

OPTIMIZE

MERCURY BUSINESS AVAILABILITY CENTER™

Working with the CMDB

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BUSINESS TECHNOLOGY OPTIMIZATION

Mercury Business Availability Center

Working with the CMDB

Version 6.2

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Mercury Business Availability Center, Version 6.2
Working with the CMDB

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Table of Contents

| | |
|---|----------|
| Welcome to Working with the CMDB | v |
| How This Guide Is Organized | v |
| Who Should Read This Guide | vi |
| Getting More Information | vi |

PART I: INTRODUCTION

| | |
|---|----------|
| Chapter 1: Introduction to CMDB Administration | 3 |
| Introducing CMDB Administration | 3 |
| CMDB Administration Components | 5 |
| Managing CMDB | 7 |
| Topology Map Functionality | 8 |

PART II: VIEW EXPLORER

| | |
|---|-----------|
| Chapter 2: Using View Explorer | 11 |
| Introducing View Explorer | 12 |
| Displaying a View | 15 |
| Searching for Configuration Items | 19 |
| Menu Options for CIs | 28 |
| Configuration Item Properties | 29 |
| View Explorer Configuration | 29 |

PART III: TOPOLOGY MAP FUNCTIONALITY

| | |
|--|-----------|
| Chapter 3: Toolbar Options | 33 |
| Toolbar Options | 33 |
| Printing the Topology Map | 38 |
| Chapter 4: Defining a View's Layout | 41 |
| Understanding Layer Setup | 41 |
| Defining a Layer's Layout | 42 |
| Modifying Layer Layout Options | 43 |
| Understanding Layout Options | 60 |

PART IV: APPENDIXES

Chapter 5: Sharing the Mercury Universal CMDB Environment.....65
Understanding the Shared CMDB Environment66
Installing the CMDB Shared Environment.....66
Shared Components and Functionalities.....67
Additional Capabilities in Mercury Business Availability Center.....68

Chapter 6: CMDB Logs.....69
CMDB Log File Overview70
CMDB Server Parameters.....70
CI Type Model Log.....72
CMDB Notification Logs73
CMDB Model Audit Short Log74
TQL Logs.....75
History Log79
CMDB Enrichment Log.....80
CMDB Plug-in Log.....81
CMDB Dal Log.....81

Index.....83

Welcome to Working with the CMDB

This guide describes how to work with the Mercury Universal CMDB.

How This Guide Is Organized

The guide contains the following chapters:

Part I Introduction

Introduces the Mercury Universal CMDB, configuration items, and the tabs in CMDB Administration.

Part II View Explorer

Describes how to work with View Explorer to display views and locate configuration items.

Part III Topology Map Functionality

Describes how to customize the layout of a specific layer in a view. Contains a description of the toolbar options available when working in topology map mode in the CMDB Administration pages and in Dashboard. It also describes how to customize the layout of a specific layer in a view as well as how to print the contents of the topology map.

Part IV Appendixes

Describes the additional Mercury Application Mapping functionalities you can use with Mercury Business Availability Center and the components it shares with Mercury Application Mapping when using the shared Mercury Universal CMDB environment. It also describes various CMDB log files and how you can use them to perform basic troubleshooting.

Who Should Read This Guide

This guide is intended for the following users of Mercury Business Availability Center:

- ▶ Mercury Business Availability Center administrators
- ▶ Mercury Business Availability Center platform administrators
- ▶ Mercury Business Availability Center application administrators
- ▶ Mercury Business Availability Center data collector administrators

Readers of this guide should be knowledgeable about enterprise system administration, have familiarity with ITIL concepts, and be knowledgeable about Mercury Business Availability Center in general and Mercury Application Mapping technology specifically.

Getting More Information

For information on using and updating the Mercury Business Availability Center Documentation Library, reference information on additional documentation resources, typographical conventions used in the Documentation Library, and quick reference information on deploying, administering, and using Mercury Business Availability Center, refer to *Getting Started with Mercury Business Availability Center*.

Part I

Introduction

1

Introduction to CMDB Administration

CMDB Administration contains administration tools that enable you to populate and manage the Mercury Universal CMDB, and to create service views to make the CMDB information available to other applications in Mercury Business Availability Center.

| This chapter describes: | On page: |
|---------------------------------|----------|
| Introducing CMDB Administration | 3 |
| CMDB Administration Components | 5 |
| Managing CMDB | 7 |
| Topology Map Functionality | 8 |

Introducing CMDB Administration

You use the tools in CMDB Administration to:

- ▶ manage repositories contained in the Mercury Universal CMDB.
- ▶ manage the processes that automatically create configuration items (CIs) in the CMDB: discovery patterns and adapter sources.
- ▶ manually create CIs to add to the CMDB.
- ▶ create and manage views that organize the CIs into meaningful hierarchies for viewing in other Mercury Business Availability Center applications.

For more information on the CMDB Administration tools and their functions, see “CMDB Administration Components” on page 5.

The views are displayed in the IT Universe Manager tab and in other Mercury Business Availability Center applications using View Explorer. For details, see “Using View Explorer” on page 11.

This section includes the following topics:

- “What Is the CMDB?” on page 4
- “What Are Configuration Items?” on page 5

What Is the CMDB?

The Mercury Universal CMDB (Configuration Management Database) is the central repository for the configuration information that is gathered from the various Mercury Business Availability Center and third-party applications and tools.

The CMDB contains all the configuration items (CIs) and relationships created in Mercury Business Availability Center, whether created automatically from the discovery process or source adapters, or manually using IT Universe Manager. The CIs and relationships together represent a model of the IT universe in which your business functions.

The IT universe model can be very large, containing thousands of CIs. To facilitate the management of your CIs, you work with the CIs in a service view that provides a subset of the overall IT universe model.

You use the service views (the factory service views supplied with Mercury Business Availability Center, or service views defined manually in IT Universe Manager and View Manager Administration) to display and manage the CIs and relationships in the CMDB. The views enable you to focus on specific IT areas and are available (via View Explorer) in different Mercury Business Availability Center applications, such as Dashboard and Service Level Management.

The CMDB also contains the TQL definitions that are used to query and retrieve data from the CMDB, for presentation in the pattern views (views based on TQLs); and the configuration item type (CIT) model, a repository for the XML definitions used to define the CIs and relationships.

In addition, the CMDB contains the object repositories for the various additional data added to CIs in Dashboard and Service Level Management, such as KPIs, context menus, and tooltips. For more information on these repositories, see “Introduction to Mercury Business Availability Center Repositories” in *Repositories Administration*.

What Are Configuration Items?

A CI is a component of the CMDB that represents a physical or logical entity in the system, for example, representing hardware, software, services, business processes, customers, and so forth. The CIs are part of the IT universe model in the CMDB, where they are organized into a hierarchical format based on the interdependencies in your organization’s IT environment. The interdependencies are called relationships in Mercury Business Availability Center.

Each CI belongs to a configuration item type (CIT); the CIT defines a category of CIs used in Mercury Business Availability Center. The CITs provide templates for creating the CIs and associated properties in each category.

You view and manage the CIs in the CMDB using service views. Each service view provides a mirror for part of the IT universe model, so that the changes you make in the view are actually changes to the IT universe model.

CMDB Administration Components

CMDB Administration contains tabs for the following administration tools:

IT Universe Manager Administration

The IT Universe Manager tab enables you to manage the CIs in the IT universe model, through service views that display a subset of the model.

From the IT Universe Manager tab, you can create a new instance view, and populate it with CIs that already exist in the CMDB. Within a view, you can also manually create new CIs and relationships to add to the CMDB and the view.

You can edit properties for the CIs and relationships, including properties that influence how the CI is presented in the Dashboard application, such as location, context menu, and impact on KPI calculations.

IT Universe Manager Administration is described in *IT Universe Manager Administration*.

View Manager Administration

The View Manager enables you to manage the folder system that contains the service views, and to create and manage the two types of service views: pattern views and instance views.

- ▶ Pattern views are based on TQL queries, which are a series of rules and definitions for displaying query results. When you activate the TQL query, it retrieves information from the CMDB that matches the TQL you defined, and populates the pattern view with the retrieved CIs.
- ▶ Instance views are created manually. You can build instance views in View Manager by adding CIs that exist in the CMDB directly to the view.

View Manager Administration is described in *View Manager Administration*.

Discovery Manager Administration

The Discovery Manager enables you to run the discovery process, used to populate the CMDB with CIs representing the physical elements of your organization's IT universe.

The Discovery Manager contains discovery modules, where each module contains one or more discovery patterns required for discovering a specific group of CIs. You run the discovery process by activating and editing one or more discovery patterns.

The discovery modules have corresponding pattern views that are provided with Mercury Business Availability Center. These views are automatically populated with the discovered CIs that match the TQL query for the pattern view.

Discovery Manager Administration is described in *Discovery Manager Administration*.

Source Manager Administration

The Source Manager enables you to manage the source adapters that create CIs and relationships in the CMDB to represent the monitor objects in Monitor Administration. The source adapters also map the incoming data samples from the Mercury Business Availability Center data collectors and third-party sources to the created CIs in the CMDB.

You can define custom sources as required for your organization, and modify adapter templates to produce customized hierarchies.

Source Manager Administration is described in *Source Manager Administration*.

CI Type Manager Administration

The CI Type Manager enables you to create and manage the CITs in the CIT repository in the CMDB. The CIT repository contains the definitions of all the CITs used to create CIs in Mercury Business Availability Center, and definitions of the relationships that define the connections between CIs.

Each CIT functions as a template for creating each CI and relationship.

CI Type Manager Administration is described in *CI Type Manager Administration*.

Managing CMDB

This section provides information on managing and monitoring your CMDB environment.

- ▶ **Shared CMDB** – Using a shared CMDB environment enables you to use Mercury Application Mapping functionalities and share Mercury Application Mapping components. For details, see Chapter , “Sharing the Mercury Universal CMDB Environment.”
- ▶ **CMDB Log Files** – CMDB log files allow you to perform basic troubleshooting of common CMDB runtime problems. Additionally, tracking CMDB behavior in the log files lets you examine the effects of changes made in the system. For details, see Chapter , “CMDB Logs.”

Note: You can modify certain CMDB configuration parameters in the Infrastructure Settings page: select **Admin > Platform > Setup and Maintenance > Infrastructure Settings**, click **Foundations**, and select **CMDB**. If you require information on the CMDB configuration parameters, contact Mercury Customer Support.

Topology Map Functionality

The following topics describe the functionality available in the topology map throughout the CMDB applications.

- ▶ **Toolbar Options** – The toolbar buttons that appear in the CMDB Administration pages and in Dashboard provide quick access to the functions in Mercury Business Availability Center’s topology map. For details, see Chapter 3, “Toolbar Options”
- ▶ **Customizing a View’s Layout** – Mercury Business Availability Center allows you to customize the layout of a view when working in topology mode. For details, see Chapter 4, “Defining a View’s Layout”.

Part II

View Explorer

2

Using View Explorer

Mercury Business Availability Center View Explorer is a navigation tool, enabling you to locate and display the service views and configuration items (CIs) stored in the CMDB. View Explorer also displays the hierarchical structure of the IT universe model, and provides context menus that allow you to perform operations on the CIs or view additional information.

| This chapter describes: | On page: |
|-----------------------------------|-----------------|
| Introducing View Explorer | 12 |
| Displaying a View | 15 |
| Searching for Configuration Items | 19 |
| Menu Options for CIs | 28 |
| Configuration Item Properties | 29 |
| View Explorer Configuration | 29 |

Introducing View Explorer

View Explorer presents the elements of the IT universe model in the Mercury Universal CMDB through the medium of the service views. Mercury Business Availability Center displays View Explorer in the left pane of many of the applications and pages, for example, Dashboard, Service Level Management, and IT Universe Manager.

When a user selects a view in View Explorer, the configuration items (CIs) contained in the view are displayed, organized in a hierarchical tree format according to the relationships defined between the CIs. A view may be empty if no CIs have been added to it (for an instance view), or if no CIs were found matching the TQL query (for a pattern view). For details on views and their definitions, see *View Manager Administration*.

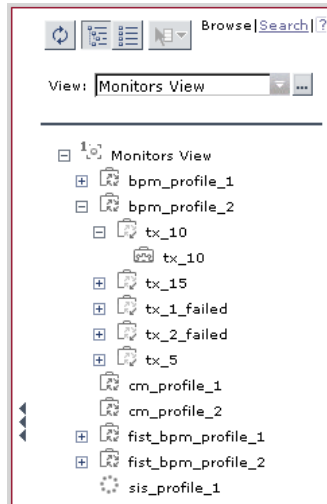
You can use View Explorer to locate CIs. You can select a view and browse through the list of CIs, or you can search for a CI (if you do not know in which view the CI is included).

The interaction between the View Explorer pane and the information presented in the right pane varies, according to the context. For example, in IT Universe Manager, information is presented for the CI selected in View Explorer; in Dashboard, information is presented for the view selected in View Explorer; in Service Level Management, and in various dialog boxes across Mercury Business Availability Center, CIs can be selected in View Explorer and added to the right pane.

