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MERCURY BUSINESS AVAILABILITY CENTER™

Discovery Manager Administration

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Mercury Business Availability Center

Discovery Manager Administration

Version 6.1

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Discovery Manager Administration

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Welcome to Discovery Manager Administration

This guide describes how to work with Discovery Manager.

How This Guide Is Organized

The guide contains the following chapters:

Chapter 1 Introduction to the Discovery Manager

Contains an explanation of what the discovery process is and describes the Mercury Business Availability Center discovery process architecture.

Chapter 2 Installing the Discovery Probe

Describes how to install the Discovery Probe.

Chapter 3 Customized Package Creation

Describes how to create customized packages to suit your IT management needs.

Chapter 4 Deploying, Removing, and Displaying Deployed Packages Using the JMX Console

Describes how to deploy and remove packages using the JMX console.

Chapter 5 Discovery Manager

Describes how to run the discovery process by activating and editing discovery patterns.

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*.

1

Introduction to the Discovery Manager

This chapter introduces the Discovery Manager. The Discovery Manager enables you to manage the discovery process.

This chapter describes:	On page:
About the Discovery Process	1
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About the Discovery Process

Mercury Business Availability Center's discovery system enables you to automatically discover and map logical application assets in Layers 2 through 7 of the Open System Interconnection (OSI) Model. It is an ongoing, automatic process that continuously detects changes that occur in your IT infrastructure and updates the CMDB accordingly. It does not require any agent installation on the discovered device and uses a spiral discovery model that has over 100 out-of-the-box discovery patterns.

The discovery process is a gradual uncovering of the elements in your system. Discovery is first done at the most basic level, and then at more in-depth ones. Every time a discovery pattern is activated, it discovers more CIs, which in turn are used as triggers for other discovery patterns. This process continues until your entire IT infrastructure is discovered and mapped.

The discovery process does the following:

- Sweeps the application domain
- Identifies application element details
- Determines which ports are being used
- Checks the OS (operating system)
- Communicates with Industry standard or Application APIs

Discovery Process Architecture

The architecture of the Mercury Business Availability Center discovery process consists of the following components:

- "Discovery Pattern" on page 2
- "Discovery Module" on page 3
- "Discovery Probe" on page 3
- "Mercury Business Availability Center Server" on page 3
- "Discovery Domain" on page 3
- "Discovery Protocol" on page 3

Discovery Pattern

The discovery process is run by activating discovery patterns. A discovery pattern is an XML template that contains definitions of one or more discovery tasks. It defines which data is discovered, through which protocol, when to pass the data on to the CMDB, and the executing schedule. A discovery pattern contains a description of the configuration items (CIs) and relationships that are created with each specific pattern. The CI and relationship definitions are taken from the CI Type Model, which contains the definitions of all the configuration item types (CITs) and relationships defined in the system.

Discovery Module

A discovery module contains one or more discovery patterns that together, allow a discovery of a specific technology/application. For example: discovery of the network includes patterns that discover: IPs, servers, switches, routers, and so forth.

Discovery Probe

The Discovery Probe is the main discovery component responsible for receiving discovery tasks from the Mercury Business Availability Center server, dispatching them to the IT components and sending the results back to the CMDB through the server.

Mercury Business Availability Center Server

The Mercury Business Availability Center server delivers discovery requests to the Discovery Probe, receives the discovery results, and stores the collected data in the CMDB.

Discovery Domain

The discovery domain maps a range of network addresses to a specific installed Discovery Probe. The connection between the domain name to the physical installed Discovery Probe is made in the **appilog-remote.properties** file, which is located in: **\<Mercury Business Availability Center root directory>\root\lib\collectors**.

Discovery Protocol

Discovery of the different IT infrastructure components is performed by using various protocols such as SNMP, WMI, JMX, Telnet, and so forth.

About the Discovery Manager

The Discovery Manager contains discovery modules. Each module contains one or more discovery patterns required for discovering a specific group of CIs. You run the discovery process by activating discovery patterns in the Discovery Manager. You can choose to activate all the patterns in the module or only some of them.

The Discovery Manager also enables you to edit the discovery patterns. Only administrators with an advanced knowledge of how the discovery process works, should edit the discovery patterns.

Before You Begin

Before you run the discovery process, you must first do the following:

- Obtain a license. For more information, contact your Mercury representative.
- Install the Discovery Probe. For information on how to install the Discovery Probe, see "Discovery Probe Installation Procedure" on page 6.

For more information on the discovery process, see the *Discovery Process Tutorial*.

2

Installing the Discovery Probe

This chapter describes the hardware and software requirements and the procedures that are needed for the installation of the Discovery Probe on a Windows platform.

This chapter describes:	On page:
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Discovery Probe Hardware and Software Requirements	6
Discovery Probe Installation Procedure	6

About Installing the Discovery Probe

Before you run the discovery process, you first need to install the Discovery Probe. Read about the hardware and software requirements for installing the Discovery Probe below and the Discovery Probe installation procedure in "Discovery Probe Installation Procedure" on page 6.

Discovery Probe Hardware and Software Requirements

The following table describes the hardware and software requirements for installing the Discovery Probe.

Supported Environments	Memory	Free Hard Disk Space
➤ Microsoft Windows 2000 ➤ Microsoft 2003 Server ➤ Microsoft Windows XP	Minimum: 256 MB RAM Recommended: 1024 MB RAM	Minimum: 2 GB Recommended: 4 GB

Discovery Probe Installation Procedure

To install the Discovery Probe, follow the instructions of the Discovery Probe wizard.

To install the Discovery Probe:

1. In the **Admin** menu, select **Platform**, and then click **Downloads** to open the Downloads page.
2. Click the **Auto Discovery Probe** link. A dialog is displayed asking if you want to open the Setup file or save it to your computer.

   ➤ If you choose to open the file, it will not be saved to your computer, and the setup program will start immediately. In this case, depending on your browser security settings, you might receive a security warning dialog box. Confirm that you want to proceed.

➤ If you choose to save the file to your computer, double-click it to begin installation.

The Discovery Probe wizard opens the Introduction page.

3 Click **Next** to open the Choose Installation Folder page.

4 Click **Choose** to display a standard Browse dialog box. Browse to and select the installation folder.

Note: If you change your mind after selecting a directory in the Browse dialog box, click **Restore Default Folder** to restore the default installation directory.

---

5 Click **Next** to display the Discovery Probe Configuration page.

6 In the Discovery Probe Configuration page, do the following:

➤ In the **Core Server IP** box, enter the IP or the DNS name of the Core Server.

➤ In the **Probe IP** box, enter the IP address of the machine on which the Discovery Probe is installed.

➤ In the **Probe Identifier** box, enter the name of the Discovery Probe to be used for the discovery process. The Discovery Probe identifier defined here appears as the default Discovery Probe in the Discovery Probes Manager tab in the Discovery Manager. For details, see "Adding a Discovery Probe" on page 34.

➤ (For MMS environments only where a single server hosts multiple environments) In the **BAC Customer ID** box, enter the Customer ID for the environment to which the Discovery Probe reports.

7 Click **Next** to open the Server Communication Protocol page.

8 Select **Probe Server HTTPS** to secure the Discovery Probe/Server link.

9 Click **Next** to open the Memory Size page.

10 In the Memory Size page, define the minimum and maximum memory to be allocated to the Discovery Probe. The values are measured in megabytes.

- In the **Discovery Probe Min Heap** box, enter a value that defines the minimum amount of memory to be allocated to the Discovery Probe.
- In the **Discovery Probe Max Heap** box, enter a value that defines the maximum amount of memory to be allocated to the Discovery Probe.

Note: It is recommended not to change the defaults.

---

11 Click **Next** to open the Pre-Installation Summary page and review the selections you have made.

12 Click **Install** to complete the installation of the Discovery Probe. When the installation is complete the Install Complete page is displayed.

13 Click **Done**. The following shortcut is added to the Windows **Start** menu:

Programs > **Business Availability Center** > **Administration** > **Discovery Probe**

3

Customized Package Creation

This chapter explains how to create customized packages to suit your IT management needs.

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About Creating Customized Packages

Mercury Business Availability Center modular packaging enables you to install and work with resources and tools that suit your IT management needs. This allows you to focus only on information and tasks that are meaningful for your organization's IT environment. You can expand, update, or remove existing packages as well as create your own packages based on the resources and tools you customized and developed.

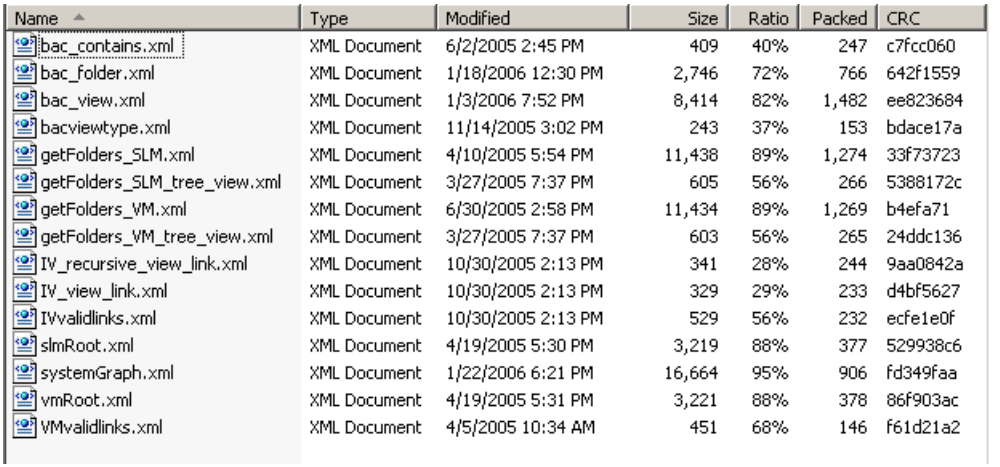
What is a Package?

A package is a zip file containing resources that are structured in organized, predefined subdirectories. The subdirectory structure is defined by a file called **packaging.xml**, which is located in: **\<Mercury Business Availability Center root directory>\mam_lib\server**.

Package Structure

Each package is a zip file containing XML files. Each XML file represents a description of a resource in that directory.

The following illustrates the XML files included in the **views** package.



Name	Type	Modified	Size	Ratio	Packed	CRC
bac_contains.xml	XML Document	6/2/2005 2:45 PM	409	40%	247	c7fcc060
bac_folder.xml	XML Document	1/18/2006 12:30 PM	2,746	72%	766	642f1559
bac_view.xml	XML Document	1/3/2006 7:52 PM	8,414	82%	1,482	ee823684
bacviewtype.xml	XML Document	11/14/2005 3:02 PM	243	37%	153	bdace17a
getFolders_SLM.xml	XML Document	4/10/2005 5:54 PM	11,438	89%	1,274	33f73723
getFolders_SLM_tree_view.xml	XML Document	3/27/2005 7:37 PM	605	56%	266	5388172c
getFolders_VM.xml	XML Document	6/30/2005 2:58 PM	11,434	89%	1,269	b4efa71
getFolders_VM_tree_view.xml	XML Document	3/27/2005 7:37 PM	603	56%	265	24ddc136
IV_recursive_view_link.xml	XML Document	10/30/2005 2:13 PM	341	28%	244	9aa0842a
IV_view_link.xml	XML Document	10/30/2005 2:13 PM	329	29%	233	d4bf5627
IVvalidlinks.xml	XML Document	10/30/2005 2:13 PM	529	56%	232	ecfe1e0f
slmRoot.xml	XML Document	4/19/2005 5:30 PM	3,219	88%	377	529938c6
systemGraph.xml	XML Document	1/22/2006 6:21 PM	16,664	95%	906	fd349faa
vmRoot.xml	XML Document	4/19/2005 5:31 PM	3,221	88%	378	86f903ac
VMvalidlinks.xml	XML Document	4/5/2005 10:34 AM	451	68%	146	f61d21a2

Packages can contain any of the following resources:

- **class** – Contains CIT descriptions, such as **host**, **file**, **switch**, and so forth.

