administrators can review the status of the full-text index and change the interval at which it is rebuilt.

### Procedure

1. From the homepage, click ► [Administration](#) ► [Settings](#) ► [Full Text Index](#) ►.
2. Review the status of the index and the next scheduled rebuild in the [Index Information](#) section.
3. If appropriate, modify the [Index rebuild interval](#) in the [Index Settings](#) section.
4. Click [Save](#) to save your changes. You must restart the [PowerDesigner Portal Server](#) for changes to take effect.

## 8.5.9 Configuring Other PowerDesigner Web Parameters

An administrator can configure PowerDesigner Web by editing files on the host server.

### Repository

The repository connection and configuration information is initially set by the installer. You can edit certain parameters, where indicated, in the administration interface and all parameters (including caching and logging parameters) can be edited in the file `<portal_install_dir>/config/repository.xml`

The repository database connection parameters can be edited in the administration interface (see [Connecting to the Database Server](#) [page 162]), or in `<portal_install_dir>/config/repository.xml`:

Table 95:

Param Name	Description
dbtype / databaseProfile / jdbcDriverClass	<p>Specify the type of the dbms hosting the repository, the connection profile used to connect to it, and the JDBC driver required. Permitted sets of values are:</p> <ul style="list-style-type: none"><li>• SAP SQL Anywhere / asa90.xml / com.sybase.jdbc4.jdbc.SybDriver</li><li>• SAP ASE / ase1500.xml / com.sybase.jdbc4.jdbc.SybDriver</li><li>• IBM DB2 / db2cs8.xml / com.ibm.db2.jcc.DB2Driver</li><li>• Oracle 10g / oracle9i.xml / oracle.jdbc.OracleDriver</li><li>• Oracle 11g, 12c / oracle9i.xml / oracle.jdbc.OracleDriver</li><li>• MS SQL Server 2008, 2012 / sqlserver2005.xml / com.microsoft.sqlserver.jdbc.SQLServerDriver</li><li>• SAP HANA / hana.xml / com.sap.db.jdbc.Driver</li></ul>

Param Name	Description
dbhost	Specifies the name of the host machine for the repository database. In certain environments, a fully qualified domain name may be required.
dbport	Specifies the port number of the host machine through which the repository database is available.
dbname	Specifies the name of the repository database.
user	Specifies the database user name that the repository uses to access the DBMS.
password	Specifies the database password that the repository uses to access the DBMS. This must be entered normally, and will be encrypted as soon as the server connects to the database.
connectionURL	<p>Specifies the full connection URL for connecting to the repository database. In the case of SAP SQL Anywhere, the format of the URL is the following:</p> <pre>jdbc:&lt;sybase&gt;:Tds:&lt;dbhost&gt;:&lt;dbport&gt;/&lt;dbname&gt;</pre>

The advanced database parameters can be edited in the administration interface (see [Connecting to the Database Server \[page 162\]](#)), or in `<portal_install_dir>/config/repository.xml`:

Table 96:

Param Name	Description
isolationLevel	Specifies the isolation level used to isolate transactions in a multi-user environment. By default, level 1 is used for ASA databases and level 2 for ASE. See your DBMS documentation for information about the behavior of each level in your environment.
initialPoolSize	Specifies the initial number of connections in the connection pool. The default is 1.
minIdle	Specifies the minimum number of connections that can remain idle in the pool, without extra ones being created. Specify 0 to create none. The default is 1.
maxIdle	Specifies the maximum number of connections that can remain idle in the pool, without extra ones being released. Specify -1 for no limit. The default is 3.
maxWait	Specifies the maximum number of milliseconds that the pool will wait when there are no available connections for a connection to be returned before throwing an exception. Specify -1 to wait indefinitely. The default is 2.
maxActive	Specifies the maximum number of active connections that can be allocated from this pool at the same time. Specify -1 for no limit. The default is 10.
maxBytesPerChar	<p>For non-Oracle unicode or multi-byte character set databases, specify the bytes per character used by the database:</p> <ul style="list-style-type: none"> <li>1-byte - For SBCS (Single-Byte Character Set)</li> <li>2-byte - [default] For DBCS (Double-Byte Character Set)</li> <li>3-byte - For Unicode or MBCS (Multi-Byte Character Set)</li> </ul>



Param Name	Description
Charset	[ASE only] Specifies the character set used by the database.

The general server settings control the behavior of the server and can be edited in the administration interface (see [Configuring the PowerDesigner Web Server \[page 162\]](#)), or in `<portal_install_dir>/config/repository.xml`:

Table 97:

Setting	Description
name	Specifies the name of the repository.
description	Describes the repository.
sessionTimeout	Specifies the amount of time that the browser session is permitted to be idle before it is automatically logged out. Default 15 minutes.
changeMonitorInterval	Specifies the amount of time between the browser checking for changes in the repository database. Default 5 minutes.
maxUsers	Specifies the maximum number of users that may connect to <i>PowerDesigner Portal</i> at any one time.

Search Index parameters control how frequently the search index is refreshed and can be edited in the administration interface (see [Configuring the Full-Text Search Index \[page 175\]](#)), or in `<portal_install_dir>/config/repository.xml`:

Table 98:

Setting	Description
indexRebuildInterval	Specifies the interval between rebuilds of the search index in minutes. By default, the index is rebuilt every 120 minutes. Click the ► <i>Menu</i> ► <i>Rebuild Index</i> ► button on the homepage to perform an immediate rebuild.
indexLocation	Specifies the location of the server index.

Diagram caching parameters control the caching of diagram thumbnails to speed the loading of the repository and workspace pages and are contained in the file `<portal_install_dir>/config/repository.xml`:

Table 99:

Setting	Description
disablePreload	Disables diagram thumbnail caching. Thumbnail caching may cause a considerable time (depending on the size of the database) when starting the server for the first time, but should have no effect on day-to-day operations.
maxThreads	Specifies the maximum number of threads that can be dedicated to thumbnail caching.

The server logging settings are contained in the file `<portal_install_dir>/config/repository.xml`:

Table 100:

Setting	Description
logFileName	Specifies the name to give to the log file.
logLevel	Specifies the minimum level of importance for the messages to be written to the log file. Permitted values from most to least verbose are: <ul style="list-style-type: none"> <li>• Trace</li> <li>• Debug</li> <li>• Info</li> <li>• Warn</li> <li>• Error</li> <li>• Fatal</li> </ul>
logFilePattern	Specifies how the log file should be rolled over. Permitted values are: <ul style="list-style-type: none"> <li>• <code>Daily rolling</code> – [default] the file rolls over after a certain time. Specify the duration and the format of the log file name in the date pattern field below.</li> <li>• <code>File size rolling</code> – the file rolls over when it reaches a certain size. Specify the maximum file size in the field below.</li> </ul>
logDatePattern	Specifies the format to give to dates in the log file.
logMaxFileSize	Specifies the maximum size before the log file is truncated, in MB.
logTruncateLogFile	Specifies to create a new log file each time the server is restarted.

Default language parameters control the interface language that is presented by default and are contained in the file `<portal_install_dir>/config/repository.xml`:

Table 101:

Setting	Description
defaultLanguage	Specifies the default interface language. Users can select a different interface language on the log in and home page.

## License

The license server parameters can be edited in the administration interface (see [Connecting to a License Server \[page 164\]](#)) or in the file `<portal_install_dir>/license/PowerDesigner.server.lic`.

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## Client

The client information is contained in the file `<portal_install_dir>/config/cmrcclient.xml`. The logging options are the same as for the server (see above).

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