The functionality available for searching and browsing in View Explorer, and the menu options available for the CIs, also varies with the context.

View Explorer Components

View Explorer includes the following components:



The navigation and display palette:



Refresh – To refresh the list of CIs (if new CIs have been added to a view) or to refresh the **View** list (if Views have been newly defined), click the **Refresh** button.



Change display – To change the way the CIs in a view are displayed, click either the **Related CIs tree structure** or **CI type tree structure** button.



- ▶ If the **Related CIs tree structure** is chosen (default presentation), the CIs in the current view are displayed hierarchically, organized by their parent-child relationships.
- ▶ If the **CI type tree structure** is chosen, the CIs in the current view are displayed organized by CI type.

Menu option – To display a context-sensitive menu containing all the options you can perform on a selected CI, select the CI and click the **Menu options** button. For details, see “Menu Options for CIs” on page 28. You can also display the menu by right-clicking a CI.



Browse/Search – To toggle between browse and search modes, click the hypertext link for the mode you want:

- Working in browse mode (**Browse** unlinked):



In browse mode you can search for and display a view, and browse through the view to locate a particular CI. You can also perform operations for the CI from a context menu.

For details, see “Displaying a View” on page 15, and “Menu Options for CIs” on page 28.

- Working in search mode (**Search** unlinked):



In search mode you can search for one or more CIs in the views or CMDB. For details, see “Searching for Configuration Items” on page 19.



Help – To display the help for View Explorer, click the **Help** button.

CIT name – To determine to which CIT a CI belongs, hold the cursor over the CI. The CIT name is displayed in a tooltip.

Close/Open – To hide or display the View Explorer pane, click the **Close/Open** button.



Displaying a View

When View Explorer is set to **Browse** mode, you can display the contents of a selected view. The name of the selected view is shown in the **View** box, and repeated again in the lower part of the View Explorer pane with the CI tree beneath it. When you move to other applications in Mercury Business Availability Center, the selected view remains the same.

For information on the make-up of various views available in Mercury Business Availability Center, see:

- ▶ *Using Dashboard*
- ▶ *Source Manager Administration*
- ▶ “Predefined Folders and Views” in *View Manager Administration*.

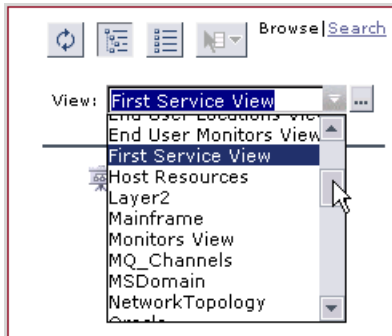
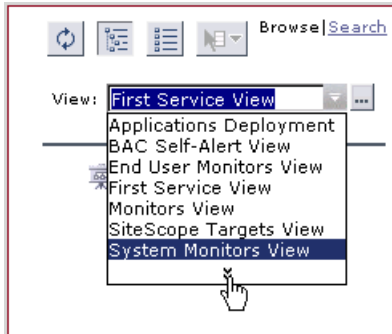
This section includes the following topics:

- ▶ “Selecting a View to Display” on page 16
- ▶ “Locating a View by Folder” on page 18
- ▶ “Unavailable Views and CIs” on page 18

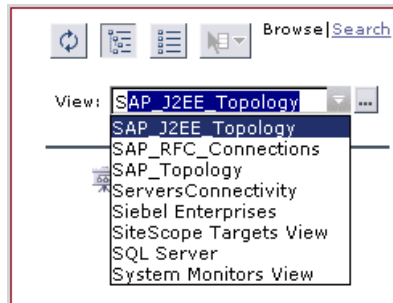
Selecting a View to Display

There are various ways that you can search for the view you want to display:

- To search in the **View** list, click the down arrow on the right side of the **View** box; this displays an abridged list of views, containing the most recently accessed views. Click the arrow at the bottom of the list to scroll through the entire list.



- Place the cursor in the list and begin typing the view name. Mercury Business Availability Center completes the view name – if the first few letters that you type match an existing entry. If the names of several views begin with those letters, all matching views are displayed in the list. In the following example, typing in the letter “s” produces a list of the views that begin with “s”:



- To locate a view according to its folder, click the **Select view from the folders tree** button to open the Select View dialog box (where views are organized by folder). For details, see “Locating a View by Folder” on page 18.

Note: Views shown in red text are inactive and cannot be selected. For details, see “Activating or Deactivating Views” in *View Manager Administration*.

Locating a View by Folder

The views in Mercury Business Availability Center are organized by folder. You can browse through the folder tree to locate the view you want to display in Mercury Business Availability Center.

For an explanation of the folders and views, see “Predefined Folders and Views” in *View Manager Administration*.

To select a view:



- 1 In the View Explorer pane, click the **Select view from the folders tree** button to the right of the **View** box, to open the Select View dialog box.
- 2 Locate the folder that includes the view you want to display and select the view.

Note: Views shown in red text are inactive and cannot be selected. For details, see “Activating or Deactivating Views” in *View Manager Administration*.

- 3 Click **OK**. The selected view is displayed in the View Explorer pane.

Unavailable Views and CIs

The View list in View Explorer may not display all views in the CMDB, or it may not display the contents of a view, for any of the following reasons.

- ▶ The View list includes only the views for which you have the necessary permissions set in Permissions Management (**Admin > Platform > Users and Permissions > Permissions Management**). For more information, see “Configuring User Permissions” in *Platform Administration*.
- ▶ When using View Explorer in IT Universe Manager, Dashboard, or Service Level Management, the View list includes only those views that are assigned to that application. For more information, see “Creating and Editing Views” in *View Manager Administration*.
- ▶ Views that are currently inactive appear in the View list in red text, but these views cannot be selected. For more information, see “Activating or Deactivating Views” in *View Manager Administration*.

- Out-of-the-box views for which you do not have a license may appear in the View list, but these views will not contain CIs.

Note: After deleting one or more nodes from a TQL, it may take time for the changes to be updated to the view, and the removed CIs still appear in the view. Selecting one of these CIs opens an error message. Use the refresh button to update the view.

Searching for Configuration Items

When View Explorer is set to **Search** mode, you can search for one or more CIs, search for all occurrences of a CI, or filter the list of CIs that is displayed in Mercury Business Availability Center.

Note: In Dashboard, you can also search for all child CIs under a parent CI, whether they are included in the current view or hidden. This option is available from the right-click menu for a CI. For details, see “Find Visible and Hidden Child CIs Option” in *Using Dashboard*.

This section includes the following topics:

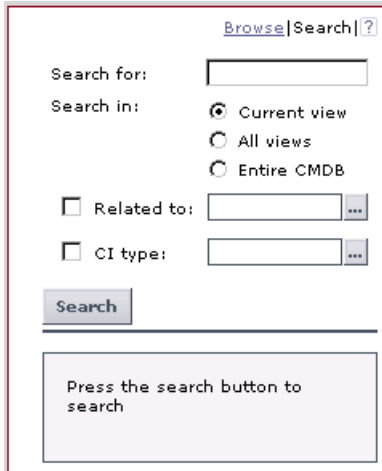
- “Using the Search Tool” on page 20
- “Searching by CI Name” on page 22
- “Searching in Views or the CMDB” on page 23
- “Searching by Related Configuration Item” on page 23
- “Searching by Configuration Item Type” on page 25
- “Using the Search Tool to Filter the CIs in the Dashboard Filters Tab” on page 27

Using the Search Tool

The View Explorer search tool enables you to find the CI you need, so that you can shift the focus in the application in which you are working on to that CI.

To use the search tool:

- 1 In the View Explorer pane, click the **Search** link.



The screenshot shows a search interface with the following elements:

- A header with the text "Browse | Search | ?" where "Search" is a link.
- A "Search for:" label followed by a text input field.
- A "Search in:" label followed by three radio button options: "Current view" (selected), "All views", and "Entire CMDB".
- A checkbox labeled "Related to:" followed by a text input field and a three-dot menu icon.
- A checkbox labeled "CI type:" followed by a text input field and a three-dot menu icon.
- A "Search" button.
- A message box below the button that says "Press the search button to search".

- 2 Define the criteria for your search. Searches can be set up based on any number and combination of the following filter criteria:
 - ▶ Search by CI name. In the **Search for** box, enter the name of the CI (or part of the name). For more information, see “Searching in Views or the CMDB” on page 23.
 - ▶ Search in the current view or in all views. In IT Universe Manager, you also have an option to search the entire CMDB. One of the options must be selected for any search—the default is **Current view**. Select the radio button for the option you want.

For more information, see “Searching in Views or the CMDB” on page 23.

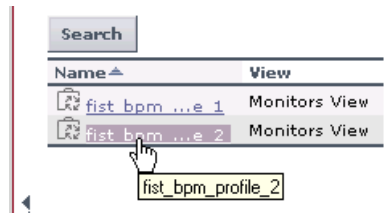
- ▶ Search for CIs related to a specified CI. Select the **Related to** check box and click the button to open the Select Configuration Item dialog box, where you select the required CI.

For more information, see “Searching by Related Configuration Item” on page 23.

- ▶ Search for CIs of a specified CI type. Select the **CI type** check box and click the button to open the Select Configuration Item Type dialog box, where you select the required CIT.

For more information, see “Searching by Configuration Item Type” on page 25.

- 3 Click the **Search** button. The results are listed in the lower part of the View Explorer pane, showing the CI name and the name of the view that the CI appears in, for each entry. If the CI or view name is abbreviated, hold the pointer over the entry to see the full name.



You can sort the search results by clicking the appropriate heading.

- 4 When you select the required CI from the results list, the right pane displays details for the CI you selected, in the context in which you are working.

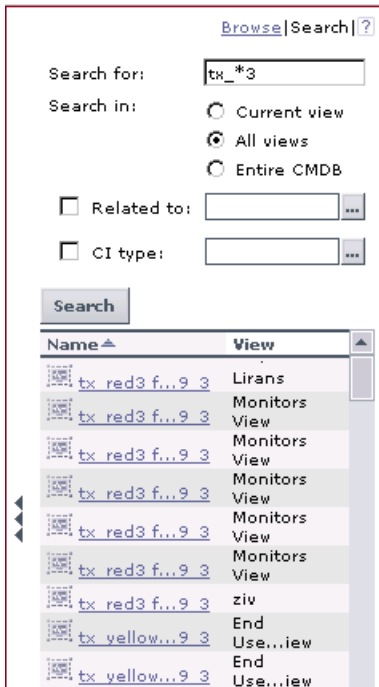
To see a CI in the context of its view, right-click the CI and select **Locate CI in View**. View Explorer reverts to browse mode and displays the view that contains the CI, with the CI selected in the view tree.

Searching by CI Name

When searching for CIs by name in View Explorer search mode, you enter a string in the **Search for** box, representing the name of the CI, or part of the name. The search will return all CIs found that contain the entered string somewhere in the name (within the boundaries of the other search criteria that you define).

When using this search option, note the following:

- ▶ The search by CI name option is not case sensitive.
- ▶ You can use the wildcard character asterisk * in your string to match one or more words of text. For example, a search for tx_*3 will return all CIs that contain that format, filling in the blank where the asterisk appears:



Searching in Views or the CMDB

All searches in View Explorer must specify the locations to search in. This can be:

- only the current view, meaning the view currently selected in browse mode.
- all views. This option will not include any views that are unavailable in the current application; for information on unavailable views, see “Unavailable Views and CIs” on page 18.
- the entire CMDB (only available if you are working in IT Universe Manager). This option enables you to find CIs that are not included in any view, or that are part of a view that is unavailable in IT Universe Manager.

Searching by Related Configuration Item

You can search for CIs using the **Related to** box. This search returns CIs that have defined relationships to the CI specified in the **Related to** box. (You can perform the same search by selecting the **Show Related CIs** option from a CI right-click menu when working in browse mode—for details, see “Menu Options for CIs” on page 28.)

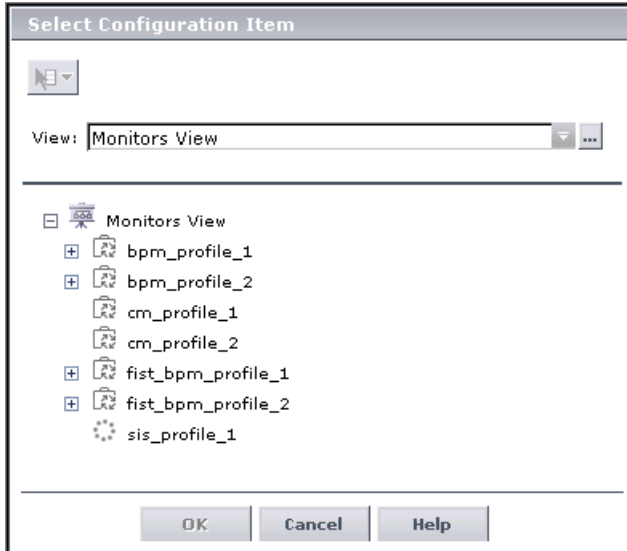
You cannot manually enter a CI in the **Related to** box—you define the required CI by selecting it in a view.