  For details, see "Introduction to the CI Type Manager" in *CI Type Manager Administration*.

- **validlinks** – Contains all possible valid connections (relationships) between the CITs that are defined in the CIT folder.

  For details, see "Introduction to the CI Type Manager" in *CI Type Manager Administration*.

- **typedef** (enumeration definitions) – Contains the definitions that relate to attributes of enumeration type, such as severity levels, admin states and so forth.

  For details, see "About Enumerations and Lists" in *CI Type Manager Administration*.

- **datamodel** – Contains CIT instances.

- **patterns** (discovery patterns) – Contains the required discovery patterns for the package's CITs and relationships.

  For details on discovery patterns, see the *Mercury Application Mapping Discovery Process Tutorial*.

- **tql** – Contains TQLs that are part of the package,

  For details on TQLs, see "Mercury Business Availability Center Topology Query System" in *View Manager Administration*.

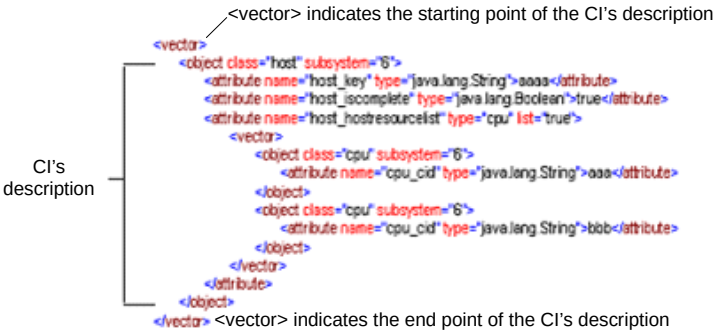
- **reports** – Contains report descriptions relating to the package.

  For details, see "Working in Reports" in *Application Administration*.

- **view** (View Manager) – Contains View Manager definitions that are part of the package.

  For details on the View Manager, see *View Manager Administration*.

The following is an example of the description of a host instance using XML format.



Package Location

When you install **Mercury Business Availability Center**'s packages, all packages are placed in:\<**Mercury Business Availability Center root directory**>**mam_lib****packages**.

All packages must be located in this path. After installing the package file, it is recommended that you set the file to open as read-only in order to prevent any unintentional changes from being made to the file.

Package Deployment

Once you have installed the package, the package resources are imported into the corresponding Mercury Application Mapping managers\tools. For example, all the resources you defined in the CIT directory will be placed in the CI Type Manager with the same hierarchical structure.

To verify deployment validity, see the \<**Mercury Business Availability Center root directory**>**log****packaging.log** file.

Dependencies Among Packages

Certain packages are dependent for their functioning on the installation of other packages. This means that certain packages have to be deployed before deploying others. These dependencies are specified in the **descriptor.xml** file included in each package. When you install the default packages, Mercury Application Mapping automatically specifies the interdependencies in the **descriptor.xml** file.

For example, the **SQL_Server** package is based on resources that are contained in the **Database_Basic** package. To view this dependency, open **SQL_Server.zip** and open **descriptor.xml** in a text editor:

```
<descriptor>
<dependency>Database_Basic.zip</dependency>
</descriptor>
```

The following table contains a list of the default packages in the package directory and their dependencies.

Package	Dependent on...
AutoDiscovery	None
Basic_Classes	None
BLE	➤ SLP ➤ Basic_Classes ➤ Database_Basic ➤ EUM ➤ Business
Business	Basic_Classes
BusinessService	None
Credential_Less_Discovery	➤ Basic_Classes ➤ AutoDiscovery
Database_Basic	➤ Host_Resources_Basic
DB2	Database_Basic
Default_View	views

Package	Dependent on...
diagnostics	➤ Network ➤ Business ➤ BLE ➤ views ➤ SLP
EMS	➤ Network ➤ Business ➤ BLE ➤ views
EUM	➤ Business ➤ views
EUM_61	➤ Business ➤ BLE ➤ EUM ➤ views
Host_Resources_Basic	Network
Host_Resources_By_NTCMD	Host_Resources_Basic
Host_Resources_By_SNMP	Host_Resource_Basic
Host_Resource_By_TTY	Host_Resources_Basic
Host_Resource_By_WMI	Host_Resource_Basic
IBM_HTTP_Server	➤ WebServer ➤ J2EE
ITU	➤ EUM ➤ sitescope ➤ views
J2EE	Database_Basic
Layer2	Network
Mainframe	Host_Resources_Basic

Package	Dependent on...
NetLinks	➤ Basic_Classes ➤ Network
Network	➤ Basic_Classes ➤ AutoDiscovery
Oracle	Database_Basic
OracleApps	➤ Database_Basic ➤ J2EE ➤ Oracle
SAP	➤ J2EE ➤ WebServer
SAP_discovery	➤ SAP
SAP_monitoring	➤ EUM ➤ sitescope ➤ BLE ➤ SAP
ServiceCatalog	view
Siebel	Database_Basic, WebServer
Siebel_discovery	Siebel
sitescope	Business
SLP	None
snapshot	None
SQL_Server	Database_Basic
Sybase	Database_Basic
TCP_discovery	Network
UDX	EMS
views	None
watchdog	➤ sitescope ➤ views

Package	Dependent on...
WebServer	Network
Websphere_MQ	Network

Creating Customized Packages

You can create a customized package to meet the needs of your organization's home-grown applications.

When creating a package, the same top-level structure and names must match the definitions described in the **packaging.xml** file to maintain consistency with the deployment mechanism. You can change the lower levels as required, that is, you can add resources and folders.

XML File Naming Conventions

This section describes the naming conventions for XML file name for the resources whose manager is a folder according to **packaging.xml**. The resources are:

- TQL
- Correlation Rules
- Enrichment Rules
- View Manager

Following are the naming conventions:

- The name of the resources described in the XML file must be identical to the name of the XML file. For example, a correlation rule called **MyCorrelation** should be described in a file called **MyCorrelation.xml**.
- The XML file name is case sensitive. For example, if the name of the resource is called **timeRules**, then the name of the XML file must be **timeRules.xml** and not **timerules.xml** or **TimeRules.xml**.

Creating a Package

You can create your own customized package.

To create a package:

1. Create the necessary folder or folders as defined in the **packaging.xml** file, located in\<**Mercury Business Availability Center root directory**>**mam_lib****server**.
2. Place the relevant resources in the corresponding directories. For example, If you create a correlation rule, place it in the Correlation directory.

   For a list of the resources you can place in the package, see "Package Structure" on page 10.

Note: All dependencies must be specified in the **descriptor.xml** file of the package.

---

3 Zip the directories you have created, including the **descriptor.xml** file.

4 Place the zip file you have created in\<**Mercury Business Availability Center root directory**>**mam_lib****packages**.

Exporting Resources to a Package

You can export resources to a package using the JMX console. As an example, this section describes how to export TQL resources to a package.

To export TQL resources to a package using the JMX console:

1 Launch your Web browser and navigate to: **http://<server_name>:8080/jmx-console**, where <**server_name**> is the name of the machine on which the Processing Server is installed.

2 Under **Topaz**, click **service=CMDB Tql Services** to open the JMX MBEAN View page.

3 Enter the following to the right of the **exportTql** box:

   ➤ In the **customerId** box, enter 1.

   ➤ In the **Tql Name** box, enter the name of the TQL whose definition you want to export to the package.

4 Click **Invoke** to open the JMX MBean Operation Result page.

5 Right-click and select **View Source** to view the source code for the TQL resource.

6 Copy the source code and paste it into an XML file.

7 Add the XML file to the zip file of the desired package.

Uninstalling and Updating a Customized Package

This section describes how to uninstall and update a package and specifies what considerations to take into account before performing these actions.

Before updating or deleting a resource, take the following considerations into account:

- If you delete a package or any of the resources inside the package, those resources are deleted from the database.
- Before deleting a CIT that has inheriting CITs, delete its inheriting CIs and then delete the CIT.
- Before redeploying a package that has not undergone any changes, change the timestamp in the package file to a date later than the original date in the package.
- While creating a package, take into account that some CITs might be connected by inheritance. To maintain the inheritance between them, place the CITs in the directory from which they inherited their attributes.

This section contains the following topics:

- "Uninstalling Customized Packages" on page 20
- "Updating Customized Packages" on page 20

Uninstalling Customized Packages

You can uninstall customized packages.

To uninstall customized packages:

1. Move the package's zip file from the **\<Mercury Business Availability Center root directory>\mam_lib\packages** directory to a different directory.
2. Undeploy the package's zip file using the JMX console. For details, see "Deploying, Removing, and Displaying Deployed Packages Using the JMX Console" in *Discovery Manager Administration*.

Caution: Uninstalling a package removes all the resources from the database.

Updating Customized Packages

You can update customized packages.

To update customized packages:

1. Open the package's zip file.
2. Make the required changes.
3. Repeat 3 and 4 in "Creating a Package" on page 17.

4

Deploying, Removing, and Displaying Deployed Packages Using the JMX Console

This chapter describes how to deploy, remove and display currently deployed packages using the JMX console.

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About Using the JMX Console to Deploy, Remove and Display Deployed Packages

Mercury Business Availability Center allows you to use the JMX console for deploying and removing packages. For example, you can use the JMX console to remove a certain package or change a resource in a package and then redeploy only that package instead of restarting the Mercury Business Availability Center server. The JMX console also allows you to display the currently deployed packages.

Using the JMX Console to Deploy, Remove, and Display Deployed Packages

This section describes how to deploy, remove and display deployed packages using the JMX console.

This section contains the following topics:

➤ Deploying a Package Using the JMX Console – for details, see page 22

➤ Displaying the Packages That are Currently Deployed Using the JMX Console – for details, see page 23

➤ Removing a Package Using the JMX Console – for details, see page 23

Deploying a Package Using the JMX Console

This section describes how to deploy a package using the JMX console.

To deploy a a package using the JMX console:

1. Launch your Web browser and navigate to: **http://<server_name>:8080/jmx-console**, where **<server_name>** is the name of the machine on which the Processing Server is installed.
2. Under **MAM**, click **service=Package manager** to open the JMX MBEAN View page.
3. Enter the following to the right of the **deployPackages** box:
   - In the **customerId** box, enter 1.

➤ In the **dir** box, enter the directory which contains the package's zip file.

Note: If you want to deploy the package from the default package directory, leave this box empty. The default package directory is located in: \<**Mercury Business Availability Center root directory**>**mam_lib****packages**.

➤ In the **packagesNames** box, enter the name of the package.