Note: The results list does not include relationships that exist in the CMDB but are not included in any view.

To define a CI for a “related to” search:

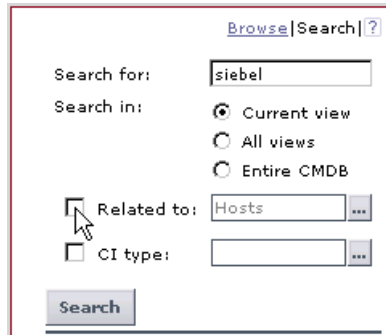


- 1 In View Explorer search mode, click the button to the right of the **Related to** box. The Select Configuration Item dialog box opens.



- 2 Select the required view from the **View** list. If required, click the button to the right of the **View** box to locate the view by folder (for details, see “Locating a View by Folder” on page 18).
- 3 Select the required CI from the view tree.
- 4 Click **OK** to return to the Search pane. The selected CI is displayed in the **Related to** box, and the check box to the left of the box is automatically selected.

After defining a CI in the **Related to** box, Mercury Business Availability Center remembers your selection until you move to a different application, or until you define a different value. The selection is shown inactive—you activate it again for a search by selecting the check box.



Searching by Configuration Item Type

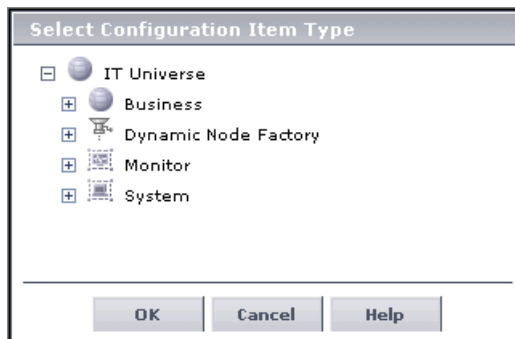
You can search for CIs using the **CI type** box. This search returns CIs that are of the type specified in the **CI type** box.

You cannot manually enter a CIT in the **CI type** box—you define the required CIT by selecting it from a list.

To define a CI Type for a search:



- 1 In View Explorer search mode, click the button to the right of the **CI type** box. The Select Configuration Item Type dialog box opens, containing all CITs defined in Mercury Business Availability Center.



- 2 Select the required CIT.

- 3 Click **OK** to return to the Search pane. The selected CIT is displayed in the **CI type** box, and the check box to the left of the box is automatically selected.

After defining a CI in the **CI type** box, Mercury Business Availability Center remembers your selection until you move to a different application, or until you define a different value. The selection is shown inactive—you activate it again for a search by selecting the check box.

The screenshot shows a search interface with the following elements:

- Buttons: [Browse](#) | [Search](#) | [?](#)
- Search for:
- Search in:
 - Current view
 - All views
 - Entire CMDB
- Related to:
- CI type:
-

Using the Search Tool to Filter the CIs in the Dashboard Filters Tab

You can use the View Explorer search tool to filter the list of CIs displayed in the Dashboard Filters tab. After performing a search using the search tool (as described in “Searching for Configuration Items” on page 19), the CIs that were located by the search are automatically displayed in the Filters tab, after additional filtering by the filters that are currently active in the tab.

The screenshot shows the Business Availability Center - Dashboard interface. The 'Filters' tab is active, displaying a list of filtered Configuration Items (CIs). The search tool on the left is used to filter CIs. The main area shows a table of filtered CIs with columns for Name, Performance, Availability, and Held status.

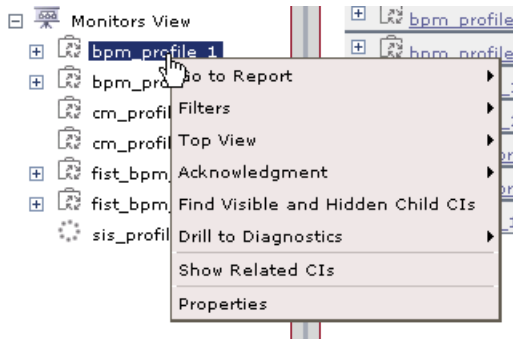
| Name | Performance | Availability | Held status |
|-------|-------------|--------------|-------------|
| tx_10 | ⚠️ ⚠️ | 🟢 | 02:33:20 PT |
| tx_10 | ⚠️ ⚠️ | 🟢 | 02:25:35 PT |
| tx_10 | ⚠️ ⚠️ | 🟢 | 02:25:35 PT |
| tx_10 | ⚠️ ⚠️ | 🟢 | 02:33:20 PT |

For more information, see “Searching for Specific CIs and Filtering the Results” in *Using Dashboard*.

Menu Options for CIs

View Explorer provides a context-sensitive menu for each CI that gives access to options related to that CI. For example, in Dashboard you can open reports for the CI, and in IT Universe Manager you can attach new CIs to the CI.

You display the menu by selecting the CI in View Explorer when working in browse mode, and clicking the **Menu options** button, or by right-clicking the CI.



Most of the menu commands are specific to the application in which you are working. Two of the commands that are available in all applications are:

- ▶ **Show Related CIs** – when this option is selected, View Explorer changes to search mode and displays a list of the CIs that have a relationship to the original CI. This is the same as defining the original CI in the **Related to** box when performing a search in all views, as described in “Searching by Related Configuration Item” on page 23.
- ▶ **Properties** – for details, see “Configuration Item Properties” on page 29.

When working in View Explorer in search mode, the right-click menu contains two options:

- ▶ **Locate CI in View** – when this is selected for a CI, View Explorer reverts to browse mode and displays the view that contains the CI, with the CI selected in the view tree.
- ▶ **Properties** – for details, see “Configuration Item Properties” on page 29.

Configuration Item Properties

You can view properties for a CI by right-clicking the CI in View Explorer and selecting **Properties** from the displayed menu. Mercury Business Availability Center displays the Properties dialog box in read-only mode.



To view additional information on the properties, use the **Show Descriptions** toggle button (top-right corner of the dialog box).

You can edit the CI properties in the **Admin > CMDB > IT Universe Manager > Properties** tab.

For details on CI properties, see “Configuration Item Properties” in *IT Universe Manager Administration*.

View Explorer Configuration

Caution: Many of the settings in the Infrastructure Settings Manager should not be modified without first consulting Mercury Customer Support or your Mercury Services representative. Modifying certain settings can adversely affect the performance of Mercury Business Availability Center.

To access the Infrastructure Settings Manager, select **Admin > Platform > Setup and Maintenance > Infrastructure Settings**. Select the Foundations context and choose **View Explorer** from the list.

For details on editing infrastructure settings, see “Editing Infrastructure Settings” in *Platform Administration*.

Immediate Children Count – Number of children immediately displayed when expanding their parent’s node in View Explorer.

Maximal Children Count – Maximum number of children displayed under their parent’s node in View Explorer.

Maximal search results size – Maximum number of CMDB objects that can be returned in one search operation.

Part III

Topology Map Functionality

3



Toolbar Options

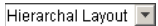








This chapter contains a description of the toolbar options available when working in topology map mode in the CMDB Administration pages and in Dashboard. It also gives instructions on how to print the contents of the topology map.









| This chapter describes: | On page: |
|---------------------------|----------|
| Toolbar Options | 33 |
| Printing the Topology Map | 38 |








Toolbar Options





The following table describes the toolbar buttons that appear in CMDB Administration and Dashboard.



| Option Name | Button | Use this option to... |
|------------------|---|---|
| Print Map |  | Print the contents of the topology map. "Printing the Topology Map" in <i>Working with the CMDB</i> . |
| Layer Properties |  | Define the view's layer layout, by assigning positions for the nodes and relationships of the view. For details, see "Defining a View's Layout" in <i>Working with the CMDB</i> . |

| Option Name | Button | Use this option to... |
|------------------------------|---|---|
| Layout |  | Select the layout display from the list. For details, see “Defining a View’s Layout” in <i>Working with the CMDB</i> . |
| Reorganize layer |  | Reorganize the CIs/CITs/nodes according to the selected layer. This is used when CIs/CITs/nodes have been moved around. |
| New |  | Defines new CITs in the CI Type Manager. For details, see “Creating CITs” on page 14. |
| Save manual layout |  | Save changes to the manual layout in the topology map. For details, see “Defining a View’s Layout” in <i>Working with the CMDB</i> . |
| Refresh |  | Go to the server and load the layer again. |
| Go up one layer |  | Move up one level in the topology map. This option is enabled only if there is an additional CI layer above it, created by a parent or child organization rule defined in the View Manager. For information on how to set up organization rules, see “Adding Organization (Folding) Rules to Relationships” in <i>View Manager Administration</i> . |
| Hide All Relationship Labels |  | Toggle between showing or hiding the relationship labels. |
| Hide All Node Labels |  | Toggle between showing or hiding the CI/CIT/node/pattern labels. |
| Set label size |  | Enter the maximum number of characters you want the labels to contain. |

| Option Name | Button | Use this option to... |
|------------------|---|--|
| Zoom |  | Zoom in on a specific section of the topology map by clicking and drawing a selection rectangle around the part you want to magnify. The area you have selected is displayed at the highest percentage that fits in the topology map. |
| Interactive Zoom |  | <ul style="list-style-type: none"> ▶ Decrease the view magnification by clicking and pushing the pointer upwards. ▶ Magnify the view by clicking and pulling the pointer downwards. |
| Map overview |  | Opens a separate window with only the topology map. |
| Fit to window |  | Fit the complete view in the window. |
| Drag map |  | Drag the view. |
| Navigation |  | <p>Take the pointer to the next connected CI/CIT/node/pattern.</p> <ul style="list-style-type: none"> ▶ Left-click to go from CI/CIT/node/pattern to CI/CIT/node/pattern in a clockwise direction. ▶ Right-click to point to the next CI/CIT/node/pattern in a clockwise direction. <p>Note: You can use this option only on CIs/CITs/nodes/patterns that are connected by relationships.</p> |
| Place in center |  | Place the selected CI/CIT/node/pattern in the center of the map. |
| Select mode |  | Select a CI/CIT/node or multiple CIs/CITs/nodes. |

| Option Name | Button | Use this option to... |
|----------------------------------|---|---|
| Create Relationship |  | Create a relationship between existing CIs. For details, see “Attaching Existing CIs” in <i>IT Universe Administration</i> . |
| Insert Configuration Item |  | Create a new CI. For details, see “Creating a New CI” in <i>IT Universe Administration</i> . Note: This option appears in the toolbar in IT Universe only. |
| Edit Properties |  | Edit CI properties. For details, see “Editing CI Properties” in <i>IT Universe Administration</i> . Note: This option appears in the toolbar in IT Universe only. |
| Add related CIs |  | Add a related CI. For details, see “Creating a New CI” in <i>IT Universe Administration</i> . Note: This option appears in the toolbar in IT Universe only. |
| Attach related CI. |  | Attach a related CI. For details, see “Attaching Existing CIs” in <i>IT Universe Administration</i> . Note: This option appears in the toolbar in IT Universe only. |
| Delete |  | Delete the selected CI. Note: This option appears in the toolbar in IT Universe and CI Type Manager. Note: When you delete a CIT from the CI Type Manager, the CIT no longer appears in the CI Type Model, the Service View Manager, the Enrichment Manager, and the TQL Builder. To restore it, you must redeploy the package that contains the deleted CIT. For details, see “Deploying Packages” in <i>Discovery Manager Administration</i> . |
| System Type Manager |  | Allows you to create a predefined list whose values define an attribute type. For details, see “Enumerations and Lists” in <i>CI Type Manager Administration</i> . |

| Option Name | Button | Use this option to... |
|---|---|---|
| Relationship folding rules |  | <p>Display the Relationship Rules dialog box, enabling you to define multiple relationship rules.</p> <p>For details, see “Defining Multiple Relationship Rules” in <i>View Manager Administration</i>.</p> <p>Note: This option is specific to the toolbar in the View Manager.</p> |
| Hide information pane |  | <p>Toggle between hiding and displaying the Information pane. The Information pane displays the attribute conditions you defined for the selected node/relationship.</p> <p>For details about defining attribute conditions, see “Setting TQL Node and Relationship Definitions” in <i>View Manager Administration</i>.</p> <p>Note: This option is specific to the toolbar in the View Manager.</p> |
| Switch between topology map and tree definitions |  | <p>Toggle between viewing different folding/grouping definitions in topology presentation and tree presentation. For details, see “Presentation Options for Views” in <i>View Manager Administration</i>.</p> <p>Note: This option is specific to the toolbar in the View Manager.</p> |
| TQL result count |  | <p>Calculate the number of instances found for each TQL node/relationship.</p> <p>Note: This option is specific to the toolbar in the View Manager.</p> |

| Option Name | Button | Use this option to... |
|------------------------|---|--|
| Edit properties |  | <p>Open the Pattern Editor to edit the pattern as required. For details about the Pattern Editor, see, “Understanding the Pattern Editor” in <i>Discovery Manager Administration</i>. You can only edit a pattern when it is in a deactivated state.</p> <p>You can also double-click the discovery pattern to open the Pattern Editor.</p> <p>Note: This option is specific to the toolbar in the Map View tab of the Discovery Manager.</p> |
| Scheduler |  | <p>Display the scheduling information for the selected pattern. For details, see “Scheduling a Discovery Pattern to Run on a Periodic Basis” in <i>Discovery Manager Administration</i>.</p> <p>Note: This option is specific to the toolbar in the Map View tab of the Discovery Manager.</p> |

Printing the Topology Map

You can print the contents of the topology map pane. The result is similar to a screen capture. Therefore, it is recommended to arrange the contents of the topology map according to your requirements before printing.

To print the contents of the topology map:

- 1 Select and display the contents you want to print in the topology map.
- 2 To arrange the contents of the topology map for print, you can use the **Layer Setup** and **Layout** options.

For details about the **Layer Setup** option, see “Understanding Layer Setup” on page 41.

For details about the **Layout** option, see “Defining a Layer’s Layout” on page 42.



- 3 Select the **Print Map** button to open the Print dialog box.
- 4 In the **Copies** area, enter the number of copies you want to print.
- 5 Click **Properties** to open the Document Properties dialog box.

- 6 Define document properties as required and click **OK** to save your changes.
- 7 Click **OK** in the Print dialog box print the contents of the topology map.

4

Defining a View's Layout

This chapter describes how to customize the layout of a specific layer in a view.

| This chapter describes: | On page: |
|--------------------------------|----------|
| Understanding Layer Setup | 41 |
| Defining a Layer's Layout | 42 |
| Modifying Layer Layout Options | 43 |
| Understanding Layout Options | 60 |

Understanding Layer Setup

The **Layer Setup** option enables you to define the layout of a view's layers in a way that helps you achieve the clearest presentation possible. By assigning logical positions for the nodes and relationships that appear in the layer, you can fine-tune your view's visualization and thus facilitate the understanding and monitoring of your managed data.

This option applies only to nodes and relationships that are displayed in the topology map. The definitions that are set in the dialog boxes apply to a certain layer in a certain view and they determine the effects and behavior of the available layout settings (**General**, **Disconnected**, **Hierarchical**, **Orthogonal**, **Symmetric**, and **Routing**).

The **Layer Setup** option provides you with default values for each parameter, which you can leave or change as required. The parameter values are in pixels.

Defining a Layer's Layout

You can customize the layer layouts by modifying the default values.

To define a layer layout:



- 1** On the toolbar, click the **Layout Properties** icon to open the Layout Properties dialog box with the following tabs:
 - ▶ **General** – Defines general layout types for all layout types. For details, see “General Layout” on page 43.
 - ▶ **Disconnected** – Defines general layout parameters for disconnected nodes and connected components. For details, see “Disconnected Layout” on page 44.
 - ▶ **Hierarchical** – Shows the precedence relationships of the nodes in the selected layer. For details, see “Hierarchical Layout” on page 46.
 - ▶ **Orthogonal** – Routes relationships only horizontally and vertically. For details, see “Orthogonal Layout” on page 54.
 - ▶ **Symmetric** – Displays a clear representation of complex networks. For details, see “Symmetric Layout” on page 55.
 - ▶ **Routing** – Leave nodes where they are in the graphic representation and reroutes the edges orthogonally. For details, see “Routing Layout” on page 57.
- 2** Enter new values for the layout type you want to change.
 - ▶ Click **Defaults** to restore the original default values.
 - ▶ Click **Apply** to apply the changes you have made. The changes you made are saved but the dialog box remains open.
 - ▶ Click **OK** to save the changes you have made to the database and close the dialog box.

Modifying Layer Layout Options

This section describes how to define the layout of view's layers.

To modify layer layout values:



On the toolbar, click the **Layout Properties** icon to open the Layout Properties dialog box with the following tabs:

Note: The layout definitions you set are per layer only and cannot be saved once you move to a different layer or a different view.

It includes the following topics:

- ▶ General Layout – for details, see page 43
- ▶ Disconnected Layout – for details, see page 44
- ▶ Hierarchical Layout – for details, see page 46
- ▶ Orthogonal Layout – for details, see page 54
- ▶ Symmetric Layout – for details, see page 55
- ▶ Routing Layout – for details, see page 57

General Layout

The General Layout settings are settings that are available with all layout styles. If your layout contains more than one graph, each graph is laid out separately, and then the intergraph edges (the relationships between the graphs) are routed.

In this tab you define General Layout parameters.

- ▶ **Margin Spacing** – Sets the borders around each node in the layer.
 - ▶ **Constant Spacing** – Sets a constant space around the displayed layer, vertically and horizontally. This space remains the same even if the size of the layer changes.
 - **Left** – The size of the space to the left of the display. Default is 20.

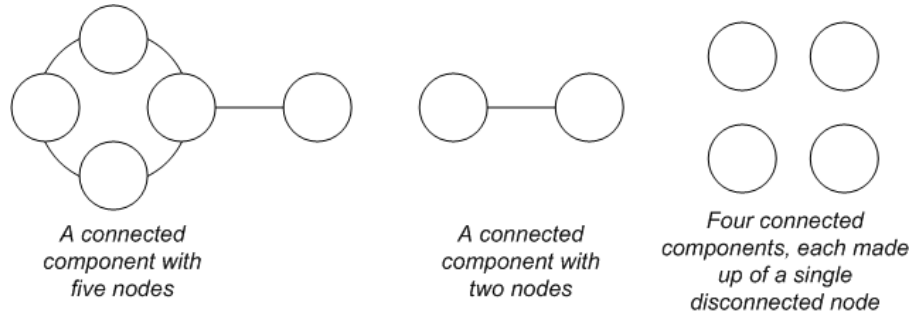
- **Top** – The size of the space above the display. Default is 20.
- **Right** – The size of the space to the right of the display. Default is 20.
- **Bottom** – The size of the space under the display. Default is 20.
- **Proportional Spacing** – Sets a space around the displayed layer; the space is proportional to the display's size. This space changes when the size of the display changes.
 - **Left** – The size of the space to the left of the display. Default is 0.
 - **Top** – The size of the space above the display. Default is 0.
 - **Right** – The size of the space to the right of the display. Default is 0.
 - **Bottom** – The size of the space under the display. Default is 0.
- **Nested View Spacing** – For future use.
- **Intergraph Edge Spacing** – If intergraph edges are routed orthogonally, you can specify horizontal and vertical spacing for the edges.
 - **Horizontal Spacing** – Sets the horizontal distance between edges.
 - **Vertical Spacing** – Sets the vertical distance between edges.

Disconnected Layout

In this tab, you define general layout parameters for disconnected nodes and connected components:

- A disconnected node is a node that is not connected to any other node.
- A disconnected component is a component that is not connected to any other component. It contains a set of nodes that can be connected to each other.

The following example illustrates six connected components:



- ▶ **Components** – The spacing between the components in a disconnected graph consists of both a constant value and a proportional value based on the sizes of the components.
 - ▶ **Detect Components** – Select this option to view the disconnected components. You can specify that all components be laid out together or individually, regardless of the other components. If the grouping for components is selected, each component is laid out, and then the resulting components are packed together.
 - ▶ **Constant Spacing** – Sets constant spacing (horizontal and vertical) around each disconnected component. Default is 20.
 - ▶ **Proportional Spacing** – Sets spacing (horizontal and vertical) that is proportional to the size of the component around each disconnected component. Default is 0.05.
- ▶ **Disconnected Nodes** – The spacing between the nodes in a disconnected graph consists of both a constant value and a proportional value based on the sizes of the nodes.
 - ▶ **Detect Disconnected Nodes** – Select this option to view the disconnected nodes. You can specify that disconnected nodes be grouped into one component or treated individually while being laid out.
 - ▶ **Constant Spacing** – Sets constant spacing (horizontal and vertical) around each disconnected node. Default is 20.
 - ▶ **Proportional Spacing** – Sets spacing (horizontal and vertical) that is proportional to the size of the component, around each disconnected node. Default is 0.05.

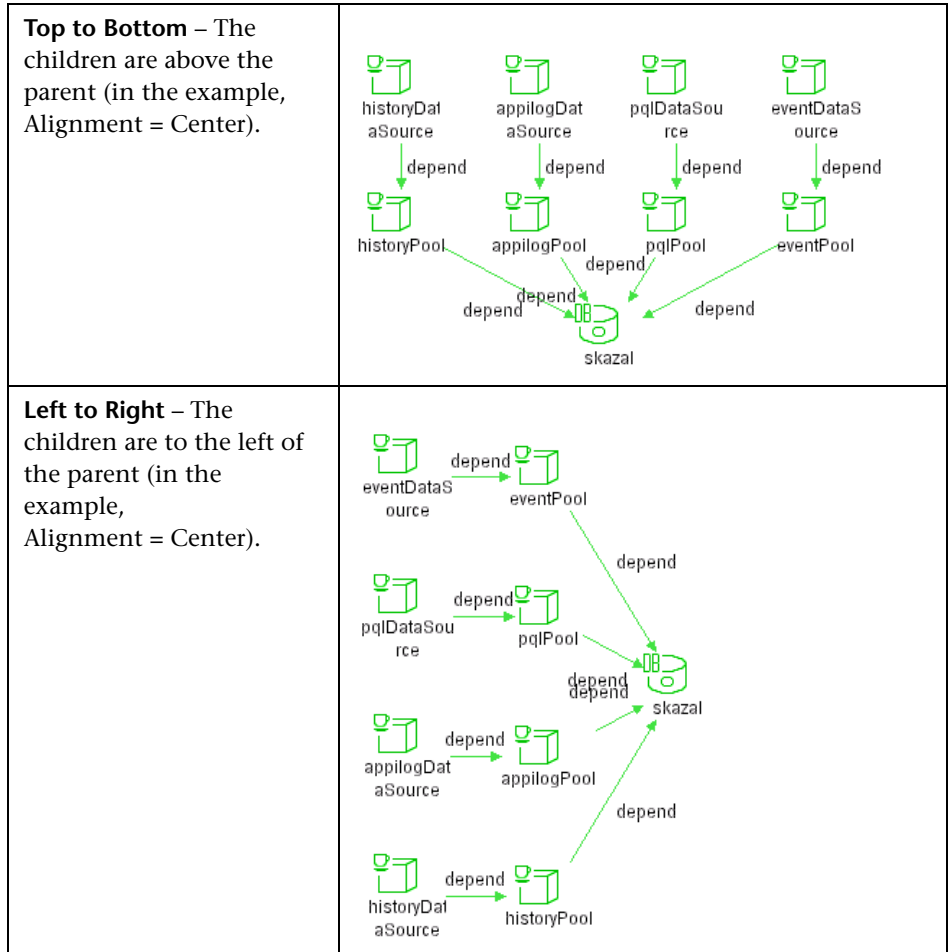
- ▶ **Aspect Ratio** – The layout’s proportions. This only affects the placement of components with respect to each other, not the layout of each individual component. It has no effect if the graph is connected.
- ▶ **Automatic** – The layout is performed automatically.
- ▶ **Custom** – You can specify the aspect ratio. The default is 1.0.

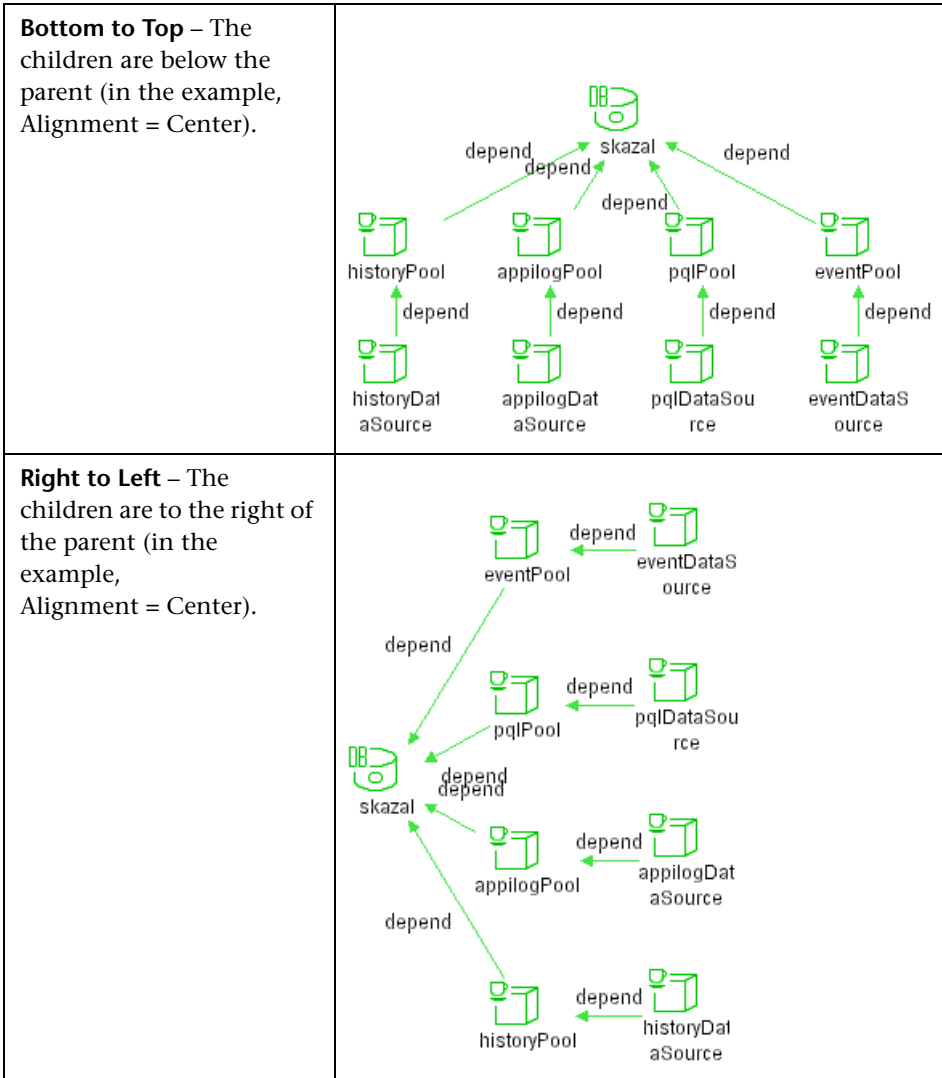
Hierarchical Layout

The hierarchical layout shows the precedence relationships that can represent organizational or information management system dependencies, as well as process models, software call graphs, and work flows. The hierarchical layout emphasizes dependencies by placing the nodes at different levels.