The rules for entering a package name are as follows:

- The package name can contain a wildcard character (*).
- The package name is case sensitive. For example, if the name of your package is PackageName, then you must enter PackageName, and not packagename or PACKAGENAME.
- The package name must have a **.zip** extension.

4 Click **Invoke** to deploy the package(s).

Displaying the Packages That are Currently Deployed Using the JMX Console

This section describes how to display packages that are currently deployed using the JMX console.

To display packages that are currently deployed using the JMX console:

1 Launch your Web browser and navigate to: **http://<server_name>:8080/jmx-console**, where <**server_name**> is the name of the machine on which the Processing Server is installed.

2 Under **MAM**, click **service=Package manager** to open the JMX MBEAN View page.

3 To the right of the **displaydeployedPackages** box, enter 1 in the **customerId** box.

4 Click **Invoke** to display the packages that are currently deployed.

Removing a Package Using the JMX Console

This section describes how to remove a package using the JMX console.

To remove a package using the JMX console:

1. Launch your Web browser and navigate to: **http://<server_name>:8080/jmx-console**, where **<server_name>** is the name of the machine on which the Processing Server is installed.
2. Under **MAM**, click **service=Package manager** to open the JMX MBEAN View page.
3. Enter the following to the right of the **undeployPackages** box:
   - In the **customerId** box, enter 1.
   - In the **packagesNames** box, enter the name of the package you want to remove.

     The rules for entering a package name are as follows:
     - Wildcard characters (*) are not supported
     - The package name is case sensitive.
4. Click **Invoke** to remove the package.

Troubleshooting Issues

This section describes some of the troubleshooting issues that may arise when using the JMX console to deploy, remove or display deployed packages.

This sections contains the following troubleshooting topics:

- "Verifying Dependency Among Packages" on page 24
- "Undeploying Packages" on page 25
- "Verifying Packaging Operations" on page 25

Verifying Dependency Among Packages

Certain packages are dependent for their functioning on the installation of other packages. These dependencies are specified in the **descriptor.xml** file included in each package. The success of package deployment or removal of a package may depend on the installation of other packages.

For example:

- If package A is dependent on package B, you cannot remove package B.
- If you want to deploy package A, which is dependent on package B, but package B does not exist, you cannot deploy package A.

Note: For a list of the packages and their dependencies, see "Dependencies Among Packages" on page 13.

Undeploying Packages

- You cannot undeploy a package that contains a CIT if an instance of that CIT appears in the CMDB.
- You cannot undeploy a package if one of its resources remains deployed.

Verifying Packaging Operations

It is recommended to check the **packaging.log** file after each operation to verify its success. If the operation was not successful, the log file contains detailed information of why the operation failed.

The **packaging.log** file is located in \<**Mercury Business Availability Center root directory**>**log**.

5

Discovery Manager

This chapter describes how to run the discovery process by activating and editing discovery patterns.

This chapter describes:	On page:
Understanding the Discovery Manager	28
Understanding the Module Manager Tab	29
Managing Modules	30
Adding a Discovery Probe	34
Configuring the Connection Data for a Protocol	39
Using Advanced Options in the Details View Pane	41
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Understanding the Discovery Manager

The Discovery Manager is displayed by selecting **Admin** > **CMDB** and then clicking the **Discovery Manager** tab. The Discovery Manager contains the following tabs:

- **Module Manager** – contains two tabs:
  - Details View tab – Enables you to activate discovery patterns. The Module Manager contains a list of discovery modules. Each discovery module includes a group of discovery patterns. Select the required discovery patterns from the various modules to discover a specific group of CIs. For details, see "Understanding the Module Manager Tab" on page 29.
  - Map View tab – Displays a visual representation of the real-time progress of the discovery process. For details, see "Understanding the Discovery Manager's Map View" on page 76.
- **Probe Manager** – Enables you to:
  - Define a new discovery probe and the range of the IP addresses to be discovered. For details, see "Adding a Discovery Probe" on page 34.

➤ Define the connection data for each protocol. For details, see "Configuring the Connection Data for a Protocol" on page 39.

Understanding the Module Manager Tab

The Module Manager tab contains a list of discovery modules. Each module includes the discovery patterns necessary to discover a specific group of CIs.

From the Discovery Modules pane, you can select the module(s) you want to use for the discovery process. The discovery patterns contained in the modules you select are used in the discovery process. Each icon represents a module.



When you select a module, the Details View tab in the Module Manager is divided as follows:

Field	Description
Discovery Module Summary	Contains the following fields: ➤ **Discovery Module Name** – the name of the selected module ➤ **Description** – a description of the selected module
Statistics	Contains the following fields: ➤ **CIT** – the name of the CIT discovered by the module ➤ **Created** – the number of CIT instances created by the module ➤ **Updated** – the number of CIT instances updated by the module ➤ **Deleted** – the number of CIT instances deleted by the module

Note: For details on the Map View tab, see "Understanding the Discovery Manager's Map View" on page 76.

Managing Modules

This section contains the following topics:

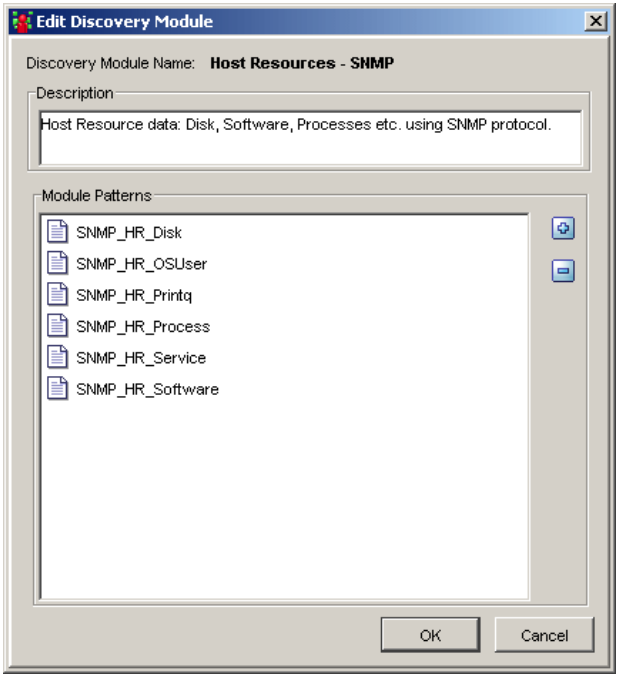
- Editing a Discovery Module – for details, see page 31
- Activating a Discovery Module – for details, see page 32
- Deactivating a Discovery Module – for details, see page 32
- Creating a Discovery Module – for details, see page 33
- Deleting a Discovery Module – for details, see page 33
- Updating the Statistics Table for the Selected Discovery Module – for details, see page 34
- Resetting the Statistics Table for the Selected Discovery Module – for details, see page 34

Editing a Discovery Module

You can edit each module to include the discovery patterns you want it to contain.

To edit a discovery module:

1 In the Discovery Modules pane, right-click the module you want to edit and select **Edit Module** to open the Edit Discovery Module dialog box.



The Edit Discovery Module dialog box has the following fields:

Description – A description of the selected module.

Module Patterns – A list of the discovery patterns in the selected module.



2 Click the **Add Discovery Pattern to Module** button to open the Choose Discovery Patterns dialog box.

3 Select the pattern(s) you want to add to the module. You can make multiple selections.

4 Click **OK**. The discovery patterns are added to the **Module Patterns** area in the Edit Discovery Module dialog box.

5 Click **OK** in the Edit Discovery Module dialog box to save the changes you have made.

Activating a Discovery Module

When you activate a discovery module, you activate all the patterns contained in the module.

To activate a discovery module:



In the Discovery Modules pane, right-click the module you want to activate and select **Activate**, or select the required module and click **Activate** button in the bottom right corner of the Discovery Modules pane.



A module that is activated, as seen here, is marked with green dots.



Note: If only some of the module's patterns are activated, the module is marked with a single green dot. If all patterns of the module are activated, the module is marked with three green dots.

When the discovery module is activated, it discovers CITs and relationships of the types that are described in each pattern, and places them in the CMDB.

Deactivating a Discovery Module

This section explains how to deactivate a module that is activated.

To deactivate a discovery module:



In the Discovery Modules pane, right-click the module you want to deactivate and select **Deactivate**, or select the required module and click the **Deactivate** button in the bottom right corner of the Discovery Modules pane.

Creating a Discovery Module

This section describes how to create a discovery module.

To create a discovery module:

1. In the Discovery Modules pane, right-click **Discovery Modules** at the top of the hierarchy.
2. Select **Create new module.** The Choose new name for discovery module dialog box opens.
3. Enter a new name for the module.
4. Click **OK** to create the new module. The new discovery module appears in the Discovery Module pane.
5. To add discovery patterns to the module, right-click the module and select **Edit Module**. The Edit Discovery Module opens. For details, see "Editing a Discovery Module" on page 31. After you add one or more discovery patterns to the module, the module then appears in the Discovery Module pane.

Deleting a Discovery Module

This section describes how to delete a discovery module.

Note: Only administrators with an advanced knowledge of how the discovery process works should delete discovery modules.

To delete a discovery module:

In the Discovery Modules pane, right-click the module you want to delete and select **Delete**.

Updating the Statistics Table for the Selected Discovery Module

The discovery process results in the **Statistics** table are not automatically updated.

To update the Statistics table:



In the **Module Manager** tab, click the **Refresh Statistics** button to the left of the Statistics table.

Resetting the Statistics Table for the Selected Discovery Module

You can delete all the statistics from the **Statistics** table and restart the counting from zero.

To reset the Statistics table:



In the **Module Manager** tab, click the **Reset Statistics** button to the left of the Statistics table.

Adding a Discovery Probe

This section explains how to add a Discovery Probe and define its discovery range using the Probe Manager tab.

This section contains the following topics:

- Adding a New Discovery Probe and Configuring the Discovery Range – for details, see page 35
- Deleting a Discovery Probe – for details, see page 36
- Editing the Probe Description – for details, see page 36
- Deleting an IP Range – for details, see page 37
- Editing an Existing IP Range – for details, see page 37
- Rules for Defining an IP Address Range – for details, see page 37

Adding a New Discovery Probe and Configuring the Discovery Range

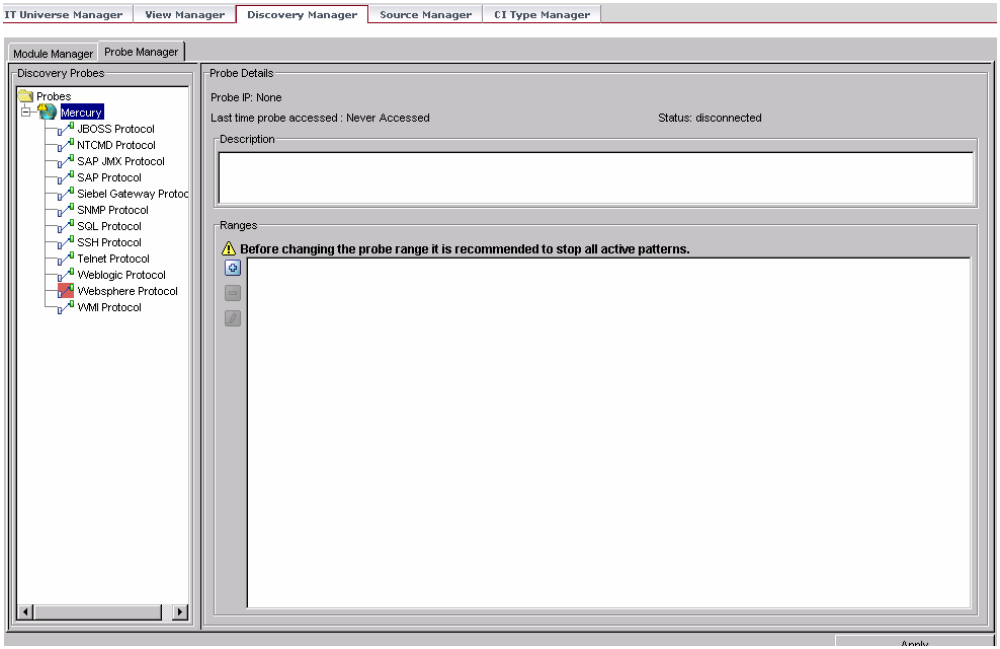
This section describes how to add a new Discovery Probe and the range of the IP addresses to be discovered.

To add a new Discovery Probe and configure the discovery range:

1 Select **Admin** > **CMDB** and click the **Discovery Manager** tab.

2 Click the **Probe Manager** tab.

3 In the Discovery Probes pane, the Probe Identifier that was defined on the Discovery Probe Configuration page of the Discovery Probe wizard appears as the default Discovery Probe. (For details, see "Discovery Probe Installation Procedure" on page 6.)



4 In the Discovery Probes pane, right-click the **Probes** folder or any empty space and select **Add probe** to open the Add New Probe dialog box.

5 In the **Name** box, type the new probe name.

6 (Optional) In the **Description** box, type the probe description.

7 Click **OK** to add the new probe to the **Discovery Probes** list.



8 In the Ranges pane, click the **Add IP range** button to open the Add IP Range dialog box.



9 Enter an IP address range (for details, see “Rules for Defining an IP Address Range” on page 37).

10 Click **OK**. The range of net addresses you defined appears in the Ranges pane.

11 To enter another IP address range, click the **Add IP range** button again and repeat steps 9 and 10.

12 Click **Apply** to save the changes you have made.

Deleting a Discovery Probe

This section describes how to delete a Discovery Probe.

To delete a Discovery Probe:

1 From the **Discovery Probes** box, right-click the probe you want to delete and click **Remove probe**. A message appears asking you if you want to remove the Discovery Probe.

2 Click **Yes** to delete the probe.

Editing the Probe Description

This section describes how to edit the description of an existing probe.

To edit a probe’s description:

1 From the Discovery Probes pane, select the Discovery Probe whose description you want to edit.

2 In the **Description** box in the Probe Details pane, make the required changes.

Deleting an IP Range

This section describes how to delete an IP range.

To delete an IP range:



In the **Ranges** box, select the IP range you want to delete and click the **Remove IP range** button.

Editing an Existing IP Range

This section describes how to edit an existing IP range:

To edit an existing IP range:

1. In the **Ranges** box, select the IP range you want to edit.
2. 
Click the **Edit IP range** button to open the Edit IP Range dialog box.
3. Make the required changes (for details, see "Adding a New Discovery Probe and Configuring the Discovery Range" on page 35).
4. Click **OK** to save the changes you have made.

Rules for Defining an IP Address Range

The rules for defining an IP address range are as follows:

- The IP address range must have the following format:

  start_ip_address – end_ip_address

  For example: 10.0.64.0 - 10.0.64.57

- The range can include a wildcard character (*) so that Mercury Business Availability Center can match the range to more than one IP address. Mercury Business Availability Center scans the system to find the IP addresses matching the range pattern you defined.
- An asterisk (*) represents any number in the range of 0-255.
- You can use a wildcard character (*) in the lower bound IP address of the IP range pattern only.

For example:

Valid	Not Valid
10.0.64.* - 10.0.64.10	10.0.64.10 - 10.0.64.*

- If you do use an asterisk (*), you do not need to enter a second IP address. For example, you can enter the range pattern 10.0.48.* to cover the whole range from 10.0.48.0 to 10.0.48.255.
- You can use more than one asterisk (*) in an IP address as long as they are used consecutively. The asterisk(s) cannot be situated between two numbers in the IP address, nor can it substitute the first digit in the number.

  For example:

Valid	Not Valid
10.0.64.* 10.0.*.* 10.*.*.*	*0..60.10 10.*.64.* 10.*.*.1 10.*.7.1

- If you use an asterisk (*) in the lower bound IP address and also enter an upper bound IP address, the upper bound IP address is ignored. For example, if you enter the pattern **10.0.*.* - 10.0.20.30**, the upper bound IP address is ignored. Since the asterisks (*) in the lower bound IP address cover a range wider than 20 and 30, 20 and 30 in the upper bound IP address are rendered irrelevant.

Configuring the Connection Data for a Protocol

You can add the connection data for each protocol included in the discovery process. The connection data can refer to a specific net address and/or to the entire net addresses range. When referring to the entire range, the net address value is DEFAULT. The default definitions relate to all IPs included in the defined range.

For a description of the connection data that needs to be defined for each protocol, see "Protocol Definitions" on page 91.

This section contains the following topics:

- Defining the Connection Data For the Protocol – for details, see page 39
- Deleting the Connection Details for an Existing Protocol – for details, see page 40
- Editing the Connection Details for an Existing Protocol – for details, see page 41

Defining the Connection Data For the Protocol

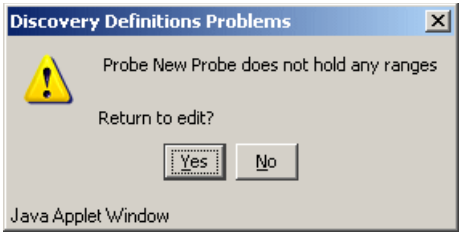
This section describes how to define the connection data for each protocol included in the discovery process.

To define the connection data for the required protocol:

1. Select **Admin** > **CMDB** and click the **Discovery Manager** tab.
2. Click the **Probe Manager** tab.
3. In the Discovery Probes pane, click the **Expand** button of the probe to which you want to add an instance of a protocol. A list of protocols is displayed.
4. Select the protocol whose connection data you want to define.
5. Click the **Add new connection details for selected protocol type** button to the right of the **Protocol Entries** area to add definitions to the protocol you have selected. The Add Protocol Parameter dialog box displays the list of attributes you need to define for the protocol.
6. Define the protocol parameters as required and then click **OK**. For information on protocol definitions, see **"Protocol Definitions" on page 91**. The parameter values you defined appear in the **Protocol entries** section.

7 Click **Apply** to save the changes you have made.

If your Discovery Probe definitions are incorrect or incomplete, you get a message specifying what the problem is, as seen in the following example:



8 Click:

- **Yes** to open the tab in which the issue has to be resolved.
- **No** to save the changes and close the Discovery Manager.

Note: If the Discovery Probe appears red, it indicates that not all the required protocols for the discovery pattern were added as described in "Defining the Connection Data For the Protocol" on page 39.

---

9 Click the **Apply** button at the bottom of the screen to save the changes you have made.

Deleting the Connection Details for an Existing Protocol

You can delete the connection details for an existing protocol.

To delete the connection details for an existing protocol:

1 In the **Probe Manager** tab, select the entry that you want to delete in the **Protocol entries** section, and click the **Remove selected connection details for selected protocol type** button.

2 Click the **Apply** button at the bottom of the screen to save the changes you have made.

Editing the Connection Details for an Existing Protocol

You can edit the connection details for an existing protocol.

To edit the connection details for an existing protocol:

1 In the **Probe Manager** tab, select the entry that you want to edit in the **Protocol entries** area.



2 Click the **Edit selected connection details for selected protocol type** . button.

3 Edit the details as required in the Edit Protocol Parameter dialog box that opens. For details, see **"Protocol Definitions" on page 91**.

4 Click the **Apply** button at the bottom of the screen to save the changes you have made.

Using Advanced Options in the Details View Pane

You can view and edit the discovery patterns included in the modules.

Note: Only administrators with an advanced knowledge of how the discovery process works should edit the discovery patterns.

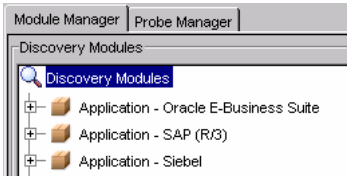
The following table describes the icons in the Module Manager pane.

Icon	What it represents
	A module
	A pattern

➤ When you select a pattern in the Discovery Modules pane, the Details View tab is divided as follows:

Field	Description
Discovery Pattern Name	The name of the selected discovery pattern and the package in which it is found.
Description	A description of the selected pattern.
Trigger TQLs	Define one or more TQL queries to be used as triggers to activate the selected discovery pattern. It contains the following fields: ➤ **TQL Name** – The name of the trigger TQL query that activates the discovery pattern. For details on TQL queries, see "Mercury Business Availability Center Topology Query System" in *View Manager Administration*. ➤ **Probe Limit** – The probes you want to use for the discovery process. For details, see "Defining a Trigger TQL Query" on page 45.
Triggered CIs	Display the CIs used by the discovery pattern for its discovery. For more information, see "Manually Activating a Discovery Pattern Using Only Specific CIs" on page 47.
Statistics	Display statistics on discovery results for the selected pattern. ➤ **CIT** – the name of the CIT discovered by the discovery pattern ➤ **Created** – the number of CIT instances created by the discovery pattern ➤ **Updated** – the number of CIT instances updated by the discovery pattern ➤ **Deleted** –the number of CIT instances deleted by the discovery pattern

➤ When you select the Discovery Modules root in the Discovery Modules pane (see the picture below),



the Details View pane is divided as follows :

Field	Description
Configuration files	Contains configuration files with default parameter values that are used for the discovery process. For details, see "Discovery Process Configuration Files" on page 54.
Statistics	Displays statistics on discovery results for all the discovery modules. It contains the following fields: ➤ **CIT** – the name of the discovered CIT ➤ **Created** – the number of CIT instances created ➤ **Updated** – the number of CIT instances that were updated ➤ **Deleted** – the number of CIT instances deleted

This section contains the following topics:

- Selecting a Pattern – for details, see page 44
- Defining a Trigger TQL Query – for details, see page 45
- Selecting the Probe(s) to be Used in the Discovery Process – for details, see page 46
- Manually Activating a Discovery Pattern Using Only Specific CIs – for details, see page 47
- Filtering the Triggered CIs Table – for details, see page 51
- Updating the Triggered CIs Table – for details, see page 52
- Updating the Statistics Table for the Selected Discovery Pattern – for details, see page 52
- Resetting the Statistics Table for the Selected Discovery Pattern – for details, see page 52
- Showing CI Instances – for details, see page 52
- Creating a Discovery Pattern – for details, see page 53
- Deleting a Discovery Pattern from a Module – for details, see page 53
- About Problem Indicators – for details, see page 54

Selecting a Pattern

This section describes how to select a pattern in a module.

To select a pattern in a module:

In the Discovery Modules pane, click the **Expand** button to the left of the required module to display the patterns contained in that module.