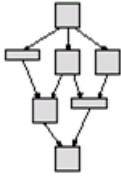
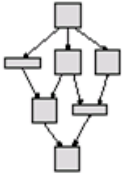
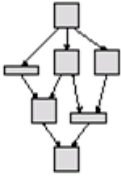
There are several layout options you can apply to a hierarchical layout, as described below.

► **Orientation** – The orientation of the hierarchy.



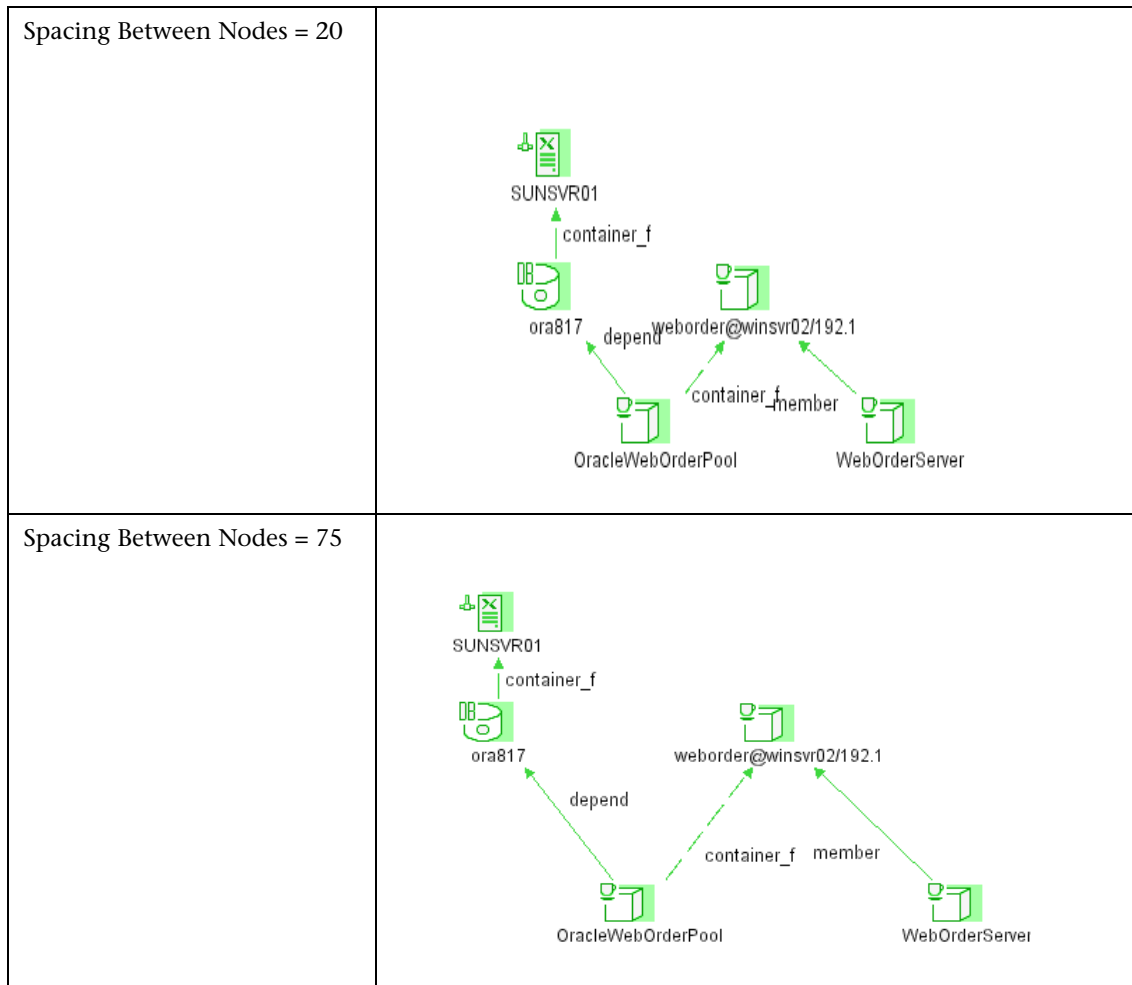


- **Level Alignment** – This option allows you to control the way nodes are aligned on a vertical level.

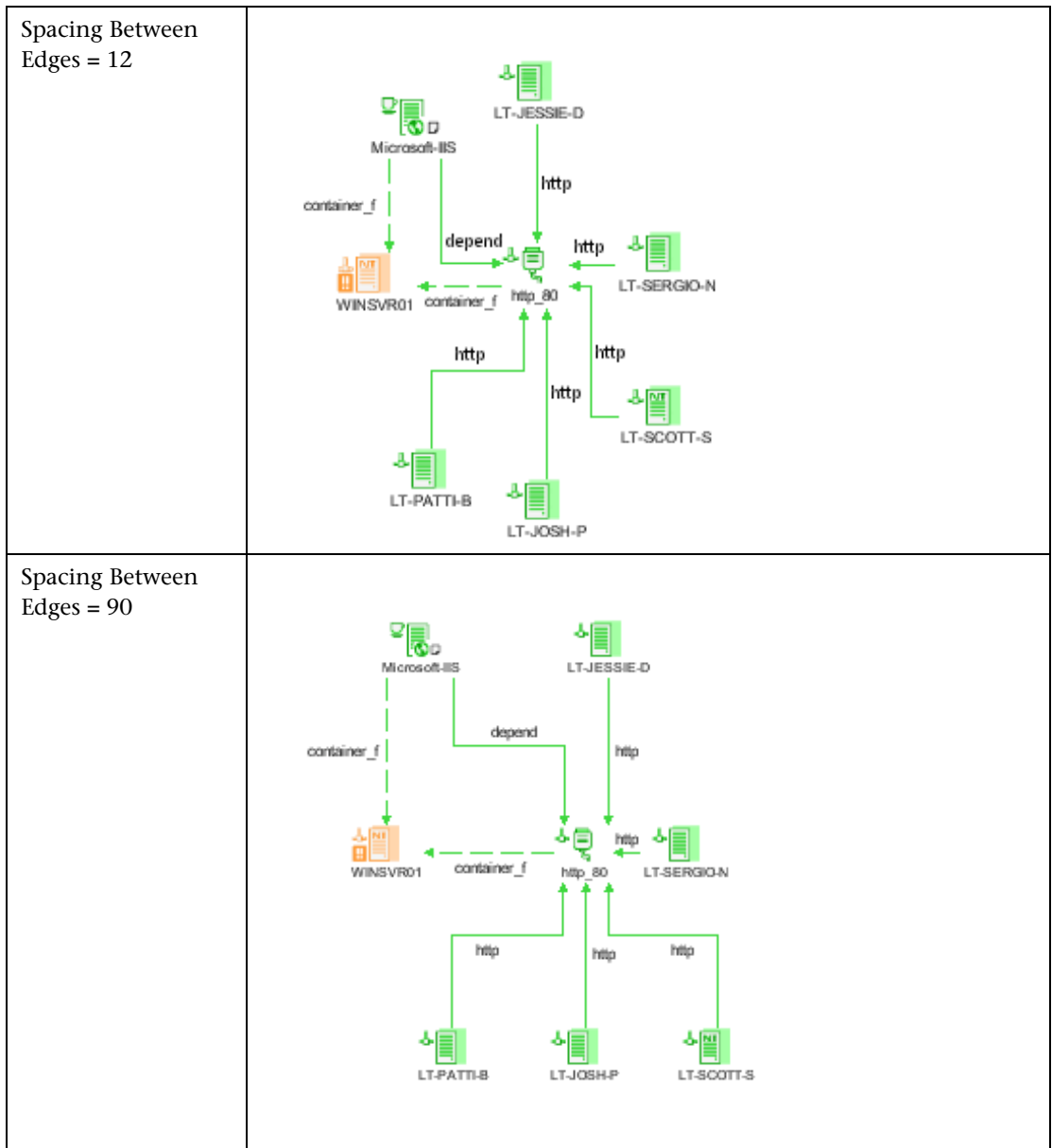
| Top – The top of the nodes at the same level of the hierarchy are aligned. | Center – The center of the nodes at the same level of the hierarchy are aligned. | Bottom – The bottom of the nodes at the same level of the hierarchy are aligned. |
|---|---|---|
|  |  |  |

- **Layout Quality** – You can adjust the quality of the layout produced to fit your application's needs. The quality reflects the number of steps or the method used to produce the layout:
 - **Draft**
 - **Default**
 - **Proof**
- **Horizontal Spacing** – Sets the minimum horizontal distance between two neighboring nodes on each level.

- **Spacing Between Nodes** – Sets a space around each node horizontally in the layer. The default value is 20.



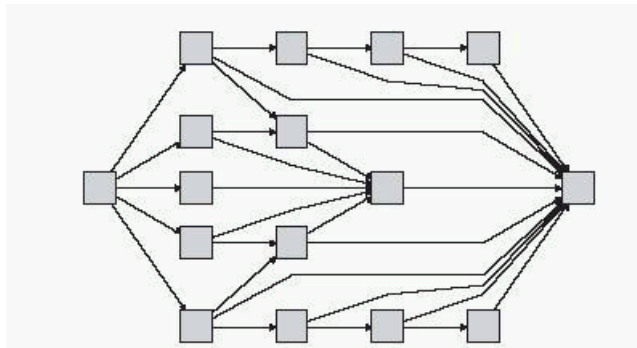
- **Spacing Between Edges** – This setting is available only when you select **Routing > Orthogonal**. It sets a horizontal space between elements in the graph.



- ▶ **Vertical Spacing** – Sets the minimum vertical distance between two neighboring nodes on different levels.
- ▶ **Spacing Between Nodes** – Sets a vertical space around each node in the layer. The default value is 20.
- ▶ **Spacing Between Edges** – This setting is available only when you select **Routing > Orthogonal**. It sets a vertical space between edges in the graph.
- ▶ **Routing** – Sets the type of relationship between CIs. This option is useful when layers have nodes with a very large number of connecting relationships.

| | |
|--|--|
| <p>Orthogonal – To have orthogonal relationships between CIs.</p> | |
| <p>Polyline – To have straight lines between CIs.</p> | |

- **Orthogonal Routing** – Routes edges horizontally and vertically.
- **Fix Node Sizes** – For future use.
- **Polyline Routing** – Routes edges as one or more straight line segments with arbitrary angles. Polyline routed edges are prevented from overlapping by adding extra segments.
- **Spacing Between Bends** – This setting is available only when you select **Routing > Polyline**. Polyline routing routes edges as one or more straight line segments with arbitrary angles. Path nodes are added automatically to keep the edges from overlapping.

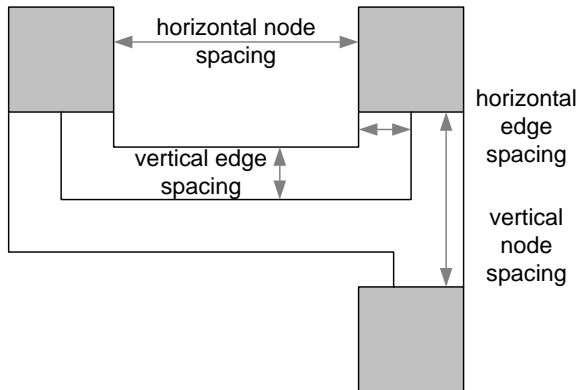


- **Variable Level Spacing** – Adjusts the spacing between pairs of neighboring levels according to the density of edges between the levels.
 If the drawing's edges are orthogonally routed, this ensures the required vertical spacing between horizontal edges (in a top-to-bottom or bottom-to-top layout) routed between levels.
 If the routing is polyline, variable level spacing makes it easier to distinguish between edges in very dense drawings.
- **Undirect Layout** – Edge direction is not used to build the levels of the hierarchical drawing.