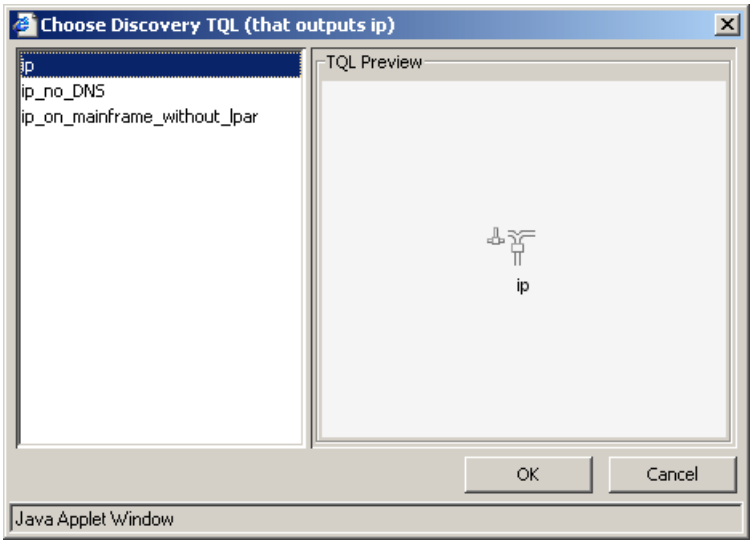
Defining a Trigger TQL Query

You can define one or more TQL queries to be used as triggers to activate the selected discovery pattern.

To define a trigger TQL query:

1 Select the required discovery pattern.

2 In the Trigger TQLs pane, click the **Add TQL** button to open the Choose Discovery TQL dialog box.



It contains a list of discovery TQLs that match the discovery pattern's input CITs.

3 Select the TQL you want to serve as the trigger that invokes the discovery pattern's task, and click **OK**. The TQL query you selected appears in the Trigger TQLs pane.

Note: If necessary, you can create new discovery TQLs from which to choose. For details, see "About Defining Discovery TQL Queries" on page 59.



4 To remove a TQL query from the list, select the TQL you want to remove and click the **Delete TQL** button.

Note: If a TQL query is removed for an active discovery pattern, the Discovery Manager no longer receives new CIs coming from that TQL query. Existing triggered CIs that originally came from the TQL query, are not removed.

---

5 To add another TQL query, click the **New TQL** button again and repeat step 3.

Selecting the Probe(s) to be Used in the Discovery Process

This section describes how to define the probe(s) to be used in the discovery process.

To select the probe(s) to be used in the discovery process:



1 From the Trigger TQLs pane, click the button to the right of the **Probe Limit** field to open the Edit probe limitation for TQL output dialog box.

This screen displays a list of the Discovery Probes defined in the Probe Manager tab. For details, see "Adding a New Discovery Probe and Configuring the Discovery Range" on page 35.

2 To activate all the probes, select the **All Discovery Probes** check box and click **OK**.

3 To activate a specific probe, do the following:

- Clear the **All Discovery Probes** check box.



- Select the required probes using the **Add** and **Remove** buttons to move them between the **Non selected probes** and **Selected probes** lists. You can also move multiple probes by making multiple selections.

4 Click **OK** to save the changes you have made.

Manually Activating a Discovery Pattern Using Only Specific CIs

Each discovery pattern contains the CIs that the pattern uses for the discovery process. After you have activated a discovery pattern, the CIs that are currently being used by the discovery pattern are displayed in the Triggered CIs pane.

When you can define one or more TQL queries to be used as triggers to activate the selected discovery pattern (for details, see "Defining a Trigger TQL Query" on page 45), the trigger TQL automatically triggers CIs that invoke the discovery pattern. You can choose to manually activate the discovery pattern so that it runs using only CIs that appear in the Triggered CIs pane instead of all the CIs triggered by the TQL. (For information on TQL queries, see "Mercury Business Availability Center Topology Query System" in *View Manager Administration*.)

The Triggered CIs pane has the following fields:

- **CI** – The triggered CI's label.
- **Status** – The current status of the triggered CI.

  Its status can be one of the following:

  - **Waiting for Probe** – The triggered CI is ready to be dispatched and is waiting for the Discovery Probe to retrieve it.
  - **Active** – The triggered CI is active and is running on the Discovery Probe.
  - **Discovery Errors** – Due to an error, the Mercury Business Availability Center server has failed to dispatch the discovery task.

    Following are the discovery error statuses:

    - **Server Processing Failure** - The server failed to add the CI to the list of triggered CIs.
    - **Probe Error** - An error occurred while running the discovery process (the discovery process continues running).
    - **Probe Fatal Error** - An error occurred while running the discovery process and the discovery pattern is no longer using this specific triggered CI for the discovery process.
    - **Missing Credentials** - None of the defined credentials were valid on the specified CI.

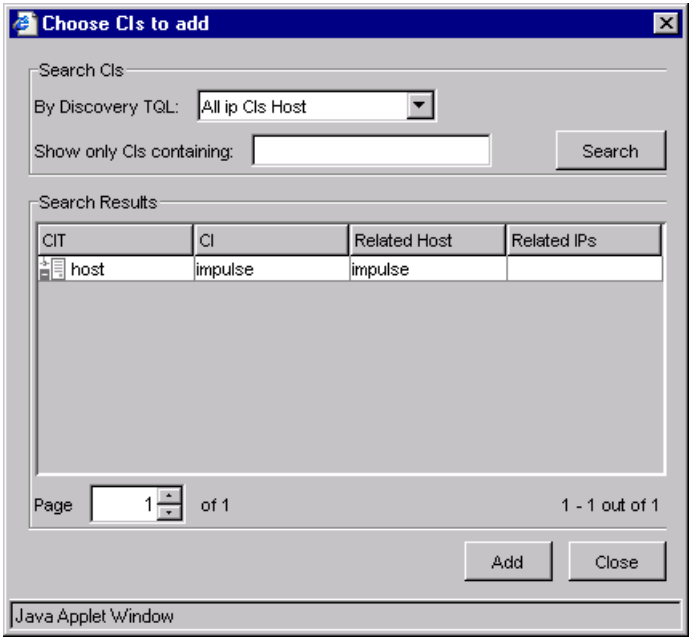
- **Active (being removed)** – The triggered CI is being removed from the Triggered CIs list.

- **Probe** – The discovery probe to which the triggered CI belongs.
- **Page** – The list of CIs are divided into pages. The number in the **Page** box indicates which page is currently being displayed.
  - To view other pages, use the up and down arrows, or type the page number, and click **Enter**.
  - To determine the number of CIs that appear on a page, right-click either the up or down button and select the required number. The default is 25.

To manually activate the discovery pattern using only specific CIs:



1 In the Triggered CIs pane, click the **Add CI** button to open the Choose CIs to add dialog box.



Note: The **Add CI** button is only enabled if the pattern is active. To activate the pattern, see "Activating a Discovery Pattern" on page 75.

The Choose CIs to add dialog box is divided as follows:

Field	Description
Search CIs	Contains two filters with which you can limit the number of CIs that appear in the Search Results pane. ➤ **By Discovery TQL** ➤ **Show only CIs containing** For details on how to use the filters, see step 3.
Search Results	Displays the list of triggered CIs from which you can choose. It has the following fields: ➤ **CIT** – the CI type of the selected triggered CI ➤ **CI** – the label of the triggered CI ➤ **Related Host** – the label for the host related to the triggered CI ➤ **Related IPs** – the IPs of the related host

2 The list of CIs are divided into pages. The number in the **Page** box indicates which page is currently being displayed.

- ➤ To view other pages, use the up and down arrows, or type the page number, and press **Enter**.
- ➤ To determine the number of CIs that appear on a page, right-click either the up or down button and select the required number. The default is 25.

3 To limit the number of triggered CIs that are displayed in the **Search Results** list, use the following filters:

➤ (Required) In the **By Discovery TQL** box, choose one of the following:

- **All CIs of the CI Type** – Display all CI instances of the CI type used by the discovery pattern.
- **TQL** – Display only CI instances that are triggered by this TQL.

➤ (Optional) In the **Show only CIs containing** box, enter the text defining what you want to appear in the list. Only the triggered CIs that contain the text in the **Show only CIs containing** box are displayed.

4 Click **Search** to display only the CIs that match the filter criteria.

5 Select the required CI or CIs. You can make multiple selections.

6 Click **Add**. The discovery pattern runs using only the CIs that appear in the Triggered CIs pane.

7 To remove a triggered CI from the list of triggered CIs on which the discovery pattern runs, select the source CI you want to remove from the Triggered CIs pane and click the **Remove CI** button. The discovery pattern no longer runs using the Triggered CI you deleted from the Triggered CIs pane.

Filtering the Triggered CIs Table

You can limit the number of CIs that appear in the Triggered CIs pane.

To limit the number of CIs that appear in the Triggered CIs pane:



1 Click the **Filter CIs** button.

2 Use one of the following filters:

Filter	Description
By Status	Display a list of triggered CIs according to status. Following are the options: ➤ **All** ➤ **Waiting for Probe** – The triggered CI is ready to be dispatched and is waiting for the Discovery Probe to retrieve it. ➤ **Active** – The triggered CI is active and is running on the Discovery Probe. ➤ **Active (being removed)** – The triggered CI is being removed from the **Triggered CIs** list. ➤ **Discovery Errors** – Due to an error, the Mercury Business Availability Center server has failed to dispatch the discovery task.
By Probe	Display only the CIs triggered by a selected probe. For details, see "Selecting the Probe(s) to be Used in the Discovery Process".
By Dispatch Type	Display a list of CIs according to dispatch type. The options are: ➤ **All** ➤ **Manually added** – Only the CIs that were used to manually activate the discovery pattern. For details, see "Manually Activating a Discovery Pattern Using Only Specific CIs". ➤ **By Discovery TQL**– All the CIs from the Discovery TQL(s) used to activate the discovery pattern. For details, see "Defining a Trigger TQL Query"

Updating the Triggered CIs Table

After you have activated a discovery pattern, the CIs that are currently being used by the discovery pattern are displayed in the **Triggered CIs** pane. The discovery results are not updated automatically.

To update the list of triggered CIs currently being used by the discovery pattern:



Click the **Refresh** button to the right of the Triggered CIs pane.

Updating the Statistics Table for the Selected Discovery Pattern

The discovery pattern results in the **Statistics** table are not automatically updated.

To update the Statistics table:



Click the **Refresh Statistics** button to the left of the **Statistics** table.

Resetting the Statistics Table for the Selected Discovery Pattern

You can delete all the statistics from the **Statistics** table and restart the counting from zero.

To reset the Statistics table:



Click the **Reset Statistics** button to the left of the Statistics table.

Showing CI Instances

You can display all of the CI instances created by the discovery pattern in a table.

To display all of the CI instances created by the discovery pattern in a table:



1 Click the **View Instances** button to the left of the **Statistics** table to open the CIs discovered by pattern window.

   The list of nodes are divided into pages. The number at the bottom of the screen indicates which page is currently being displayed. For example, 2/4 means that it is the second out of four pages.

2 To view other pages, use the left and right arrows.

3 To determine the number of node instances that appear on a page, do the following:



- ➤ Click the **Set bulk size** button to open the Set bulk size dialog box.
- ➤ Use the up and down arrows or type the number of node instances you want to appear on a page and click **OK**.



4 To update the table, click the **Refresh** button.

5 Click **OK** to save the settings you have defined.

Creating a Discovery Pattern

You can create a discovery pattern. The new discovery pattern you create is based on an existing pattern.

To create a discovery pattern:

1 In the Discovery Modules pane, right-click the pattern on which you want to base your new pattern and select **Save as** to open the Choose new name for discovery pattern dialog box.

2 Enter a new name for the pattern.

3 Click **OK** to create the new pattern. The new pattern appears in the Discovery Module pane.

4 To edit the pattern, right-click it and select Edit Pattern. For details on how to edit the pattern, see “Editing a Pattern” on page 65.

Deleting a Discovery Pattern from a Module

This section describes how to delete a discovery pattern from a module.

To remove a discovery pattern from a module:

In the Discovery Modules pane, right-click the module you want to delete and select **Delete pattern**.

About Problem Indicators



Problem Indicators appear to the left of a module in the Modules pane if one or more of its discovery patterns are experiencing a problem that could affect the discovery process, such as a protocol connection failure.



The **Refresh All** button at bottom of the Discovery Modules pane updates all the data within the Discovery Manager dialog box, such as the list of Discovery Probes, discovery patterns and protocol information.

If the problem for which the Problem Indicators appears is due to a problem that is resolved by clicking the **Refresh All** button, the Problem Indicator disappears.



If clicking the **Refresh All** button does not solve the problem, click the **Show Problem Details** icon in the Triggered CIs pane to view either a solution to the problem or show details regarding the specific problem.

Discovery Process Configuration Files

Mercury Business Availability Center configuration files define default parameter values that are used for the discovery process. For example, the **portNumberToPortName.xml** file contains known port numbers, names and types that are used for TCP discovery.

This section contains the following topics:

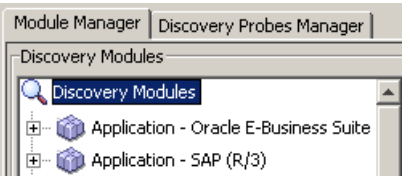
- Viewing and Editing Configuration Files – for details, see page 55
- Creating Configuration Files – for details, see page 56
- Deleting Configuration Files – for details, see page 57

Viewing and Editing Configuration Files

This section describes how to view and edit a configuration file.

To view and edit a configuration file:

1 In the Discovery Modules pane, select the Discovery Modules root.



The Configuration Files pane is displayed.

2 Double-click the required configuration file or select it and click the **Edit Configuration File** button to open the Script Editor.

3 Make the required changes.

4 To find specific text in the Script Editor, do the following:

- In the top-left corner of the Script Editor, click the **find in text** icon to open the Find dialog box.
- In the **Text to Find** section, type the text you want to find.
- In the **Direction** section, specify whether you want to do a forward or backward search.
- In the **Options** section, select **Case Sensitive** if you want the matches to be case sensitive.
- Click **Find**. If Mercury Business Availability Center finds a match, it selects the matching text.

5 To find a line in the Script Editor, do the following:

- In the top-left corner of the Script Editor, click **go to line** to open the Go to Line dialog box.
- Type the required line number and then click **OK**. The cursor appears to the left of the desired line.

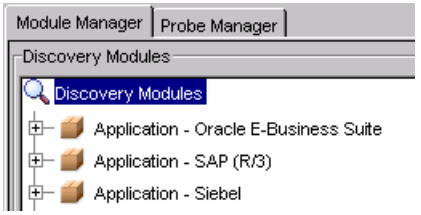
6 Click **OK** to save the changes you have made.

Creating Configuration Files

This section describes how to create a configuration file.

To create a configuration file:

1 In the Discovery Modules pane, select the Discovery Modules root.



The Configuration Files pane is displayed.



2 Click the **Add Configuration File** button to open the Choose new name for configuration file dialog box.

3 Type a name for the new configuration file and click **OK**. The new configuration file appears in the Configuration Files list with the extension **xml**.

4 Double-click the configuration file to open it.

5 Type the required text.

6 Click **OK** to save your changes.

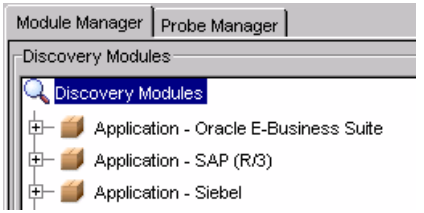
Deleting Configuration Files

This section describes how to delete a configuration file.

Note: Only administrators with an advanced knowledge of how the discovery process works should delete configuration files.

To delete a configuration file:

1 In the Discovery Modules pane, select the Discovery Modules root.

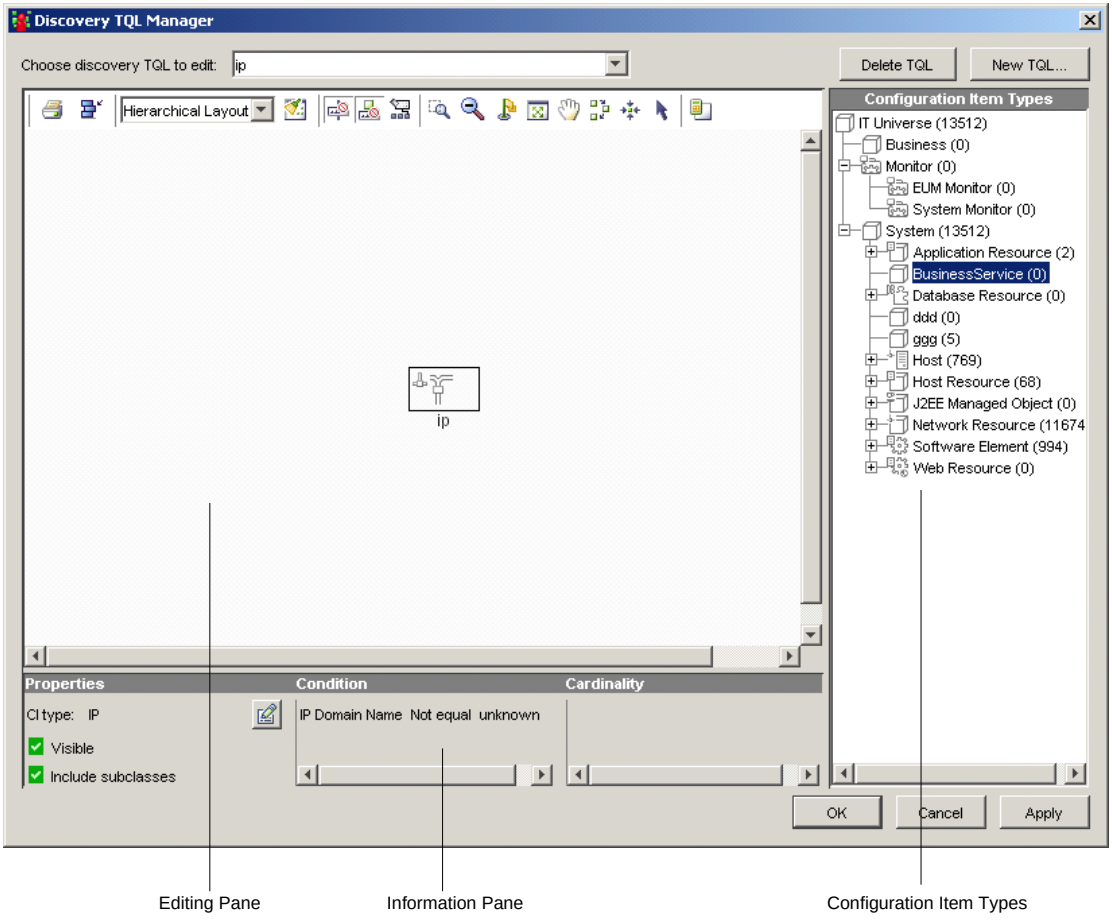


The Configuration Files pane is displayed.

2 Select the configuration file you want to delete and click the **Delete Configuration File** button.

About the Discovery TQL Manager

The Discovery TQL Manager allows you to define discovery TQL queries. These queries extract the information from the CMDB that is relevant to you. Once a discovery TQL query has been created, it persists in the system memory and generates updated results automatically.



The Discovery TQL Manager is divided as follows:

- **Editing Pane** – Displays the currently selected TQL query, which consists of nodes and the relationships between them. For more information about editing pane buttons, see "Using the View Manager Toolbar" in *View Manager Administration*.
- **Configuration Item Types** – Represents the Configuration Item Type model and contains icons for each CIT, as defined by the administrator (for details, see "Assigning an Icon to a CIT" in *CI Type Manager Administration*). By clicking and dragging CITs to the topology map and then defining the relationship between them, you can define a query and save it to the database. For example, you can drag the NT and IP CIT nodes to the topology map and then define the connection between them by adding relationships. For more information, see "Adding Nodes and Relationships to Discovery TQL Queries" on page 60.
- **Information pane** – Displays the attribute conditions you defined for the selected node/relationship. For details, see "Setting TQL Node and Relationship Definitions" on page 62.

About Defining Discovery TQL Queries

You use the Discovery TQL Manager to define a new discovery TQL query. You select the nodes and relationships that are to be part of the query, and then define specific attribute conditions for each node, including the attributes of the relationships that define the connections between nodes. You can also edit or delete an existing discovery TQL.

TQL Workflow

You create discovery TQL queries according to the following workflow:

- Create a new discovery TQL query. For details, see "Creating a New Discovery TQL Query" on page 60.
- Add nodes and relationships to the query. For details, see "Adding Nodes and Relationships to Discovery TQL Queries" on page 60.

- Define node and relationship attribute conditions. For details, see "Setting TQL Node and Relationship Definitions" on page 62.
- (Optional) Create a graph that represents additional TQL query data related to a specific CI. For details, see "Creating a Dependency Graph" on page 63.

Creating a New Discovery TQL Query

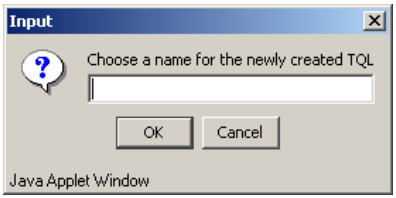
This section describes how to create a new discovery TQL query.

To create a new discovery TQL query:



1 In the Trigger TQLs pane, click the **Open Discovery TQL Manager** button to open the Discovery TQL Manager.

2 Click the **New TQL** button to open the Input dialog box.



3 Type a unique name for the new TQL query and click **OK**. The new TQL name appears in the **Choose discovery TQL to edit** list.

Adding Nodes and Relationships to Discovery TQL Queries

Once you have created the discovery TQL query, the next step is to add the nodes and relationships that define the query. The nodes represent the CITs, as defined in the CI Type Model, and the relationships represent the connections between them. Relationships are defined one at a time for each pair of nodes in the query.For a list of the existing relationships and their definitions, see "Relationship Definitions" in *CI Type Manager Administration*.

Adding TQL Nodes and Relationships to a Query

This section describes how to add TQL nodes and relationships to a query.