Orthogonal Layout

The orthogonal layout routes relationships horizontally and vertically. This results in relationships bending at 90-degree angles only.

- **Horizontal Spacing** – Sets the minimum horizontal distance between CIs.

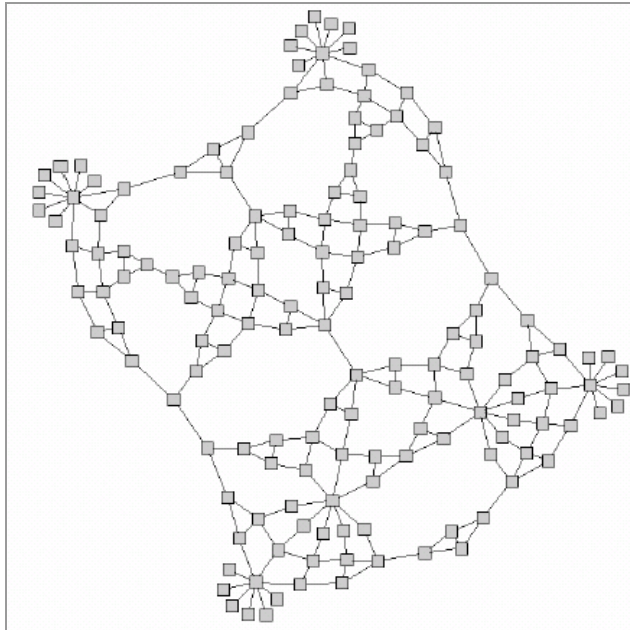


- **Spacing Between Nodes** – Sets a space around each node in the layer. The default value is 20.
- **Spacing Between Edges** – Sets a space between elements in the layer.
- **Vertical Spacing** – Sets the minimum vertical distance between CIs.
 - **Spacing Between Nodes** – Sets a space around each node in the layer. The default value is 20.
 - **Spacing Between Edges** – Sets a space between elements in the layer.
- **Layout Quality** – You can adjust the quality of the layout produced to fit your application's needs. The quality reflects the number of steps or the method used to produce the layout (for example: high quality is neater and cleaner but takes more time to layout).
 - **Draft**
 - **Default**
 - **Proof**

- ▶ **Aspect Ratio** – The layout's proportions. This only affects the placement of components with respect to each other, not the layout of each individual component. It has no effect if the graph is connected.
 - ▶ **Automatic** – The layout is performed automatically.
 - ▶ **Custom** – Specify the aspect ratio. The default is 1.0.
 - ▶ **Disabled** – Disables the aspect ratio.
- ▶ **Fix Node Size** – For future use.

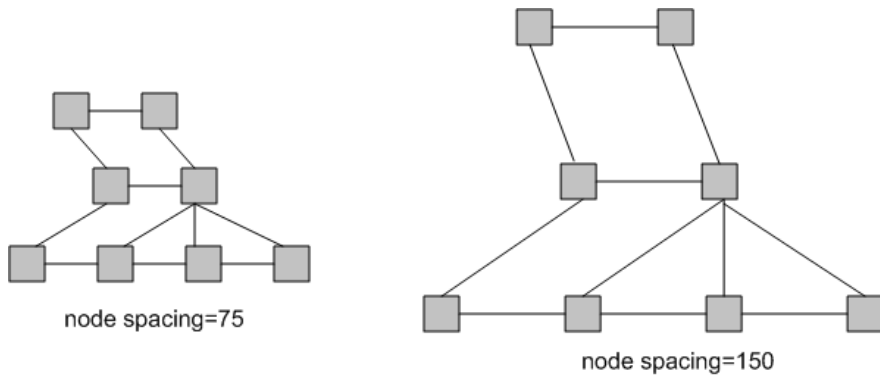
Symmetric Layout

The symmetric layout emphasizes the symmetries that may occur in a graph.



This section describes the symmetric layout options that are available.

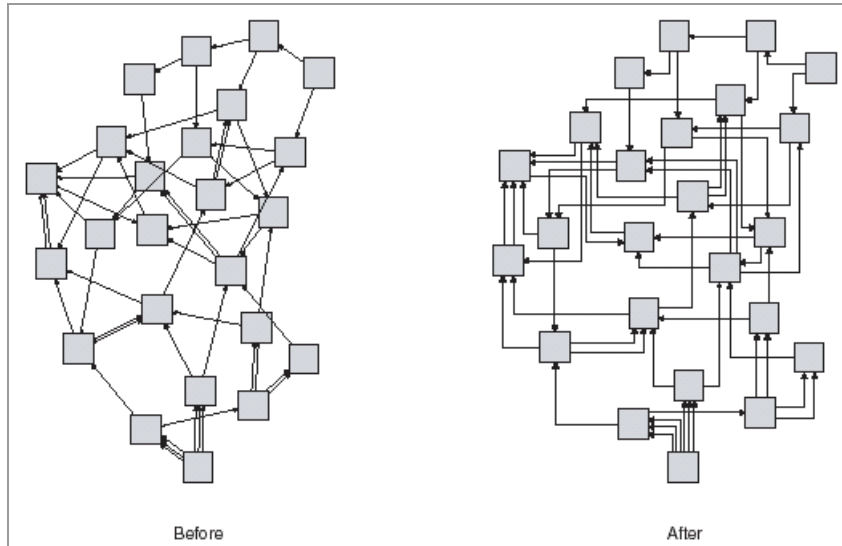
- ▶ **Spacing Options** – The symmetric layout allows you to adjust the spacing of nodes.
 - ▶ **Node Spacing** – Allows you to set constant horizontal and vertical spacing around each node in the layer. The value you specify is a guideline for the layout, so that it is possible that the spacing for a particular pair of nodes might be different from the one you specified. The larger the node spacing you specify, the farther apart the nodes will be in the final layout. The default is 10.



- ▶ **Layout Quality** – You can adjust the quality of the layout produced to fit your application’s needs. The quality reflects the number of steps or the method used to produce the layout (for example: high quality is neater and cleaner but takes more time to layout).
 - ▶ **Draft**
 - ▶ **Default**
 - ▶ **Proof**

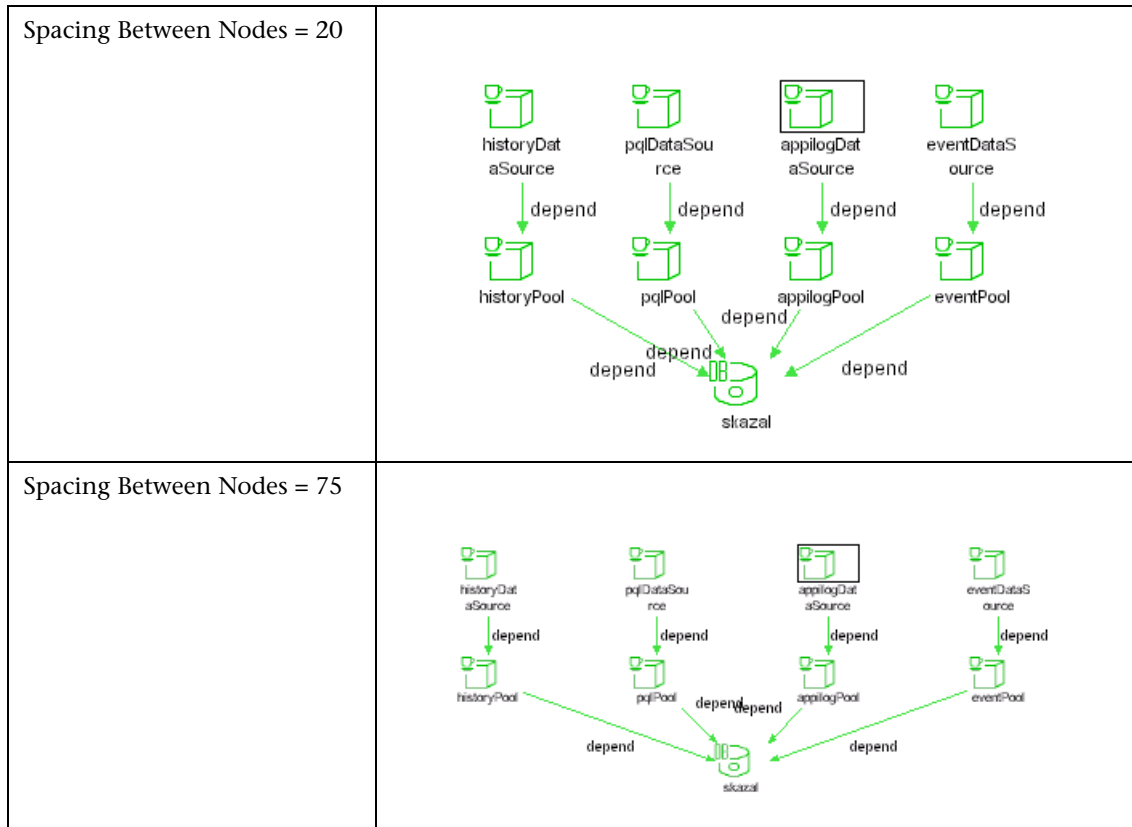
Routing Layout

Routing produces drawings that leave nodes essentially where they are, and reroutes the edges orthogonally.

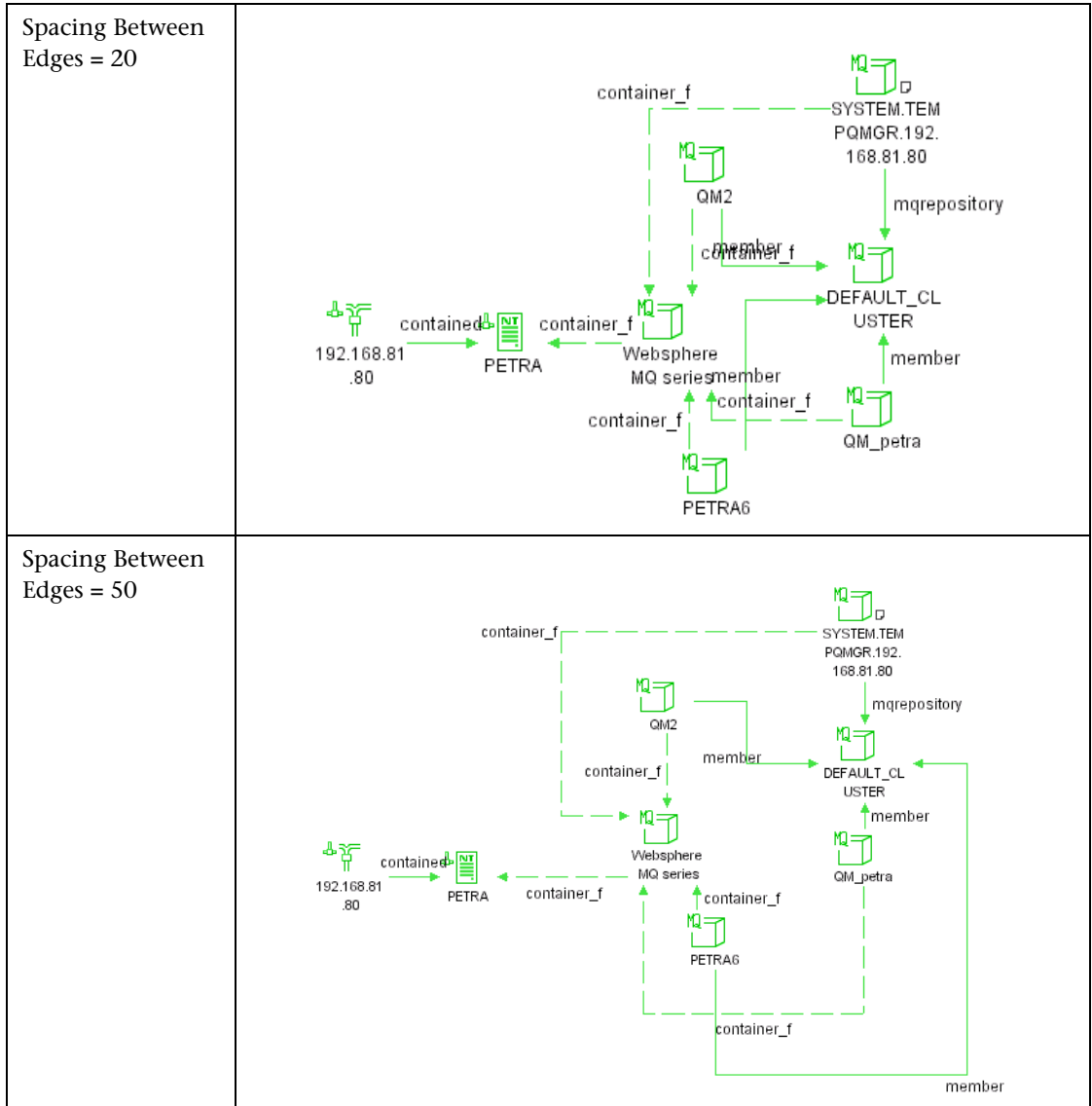


This section describes the routing layout options that are available.