To add TQL nodes and relationships to a query:

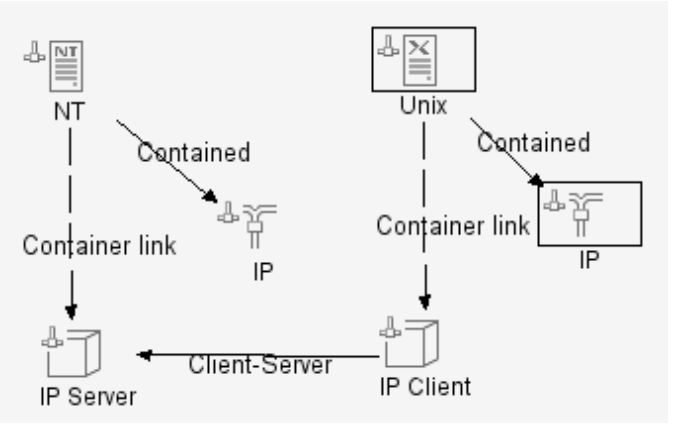
1. From the **Choose discovery TQL to edit** list, select the TQL query to which you want to add TQL nodes and relationships.
2. From the tree displayed in the Configuration Item Types pane, click and drag one or more TQL nodes on to the topology map. These are the TQL nodes that are included in the query.
3. Select two TQL nodes by holding down **Ctrl** and clicking the TQL nodes.
4. Right-click and select **Add Relationship** to open the Add Relationship dialog box.

   The Add Relationship dialog box contains the following fields:

Field	Description
Node Label	The CI Type of the selected nodes
Direction	The direction of the relationship that indicates which node is dependent on the other.
Relationship Type	A valid relationship that defines the connection between the two selected nodes.
Advanced	Select another valid relationship type to define the connection between the two selected nodes.

5. Select the required direction of the relationship.
6. If required, click **Advanced** to select a different relationship.
7. Click **OK**. The selected nodes are linked by the relationship you have selected.

The direction of the relationship indicates which node is dependent on the other. The following example displays two hosts, an IP server, and an IP client that are linked to one another via a client/server connection.



Setting TQL Node and Relationship Definitions

After you have added the TQL nodes and relationships required for your query, you can define their specific attribute conditions.

- For details on how to define Discovery TQL nodes and relationships, see "Defining TQL Nodes and Relationships" in *View Manager Administration*.
- For details on how to define attribute for nodes and relationships, see "Defining Attribute Conditions for Nodes and Relationships" on page 57 in *View Manager Administration*.
- For details on how to define relationship cardinality, see "Defining Relationship Cardinality" in *View Manager Administration*.
- For details on how to filter query results, see "Filtering Query Results in the Attribute Condition Tab" in *View Manager Administration*.

Creating a Dependency Graph

You can create a graph that represents additional TQL query data related to a specific CI. The discovery pattern searches for the results from TQL query as well as the dependency graph definitions.

- For details on how to define a dependency graph, see "Defining a Dependency Graph" in *View Manager Administration*.
- For details on how to delete a dependency graph, see "Deleting a Dependency Definition" in *View Manager Administration*.
- For details on how to edit a dependency graph, see "Editing a Dependency Definition" in *View Manager Administration*.

Deleting a Node or Relationship

This section describes how to delete a node or relationship.

To delete a node or relationship:



1. In the Trigger TQLs pane, click the **Open Discovery TQL Manager** button to open the Discovery TQL Manager dialog box.
2. In the topology map, right-click the TQL node or relationship you want to delete and select **Delete**.

Editing an Existing Discovery TQL

This section describes how to edit an existing TQL.

To edit an existing TQL:



1. In the Trigger TQLs pane, click the **Open Discovery TQL Manager** button to open the Discovery TQL Manager dialog box.
2. From the **Choose Discovery TQL to edit** list, choose the TQL you want to edit.
3. Make the required changes.
4. Click **OK** to save the changes you have made.

Deleting a TQL

This section describes how to delete a TQL.

To delete an existing TQL:



1. In the Trigger TQLs pane, click the **Open Discovery TQL Manager** button to open the Discovery TQL Manager dialog box.
2. From the **Choose Discovery TQL to edit** list, choose the TQL you want to delete.
3. Click the **Delete TQL** button.

Understanding the Pattern Editor

The Pattern Editor dialog box contains the following tabs and features:

- **Design View tab** – enables you to define the following:
  - The CITs that are discovered during the discovery process.
  - The protocols that are required to perform the discovery process.

  For details, see "Design View tab – enables you to define the following:" on page 64.
- **Pattern Parameters tab** – enables you to design and edit a discovery pattern. For details, see "Configuring a Discovery Pattern" on page 66.
- **Source View Tab** – displays the discovery pattern in XML format, which can be edited. For details, see "Editing the Discovery Pattern" on page 68.
- **Advanced Settings** – allows you to define advanced settings for your discovery pattern. For details, see "Defining Advanced Settings" on page 73.
- **Pattern Validation Indicator** – indicates whether the discovery pattern is valid or not. For details, see "Discovery Pattern Validation" on page 74.

Editing a Pattern

You can edit a pattern in the Module Manager tab by accessing the Pattern Editor. The Pattern Editor allows you to either edit the pattern in XML format in the Source View tab or in the Pattern Parameters tab.

This section contains the following topics:

- Defining the Discovery Pattern – for details, see page 65
- Configuring a Discovery Pattern – for details, see page 66
- Editing the Discovery Pattern – for details, see page 68

Defining the Discovery Pattern

You define a discovery pattern by specifying the CITs the pattern will discover and the protocols needed to perform the discovery.

To define a discovery pattern:

1. Right-click the pattern you want to edit in the **Module Manager** tab and click **Edit Pattern**, or click the **Edit** button in the top-right corner of the Discovery Pattern Summary pane to open the Pattern Editor.
2. Click the **Design View** tab.
3. (Optional) In the **Discovery Pattern Version** box, enter the version of the discovery pattern you are using.
4. In the **Description** box, type a description of the discovery pattern.
5. In the **Trigger CIT** box, select the CIT you want to use as the trigger that activates the selected discovery pattern.
6. To define which CITs the pattern discovers, do the following:



- In the **Discovered CITs** box, click the **Add discovered CIT** button to display the CITs in the CI Type Model pane.
- Select the CIT or CITs you want the pattern to discover.
- Click **OK** to save the changes you have made.



- To delete an existing CIT from the **Discovered CITs** box, select the CIT you want to delete and click the **Remove discovered CIT** button.

7 To define which protocols the pattern requires for the discovery task, do the following:



- In the **Required Discovery Protocols** box, click the **Add required protocol** button to open the Add Required Protocol dialog box.
- From the **Choose Protocol Type** list, select the required protocol.
- Click **OK** to save the changes you have made.



- To delete an existing protocol from the **Required Discovery Protocols** box, select the protocol you want to delete and click the **Remove required protocol** button.

8 In the **Discovery Scheduler** section, you can schedule a discovery pattern to run on a periodic basis. For details, see "Scheduling a Discovery Pattern to Run on a Periodic Basis" on page 68.

Configuring a Discovery Pattern

This section describes how to configure parameters for a discovery pattern.

To configure a discovery pattern:

1 Right-click the pattern you want to configure in the **Module Manager** tab and click **Edit Pattern**, or click the **Edit** button in the top-right corner of the Discovery Pattern Summary pane.

2 Click the **Pattern Parameters** tab.

3 In the **Discovery Pattern Parameters** section, define the following parameter values:

- **Parameter name** – the name of the parameter
- **Value** – the value you want to assign to the attribute
- **Description** – (optional) a description of the parameter

---

Note: Each row represents the definitions for one parameter.



➤ To define another pattern parameter, click the **Add Parameter** button. Another row of parameter attribute definitions appears. Configure the parameters according to the list above.



➤ To delete a pattern parameter, select the parameter you want to delete and click the **Remove Parameter** button.

4 In the **Triggered CI Data** section, define the information that is needed to perform a discovery task on a specific CI. That information is passed to the CI queried in the discovery task.

To configure the triggered CI, do the following:

➤ Define the triggered CI's attributes according to the following table:

Attribute	Description
Attribute name	The name of the attribute.
Value	The attribute value. Variables are written using the following syntax: ${VARIABLE_NAME.attributeName} where <**VARIABLE_NAME** > can either be one of three predefined variables: ➤ **Source** – Refers to the CI that functions as the task's trigger. ➤ **Host** – Host in which the triggered CI is contained. ➤ **Parameters** – This variable refers to the parameter defined in the **Parameter** section as described above. or a variable that you have created (see "Pattern Parameters tab – enables you to design and edit a discovery pattern. For details, see "Configuring a Discovery Pattern" on page 66." on page 64). For example: ${SOURCE.network_netaddr} indicates that the triggered CI is a network.
Encrypted	Select this check box if the field is defined as a Password type in the CMDB.



- To define another attribute, click the **Add Triggered CI Data** button, and modify the attribute according to the table above.



- To delete an existing attribute, select the attribute you want to delete and click the **Remove Triggered CI Data** button.

Editing the Discovery Pattern

The **Source View** tab displays the discovery pattern in XML format, which can be edited.

To edit the discovery pattern in the Source View tab:

1. Right-click the pattern you want to edit in the **Module Manager** tab and click **Edit Pattern**, or double-click the pattern to open the Pattern Editor.
2. Click the **Source View** tab.
3. Make the required changes.
4. Click **Save** to save the changes you have made.
5. The **Discovery Scripts** pane at the bottom contains a list of Jython scripts used by the discovery patterns. Jython is a Java implementation of the Python language, allowing python code to access Java classes. The Jython scripts that appear in bold are the scripts that the currently selected pattern is using. To edit the Jython scripts, do the following:
   - Select the Jython script you want to edit.



   - Click the **Edit Script** button to open the Script Editor window.
   - Edit the script as required.
   - Click **OK** to save the changes you have made.

Scheduling a Discovery Pattern to Run on a Periodic Basis

This section explains how to set the schedule for activating a discovery pattern. It has the following topics:

- Setting the Date for Starting and Stopping a Discovery Pattern – for details, see page 69
- Running a Discovery Pattern on a Periodic Basis – for details, see page 69

➤ Running a Discovery Pattern at Set Time Intervals – for details, see page 70

➤ Running a Discovery Pattern on a Daily Basis – for details, see page 71

➤ Running a Discovery Pattern on a Weekly Basis – for details, see page 71

➤ Running a Discovery Pattern on a Monthly Basis – for details, see page 72

Setting the Date for Starting and Stopping a Discovery Pattern

This section describes how to set the date for starting and stopping a discovery pattern.

To set the date for starting and stopping a discovery pattern:

1. To set the date for activating the discovery pattern, click the down button in the **Start on** box to display a calendar.
2. Use the diagonal arrow buttons to choose the month and year, and then click the required day.
3. Click anywhere outside the calendar to close it.
4. To activate the discovery task when it reaches the Discovery Probe, select **Start on task arrival**.

Note: If you have set a date for activating the discovery pattern in the **Start on** box and selected **Start on task arrival** as well, the pattern will be activated for the first time when the pattern is activated, and then on the date selected in the **Start on** box.

Running a Discovery Pattern on a Periodic Basis

This section describes how to run a discovery pattern on a periodic basis.

To run a discovery pattern on a periodic basis:

1. Right-click the pattern you want to run on a periodic basis in the **Module Manager** tab and click **Edit Pattern**, or click the **Edit** button in the top-right corner of the Discovery Pattern Summary pane to open the Pattern Editor.
2. Click the **Design View** tab.

3 In the **Discovery Scheduler** section, click **Edit Scheduler** to open the Schedule dialog box.

4 Select one of the following options:

- **Interval** – activates the discovery pattern at a predefined time interval. For details, see "Running a Discovery Pattern at Set Time Intervals" on page 70.
- **Daily** – activates the discovery pattern on a daily basis. For details, see "Running a Discovery Pattern on a Daily Basis" on page 71.
- **Weekly** – activates the discovery pattern on a weekly basis. For details, see see "Running a Discovery Pattern on a Weekly Basis" on page 71.
- **Monthly** – activates the discovery pattern on a monthly basis. For details, see "Running a Discovery Pattern on a Monthly Basis" on page 72.