- ▶ **Horizontal Spacing** – Sets the horizontal space around each node or each CI.
- ▶ **Spacing Between Nodes** – Sets the horizontal space around each node in the layer. The default value is 20.



- **Spacing Between Edges** – Sets the horizontal space between any two neighboring parallel edges. Edge spacing can also affect the size of a node to which many edges are attached, unless the node is set to remain fixed at its current size. The settings for edge spacing are constant values. For example:



- ▶ **Vertical Spacing** – Sets the vertical space around each CI.
 - ▶ **Spacing Between Nodes** – Sets the vertical space around each node in the layer. The default value is 20.
 - ▶ **Spacing Between Edges** – Sets the vertical space between any two neighboring parallel edges. Edge spacing can also affect the size of a node to which many edges are attached, unless the node is set to remain fixed at its current size. The settings for edge spacing are constant values.
- ▶ **Fix Node Sizes** – Select **Fix Node Sizes** to maintain the size of a node. Clear this option if you want the layout to increase the size of a node if it is necessary to maintain the specified relationship spacing when more than one relationship is attached to the same node side.
- ▶ **Fix Node Positions** – Select **Fix Node Positions** to maintain the position of all the nodes in the display. Clear the option if you want the layout to move the nodes if it is necessary to improve the layout. The movement is minimal, and avoids overlaps and minimizes bend points.

Understanding Layout Options

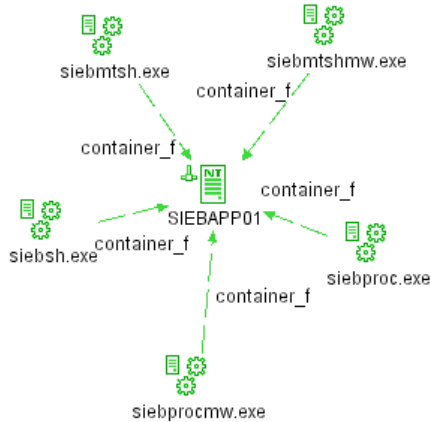
Hierarchical Layout ▾

You can display the contents of the topology map using one of the following layout options from the **Layout** to list. This section includes the following topics:

- ▶ Symmetric Layout – for details, see page 61
- ▶ Hierarchical Layout – for details, see page 61
- ▶ Orthogonal Layout – for details, see page 62
- ▶ Manual Layout – for details, see page 62

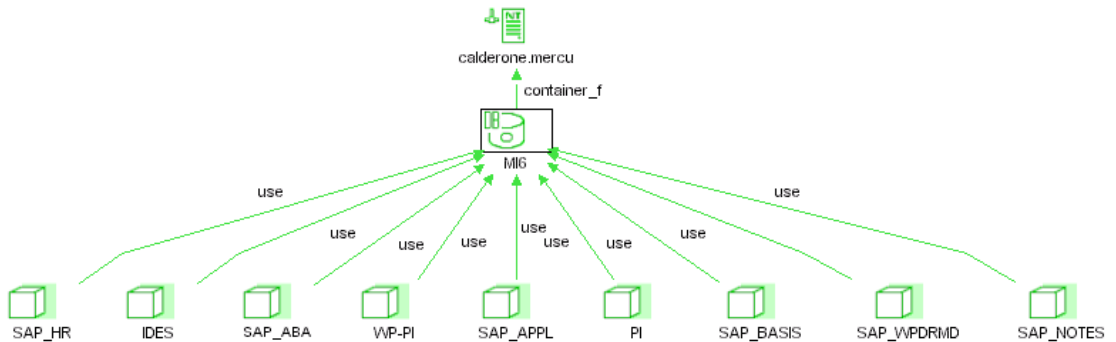
Symmetric Layout

Symmetric layout enables you to display clear representations of complex networks:



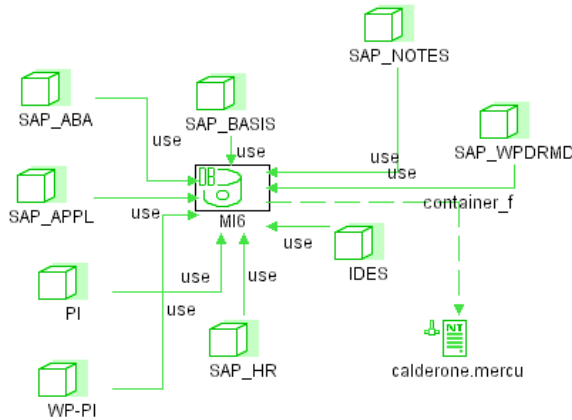
Hierarchical Layout

Hierarchical layout enables you to display the precedence relations in the topology map:



Orthogonal Layout

Orthogonal layout enables you to display views of outstanding clarity that are achieved by employing only horizontal and vertical edge routing.



Manual Layout

Save manual layout is relevant only to the topology map in Dashboard (see “Dashboard Topology Map” in *Using Dashboard*) and the topology map in IT Universe Manager (see “Working in Topology Map Mode” in *IT Universe Administration*).

Manual Layout enables you to manually change the topology map display, by dragging the displayed CIs and relationships to the desired location.

You can save the manual changes you made, by clicking the **Save** button on the toolbar. Thus, you will be able to reuse the layout you created.

Note: You can only save one manual layout. If another manual layout is already saved, after you would click the **Save** button a message would appear, asking you whether you want to replace the saved layout. Click **Yes** to save your new layout.

Part IV

Appendixes

5

Sharing the Mercury Universal CMDB Environment

This chapter describes the additional Mercury Application Mapping functionalities you can use with Mercury Business Availability Center and the components it shares with Mercury Application Mapping when using the shared Mercury Universal CMDB environment.

| This chapter describes: | On page: |
|---|-----------------|
| Understanding the Shared CMDB Environment | 66 |
| Installing the CMDB Shared Environment | 66 |
| Shared Components and Functionalities | 67 |
| Additional Capabilities in Mercury Business Availability Center | 68 |

Understanding the Shared CMDB Environment

Using a shared CMDB environment enhances Mercury Business Availability Center with additional Mercury Application Mapping functionality.

It enables you to view some of the same information in Mercury Business Availability Center as in Mercury Application Mapping and access the same views (depending on the permissions you have been assigned). Once you are working in a shared environment, you can build pattern and instance views in one of the applications and it appears in both Mercury Business Availability Center and Mercury Application Mapping. You can access the shared views from either one of the applications. Only pattern views can be edited from both Mercury Business Availability Center and Mercury Application Mapping. Instance views can be edited from the application in which it was created.

You can also view the snapshots of views that you saved in Mercury Application Mapping in Mercury Business Availability Center.

Since the Discovery Manager is a component shared by both, you can perform a discovery in either Mercury Business Availability Center or Mercury Application Mapping and see the results in both clients.

The added functionalities provided by a shared CMDB environment are functionalities that are otherwise not available in Mercury Business Availability Center.

Installing the CMDB Shared Environment

To work with a shared CMDB environment, you must install Mercury Application Mapping and the **BACMAMShareCMDB.exe** package.

For details on how to create a shared environment, see the *Mercury Application Mapping Installation Guide*.

Shared Components and Functionalities

Mercury Business Availability Center and Mercury Application Mapping have the following shared components and functionalities:

- ▶ **Discovery** – Discovery Manager is accessible for both Mercury Business Availability Center and Mercury Application Mapping clients. You can perform a discovery in one, and see the results in the other. For example, if you perform a discovery in Mercury Business Availability Center, you can see the discovery results in Mercury Application Mapping as well as Mercury Business Availability Center. For details, see “Running the Discovery Process” in *Discovery Manager Administration*.
- ▶ **Discovery Probe** – The Discovery Probe you install serves both Mercury Application Mapping and Mercury Business Availability Center. For details, see “Installing the Discovery Probe” in *Discovery Manager Administration*.
- ▶ **Views** – Views that are created by one client can be accessed by the other according to the permissions assigned to the users and user groups.
 - ▶ **Pattern Views** – Pattern views created in one client can be viewed and edited by the other client.
 - ▶ **Instance Views** – Instance views that are created in:
 - Mercury Business Availability Center are accessible by Mercury Application Mapping users but can only be edited in Mercury Business Availability Center.
 - Mercury Application Mapping are accessible by Mercury Business Availability Center users but can only be edited in Mercury Application Mapping.

For details on pattern and instance views, see *View Manager Administration*.

- ▶ **Setting Permissions for Views** – Administrators have the following permission capabilities when working in a shared environment:
 - ▶ Administrators for Mercury Business Availability Center have access to a list of existing Mercury Application Mapping views and can assign permissions to different Mercury Business Availability Center users.
 - ▶ Administrators for Mercury Application Mapping have access to a list of existing Mercury Business Availability Center views and can assign permissions to different Mercury Application Mapping users.

For more information on setting permissions for views, “Configuring User Permissions” in *Platform Administration*.

- ▶ **Deploying Packages** – Packages that are deployed in one client using the JMX console are automatically installed in the other. For details on deploying packages using the JMX console, see “Deploying, Displaying, and Removing Deployed Packages” in *Discovery Manager Administration*.

Additional Capabilities in Mercury Business Availability Center

The following features are available in Mercury Business Availability Center only if you are working in a shared CMDB environment.

- ▶ **Change Report** – Contains all the changes that occurred for the selected CI and all its children. For details, see “Change Report” in *Using Dashboard*.
- ▶ **Display Attribute History** – Displays a list of attributes in which changes have occurred only in the selected CI. For details, see “Generating a Change Report for a CI” in *Using Dashboard*
- ▶ **View Snapshots** – Enables you to perform a snapshot comparison if snapshots were saved for the selected view in Mercury Application Mapping. For details, see “Environment Comparison” in the *Mercury Application Mapping User’s Guide*.
- ▶ **Monitor Changes** – Mercury Business Availability Center monitors the changes that occur in CIs and provides information about those changes in the tooltip of the selected CI. For details, see “Real-Time Monitoring of CI Property Changes” in *Application Administration*.

6

CMDB Logs

This chapter describes various CMDB log files and explains how to perform basic troubleshooting.

| This chapter describes: | On page: |
|--------------------------------|-----------------|
| CMDB Log File Overview | 70 |
| CMDB Server Parameters | 70 |
| CI Type Model Log | 72 |
| CMDB Notification Logs | 73 |
| CMDB Model Audit Short Log | 74 |
| TQL Logs | 75 |
| History Log | 79 |
| CMDB Enrichment Log | 80 |
| CMDB Plug-in Log | 81 |
| CMDB Dal Log | 81 |

CMDB Log File Overview

This chapter describes Mercury Universal CMDB(CMDB) log files.

CMDB is the implementation of a database that contains details of an organization's elements used in the provision and management of its IT services. CMDB enables modeling the information, storing and managing it, querying the information, and applying customer business logic to its structure. CMDB is composed of subsystems and each subsystem records to several log files.

CMDB log files enable you to perform basic troubleshooting of common CMDB runtime problems. Additionally, by tracking CMDB behavior in the log files, you can examine the effects of changes made in the system.

Note: All log files are located in the <Mercury Business Availability Center root directory>\log\EJBContainer folder.

CMDB Server Parameters

This section contains definitions for CMDB server parameters.

This section includes the following topics:

- ▶ “Life Cycle Log” on page 71
- ▶ “General CMDB Log” on page 71
- ▶ “Quota Log” on page 72

Life Cycle Log

The log name is **cmdb.info_ejb.log**.

| Log File | Description |
|-----------------------|---|
| Purpose | CMDB server life cycle: <ul style="list-style-type: none"> ▶ all server tasks ▶ customer loading and unloading ▶ startup and shutdown of task manager Contains information about any application that did not start properly. |
| Information Level | |
| Error Level | Startup errors of CMDB subsystems, primarily in the data access layer. |
| Debug Level | Not applicable |
| Basic troubleshooting | <ul style="list-style-type: none"> ▶ If the CMDB client receives the exception that the customer does not exist, check that the customer is properly loaded. ▶ If the CMDB client receives the exception that it can not find CMDB in a JNDI lookup, check that the CMDB server is bound in the JNDI tree. ▶ If the HA Controller does not load the CMDB customers, check that the CMDB server is registered in the HA controller. |

General CMDB Log

The log name is **cmdb_ejb.log**.

| Log File | Description |
|-----------------------|--|
| Purpose | Errors of all CMDB subsystems and CMDB CITs that do not have their own log file. |
| Information Level | Information from the CMDB server not directed to any specific log. |
| Error Level | All errors in the CMDB server. |
| Debug Level | Debug information in the CMDB server that is not directed to a specific log. |
| Basic troubleshooting | CMDB server errors during CMDB deployment. |

Quota Log

The log name is `cmdb.quota_ejb.log`.

| Log File | Description |
|-----------------------|---|
| Purpose | Quota names, quota values, and current quota levels. |
| Information Level | Quota names and values set in the server and customer levels during a customer load. |
| Error Level | CMDB operations that failed because they exceeded quota limits. |
| Debug Level | A count collector runs every <i>n</i> minutes and gathers current counts for all quotas. Collected counts are logged. |
| Basic troubleshooting | If operations fail because of quota limits, check the count growth and quota values. |

CI Type Model Log

The log name is `cmdb.classmodel_ejb.log`.

| Log File | Description |
|-------------------|--|
| Purpose | CI Type Model errors and debug messages. |
| Information Level | When a CI Type Model is loaded, incorrect definitions are logged as informational messages. An example of an incorrect definition is duplicate attributes. |
| Error Level | Not available. |

| Log File | Description |
|-----------------------|---|
| Debug Level | <p>Every CI Type update includes the following:</p> <ul style="list-style-type: none"> ▶ original CIT in XML format ▶ new CIT in XML format ▶ differences between the CITs <p>If the CI Type Model update is rejected, the reason is logged.</p> |
| Basic troubleshooting | <p>Compares the differences that the server finds between the original CIT and the new CIT. This is useful to understand the following scenarios:</p> <ul style="list-style-type: none"> ▶ a CIT in a package failed ▶ an action in the CIT browser applet failed ▶ an action in the CIT browser applet succeeded when it should have failed |

CMDB Notification Logs

The log name is **cmdb.notification_ejb.log**.

| Log File | Description |
|-------------------|--|
| Purpose | <p>Notification messages from the time of the component's creation in CMDB until the client's listener receives a message.</p> <p>Most components receive configuration changes from CMDB in push mode, by the notification mechanism, rather than in pull mode.</p> |
| Information Level | <ul style="list-style-type: none"> ▶ startup and shutdown of publishers ▶ register and unregister remote and internal listeners |
| Error Level | <ul style="list-style-type: none"> ▶ errors when messages are published ▶ errors when messages are received |

| Log File | Description |
|-----------------------|---|
| Debug Level | <ul style="list-style-type: none"> ➤ unique message ID ➤ number of changes that a message includes as well as more details according to the type of the message (for example, the TQL result version) ➤ JMS header properties |
| Basic troubleshooting | <p>If an application does not receive a notification, check the following:</p> <ul style="list-style-type: none"> ➤ a listener was registered with the appropriate notification filter ➤ a message was published with data that matches this filter ➤ a message was received by the listener (use the unique message ID to verify) |

CMDB Model Audit Short Log

The log name is `cmdb.model.audit.short_ejb.log`.

| Log File | Description |
|-----------------------|---|
| Purpose | <p>Information about a CI Type operation: type of operation, data received as input, and what was done to the data in each CIT.</p> <p>Also contains information about the caller application, execution times, and persistency time.</p> |
| Information Level | Operation details |
| Error Level | Not available. |
| Debug Level | Not available. |
| Basic troubleshooting | <p>If there are no changes when there should have been, check the following:</p> <ul style="list-style-type: none"> ➤ the operation exists ➤ the input is correct ➤ what happened to the data. There may have been a false update. <p>This is especially useful when running Discovery to trace the input.</p> |

TQL Logs

This section contains definitions for TQL parameters.

This section includes the following topics:

- “Pattern Log” on page 75
- “Pattern Statistics Log” on page 76
- “Audit Short/Detailed Log (TQL Perspective)” on page 77
- “Incremental Statistics Log” on page 77
- “Incremental Splitter Log” on page 78
- “Incremental Detailed Log” on page 79

Pattern Log

The log name is **cmdb.pattern_ejb.log**.

| Log File | Description |
|-------------------|---|
| Purpose | Information about the life cycle of a TQL pattern that is handled and calculated in the CMDB. Only TQLs stored in the CMDB are included. Information about ad hoc TQLs is not included. |
| Information Level | Not available. |
| Error Level | Only failed TQL patterns are logged. These TQL patterns include: <ul style="list-style-type: none"> ➤ a pattern that failed and is to be recalculated soon ➤ a pattern that failed three consecutive times (the status is set to Fail and the pattern is not recalculated) ➤ a pattern that recovered from Fail status |

| Log File | Description |
|-----------------------|---|
| Debug Level | <p>Possible actions performed on each TQL pattern include:</p> <ul style="list-style-type: none"> ➤ status changes ➤ model changes ➤ pattern changes ➤ completed calculations |
| Basic troubleshooting | <p>Check if a TQL pattern has the same status for a long time:</p> <ul style="list-style-type: none"> ➤ new – the pattern is in lazy loading ➤ inactive ➤ calculation – the calculation may have failed but the scheduler was not informed <p>You can also see the number of notifications that a TQL received.</p> |

Pattern Statistics Log

The log name is **cmdb.pattern.statistics_ejb.log**.

| Log File | Description |
|-----------------------|---|
| Purpose | General calculation data for each TQL, updated at predefined intervals. |
| Information Level | <p>The following information is given for each TQL:</p> <ul style="list-style-type: none"> ➤ name ➤ average, minimum, and maximum calculation times ➤ number of calculations ➤ last calculation time ➤ result size |
| Error Level | Not available. |
| Debug Level | Not available. |
| Basic troubleshooting | <ul style="list-style-type: none"> ➤ Verify that a specific TQL was updated. ➤ Evaluate a TQL's calculation time. ➤ Evaluate a TQL's result size. |

Audit Short/Detailed Log (TQL Perspective)

The log name is `cmdb.audit.short_ejb.log`.

| Log File | Description |
|-----------------------|---|
| Purpose | CMDB state changes, CI Type changes, and TQL results. You can use this log to follow the results of TQL patterns. |
| Information Level | Not available. |
| Error Level | Not available. |
| Debug Level | <ul style="list-style-type: none"> ▶ Final calculation for TQLs is logged. ▶ If the final TQL calculation is unchanged from the previous calculation, this is noted. ▶ If the final TQL calculation is changed from the previous calculation, results of the CIs and relationships are recorded in the detailed log. The number of CIs and relationships are recorded in the short log. |
| Basic troubleshooting | <ul style="list-style-type: none"> ▶ Use this log to verify which notifications are published by the TQL subsystem. ▶ Check the section at the end of each result. This section includes added, removed, and updated CIs and relationships. ▶ Track the model changes and see if the pattern results also change. You can thus correlate the model changes to the results of the pattern calculations. |

Incremental Statistics Log

The log name is `cmdb.incremental.statistics_ejb.log`.

| Log File | Description |
|-------------------|--|
| Purpose | Traces the calculation procedure, full or incremental, of every pattern. |
| Information Level | Not available. |
| Error Level | Not available. |

| Log File | Description |
|-----------------------|--|
| Debug Level | <ul style="list-style-type: none"> ▶ Gives the date, time, pattern name, and whether an incremental statistic calculation was performed (yes/no). ▶ If an incremental statistic calculation was not performed, states the reason, the number of subcalculations (relevant for incremental calculations only), and the complete calculation time. |
| Basic troubleshooting | <p>Monitors the calculation process.</p> <p>If a specific pattern calculation takes a long time, check if it is a full or incremental calculation:</p> <ul style="list-style-type: none"> ▶ If full, check whether a full calculation is necessary. ▶ If incremental, check how many subcalculations have been performed. |

Incremental Splitter Log

The log name is `cmdb.incremental.splitter_ejb.log`.

| Log File | Description |
|-----------------------|--|
| Purpose | Monitors the incremental splitter result made during an incremental calculation. |
| Information Level | Not available. |
| Error Level | Not available. |
| Debug Level | Gives the set of node numbers of each pattern graph created by the incremental splitter. |
| Basic troubleshooting | If the TQL result calculated by the incremental calculator is wrong, verify that the splitter result is correct. |

Incremental Detailed Log

The log name is **cmdb.incremental.detailed_ejb.log**.

| Log File | Description |
|-----------------------|---|
| Purpose | Monitors the incremental calculation process. |
| Information Level | Not available. |
| Error Level | Not available. |
| Debug Level | Each incremental subcalculation entry includes the following: <ul style="list-style-type: none"> ▶ the trigger node ▶ the number of elements classified to the trigger node ▶ whether the subcalculation step is driven by new elements added to the model or by existing elements ▶ the calculated pattern graph |
| Basic troubleshooting | Follows the basic steps of an incremental calculation. |

History Log

The log name is **cmdb.history_ejb.log**.

| Log File | Description |
|-------------------|--|
| Purpose | <ul style="list-style-type: none"> ▶ Records which CITs are found by the history database when the database was initialized from an existing topology. ▶ Records what is to be saved in the history database. ▶ Tracks events saved in the history database. ▶ Records when the history database was purged. |
| Information Level | <ul style="list-style-type: none"> ▶ When the last purge was done. ▶ Information about initialization of the history database. |
| Error Level | Lists errors when trying to insert event information into the history database. |

| Log File | Description |
|-----------------------|---|
| Debug Level | <ul style="list-style-type: none"> ▶ Details about CITs inserted during initialization of the history database. ▶ Details about changes in the TQL results saved in the history database. |
| Basic troubleshooting | |

CMDB Enrichment Log

The log name is `cmdb.enrichment_ejb.log`.

| Log File | Description |
|-----------------------|---|
| Purpose | <p>Enrichment definitions: adding, updating, removing, and calculating.</p> <p>Calculation results such as how many CIs were added, how many relationships were removed, and so forth.</p> <p>Supplies the reason for a calculation failure. Failure in a model update, however, is not included since it is an asynchronous execution.</p> |
| Information Level | <ul style="list-style-type: none"> ▶ Add, update, and remove enrichment definitions. ▶ Add, update, and remove CIs or relationships to or from a model. |
| Error Level | Calculation failure. |
| Debug Level | ▶ |
| Basic troubleshooting | <ul style="list-style-type: none"> ▶ If no calculation was carried out, check the definition of add enrichment. ▶ If there are no results, check the finish calculate entry. |

CMDB Plug-in Log

The log name is **cmdb.plugins_ejb.log**.

| Log File | Description |
|-----------------------|---|
| Purpose | Plug-in input and output notification. |
| Information Level | Lifecycle of publisher. |
| Error Level | <ul style="list-style-type: none"> ▶ no customer name exists in the customer ID ▶ publisher failure |
| Debug Level | Receive or send a change. |
| Basic troubleshooting | If notification did not reach the destination, check that the plug-in received the input. |

CMDB Dal Log

The log name is **cmdb.dal_ejb.log**.

| Log File | Description |
|-----------------------|---|
| Purpose | Information about activity that occurred in the data access layer, the layer that works with CMDB. |
| Information Level | Not available. |
| Error Level | <ul style="list-style-type: none"> ▶ connection pool errors ▶ database errors ▶ command execution errors |
| Debug Level | <ul style="list-style-type: none"> ▶ all DAL commands executed ▶ all SQL commands executed |
| Basic troubleshooting | <p>If you suspect that CMDB actions are taking too long, check the time spent on queries and updates in the CMDB.</p> <p>Exception details and ID are entered into the log. The exception ID appears in the exception itself.</p> |

Index

A

audit short/detailed log (TQL perspective) 77

B

browse mode
 displaying a view 15
browse mode, for View Explorer 14
buttons
 toolbar 33

C

CI properties 29
CI Type log 72
CIs
 searching for 22
CMDB
 audit short log 74
 DAL Log 81
 enrichment log 80
 exploring views 12
 general log 71
 log files 69
 notification logs 73
 plug-in log 81
 search for CIs 23
 server parameters 70
 shared 65
CMDB Administration, introduction 3
configuring View Explorer 29

D

Dashboard
 using search tool with Filters tab 27

F

Filters tab
 filtering using View Explorer search
 27
finding CI by type 25
finding related CI 23

H

history log 79

L

layer setup
 option 41
layer's layout
 defining 42
layout
 setting layer's layout 42
locating CIs by searching 19
logs
 incremental detailed 79
 incremental splitter 78
 incremental statistics 77
 lifecycle 71
 quota 72

M

menu options, for a CI 28

Index

P

- pattern log 75
- pattern statistics log 76
- printing the topology map 38
- properties
 - viewing for a CI 29

S

- search
 - for related CIs 28
- search for CI 22
- search mode
 - find CIT 25
 - find related CI 23
 - locating views 19
 - search by CI name 22
 - search in CMDB 23
 - search in views 23
- search mode, for View Explorer 14
- search tool
 - using with Dashboard Filters tab 27
- setup
 - layer layout 41
- show related CIs 28

T

- TQL
 - logs 75

V

- View Explorer 12
 - CI properties 29
 - configuration 29
 - displaying a view 15
 - finding CI by type 25
 - finding related CI 23
 - locating CIs by searching 19
 - menu options 28
 - show related CIs 28
 - unavailable views 18

views

- displaying 15
- locating by folder 18
- search in 23
- unavailable views 18