5 Click **OK** to save the settings you have defined. The discovery schedule you have defined appears in the **Discovery Scheduler** section.

Running a Discovery Pattern at Set Time Intervals

This section describes how to run a discovery pattern at a predefined time interval.

To run a discovery pattern at a predefined time interval:

1 Select **Interval** in the Discovery Scheduler dialog box (see step 4 in "Running a Discovery Pattern on a Periodic Basis" on page 69), and then select the date on which you want to activate the pattern. For details, see "Setting the Date for Starting and Stopping a Discovery Pattern" on page 69.

2 In the **Repeat Every** boxes, do the following:

- Type or select a value for the interval between successive runs.
- Choose the required unit of time measurement (**seconds**, **minutes**, **hours**).

3 Choose the time and date for the task to end (for details, see "Setting the Date for Starting and Stopping a Discovery Pattern" on page 69).

4 Click **OK** to save the settings you have defined.

Running a Discovery Pattern on a Daily Basis

This section describes how to run a discovery pattern on a daily basis.

To run a discovery pattern on a daily basis:

1. Select **Daily** in the Discovery Scheduler dialog box (see step 4 in "Running a Discovery Pattern on a Periodic Basis" on page 69), and then select the date on which you want to activate the pattern. For details, see "Setting the Date for Starting and Stopping a Discovery Pattern" on page 69.
2. From the **Every day at hour** list, select the required time.
3. In the **Discovery Time Limitations** section, choose the date and time you want the task to stop running. For details, see "Setting the Date for Starting and Stopping a Discovery Pattern" on page 69.
4. Click **OK** to save the settings you have defined.

Running a Discovery Pattern on a Weekly Basis

This section describes how to run a discovery pattern on a weekly basis.

To run a discovery pattern on a weekly basis:

1. Select **Weekly** in the Discovery Scheduler dialog box (see step 4 in "Running a Discovery Pattern on a Periodic Basis" on page 69), and then select the date on which you want to activate the pattern. For details, see "Setting the Date for Starting and Stopping a Discovery Pattern" on page 69.
2. From the **Start hour** list, select the hour at which you want the task to run.
3. In the **Days of week** section, select the day or days of the week on which you want the task to run.
4. In the **Discovery Time Limitations** section, choose the date and time you want the task to stop running. For details, see "Setting the Date for Starting and Stopping a Discovery Pattern" on page 69.
5. Click **OK** to save the settings you have defined.

Running a Discovery Pattern on a Monthly Basis

This section describes how to run a discovery pattern on a monthly basis.

To run a discovery pattern on a monthly basis:

1. Select **Monthly** in the Discovery Scheduler dialog box (see step 4 in "Running a Discovery Pattern on a Periodic Basis" on page 69), and then select the date on which you want to activate the pattern. For details, see "Setting the Date for Starting and Stopping a Discovery Pattern" on page 69.
2. From the **Start hour** list, select the hour at which you want the task to run.
3. In the **Days of month** box, click the **Add the required day of the month** button to specify the day or days of the month on which you want the pattern to run. The Add Required Day dialog box opens.
4. From the **Choose a day** list, select required day in the month and click **OK**. The day you selected appears in the **Days of the month** box. You can repeat this step to select as many days as you want.
5. To delete a day from the **Days of month** box, select the required day and click the **Delete the required day of the month** button.
6. In the **Discovery Time Limitations** section, choose the date and time you want the task to stop running. For details, see "Setting the Date for Starting and Stopping a Discovery Pattern" on page 69.
7. Click **OK** to save the settings you have defined.
8. To choose when you want the discovery pattern to stop, do one of the following:
   - ➤ If you do not want to specify an ending date, select **No time limitations**.
   - ➤ To set the the pattern to stop after it has been activated a specific number of times, select **End after** and then enter or choose the required number from the **recurrences** list (maximum is 1000).
   - ➤ To choose the date and time for when you want the discovery task to stop, select **End by**, and do the following:
     - Click the down button to display a calendar.
     - In the **Date** and **Time** tabs, use the diagonal arrow buttons to choose the date and time.

- Click anywhere outside the calendar to close it.

Defining Advanced Settings

You can define advanced settings for your discovery pattern.

To define advanced settings for the discovery pattern:

1 Click **Advanced Settings** to open the Advanced Settings dialog box.

2 In the **Task Management** section, do the following:

➤ Select **Merge** if you want a task to include several Triggered CIs rather than only one triggered CI per task. The default is selected.

➤ Select **Enforce Dispatch** if you want to invoke a task for CIs whose Discovery Probe is not included in the discovery scope you define in the Probe Manager tab (see "Adding a Discovery Probe" on page 34). The default is not selected.

➤ If a CI that acted as a trigger for a discovery pattern was deleted from the database, select **Deletable** if you want the discovery task it activated to be deleted as well. The default is not selected.

3 By default, the Discovery Manager chooses the Discovery Probe for the triggered CI automatically according to the CI's related host. After obtaining the CI's related host, the system chooses one of the host's IPs and chooses the Discovery Probe according to the probe's network scope definitions (see "Adding a Discovery Probe" on page 34).

This might fail in the following situations:

➤ A triggered CI does not have a related host (such as the **network** CIT).

➤ A triggered CI's host has multiple IPs, each belonging to different Discovery Probe.

To resolve these issues, you can specify which Discovery Probe to use with the discovery pattern by doing the following:

➤ In the **Probe Selection** section, select **Override default probe selection**.

➤ In the **Probe** box, enter the Discovery Probe you want to use for the discovery task.

4 In the **Result Grouping** section:

➤ Select **Group Results** if you want to group discovery results in the Discovery Probe before being sent to the Mercury Business Availability Center server.

- In the **Grouping Interval (Seconds)** box, type the value that indicates how long discovery results are stored in the Discovery Probe before being transferred to the Mercury Business Availability Center server.
- In the **Group Max CIs** box, specify the number of CIs that should accumulate in the Discovery Probe before being transferred to the Mercury Business Availability Center server.

Note: If you entered a value in both fields, Mercury Business Availability Center applies whichever occurs first.

➤ If you do not select **Group Results**, all discovery results are immediately sent to the Mercury Business Availability Center server.

➤ Click **OK** to save the changes you have made.

Discovery Pattern Validation

The **Discovery Pattern Indicator** indicates whether the selected discovery pattern is valid or not. It can be either green or red.



➤ Green indicates that the pattern is valid.

➤ Red indicates that the pattern is not valid. To display a description of the problem, move the pointer over the **Discovery Pattern** Indicator.

Activating a Discovery Pattern

You can choose to activate either all the discovery patterns in a discovery module or some of them.

To activate discovery patterns in a module:

1 Select **Admin** > **CMDB** and select the **Discovery Manager** tab.



2 In the **Discovery Modules** area, click the **Expand** button of the module whose discovery pattern you want to activate.



3 Right-click the module you want to activate and click the **Activate** button, or select the required module and click the **Activate** button in the bottom-right corner of the Discovery Modules pane.



A pattern that is activated, as seen here, is marked with a green dot.



Note: If only some of the module's patterns are activated, the module is marked with a single green dot. If all patterns of the module are activated,



the module is marked with three green dots.

Deactivating a Discovery Pattern

This section describes how to deactivate a discovery pattern that is being used in the discovery process.

To deactivate a discovery pattern that is being used in the discovery process:

1 Select **Admin** > **CMDB** and click the **Discovery Manager** tab.

2 Click the **Expand** button of the module whose discovery pattern you want to deactivate.



3 In the **Discovery Modules** area, right-click the pattern you want to deactivate and click the **Deactivate** button, or select the required pattern and click the **Deactivate** button in the bottom-right corner of the Discovery Modules pane.

Understanding the Discovery Manager's Map View

The Mercury Business Availability Center discovery process is run by activating discovery patterns.

Each pattern contains a description of the CITs and relationships that are created with each discovery pattern. The definitions of the CITs and relationships are taken from the CI Type Manager (for details, see *CI Type Manager Administration*) which contains the definitions of all CITs and relationships. When the discovery module is activated, it discovers CITs and relationships of the types that are described in each pattern, and places them in the CMDB.

The discovered CIs act as triggers that activate another discovery pattern. Every time a discovery pattern is activated, it discovers more CIs, which in turn are used as triggers for other discovery patterns.

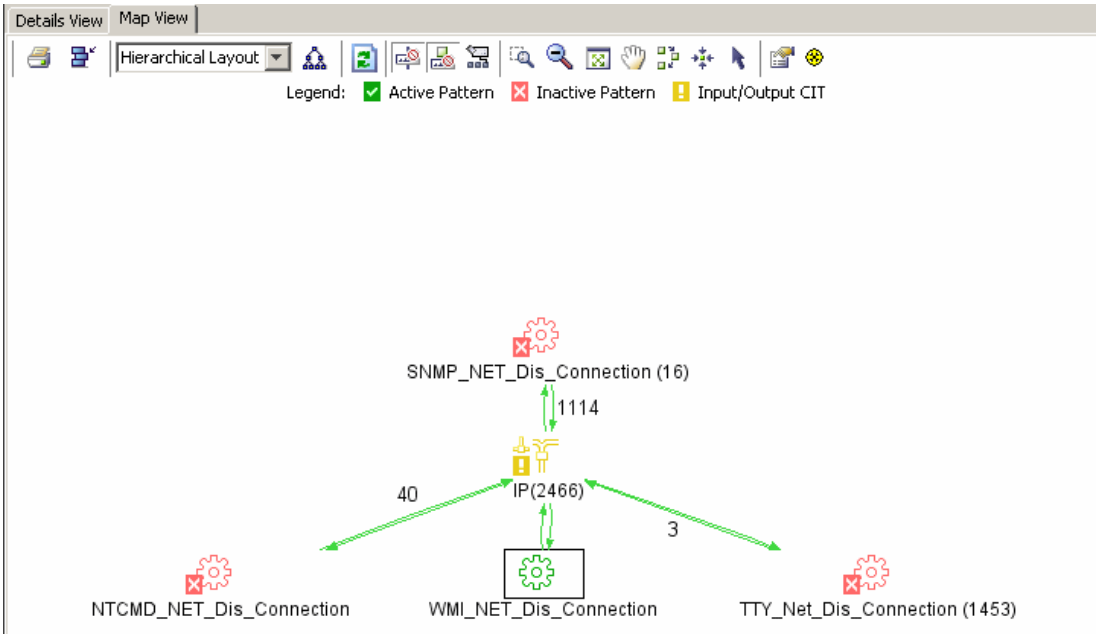
The Map View tab displays a visual representation of the real-time progress of the discovery process. It displays which CIs triggered which discovery pattern (trigger or input CIs), as well as which CIs that were discovered as a result of the activated discovery pattern (triggered or output CIs).

The Map View tab also displays other information, such as how many instances of a specific CI are contained in the CMDB and how many instances were created by a specific discovery pattern.

For more information about the discovery process, see the *Discovery Process Tutorial*.

To display the discovery Map View:

Click the **Module Manager** tab and then click the **Map View** tab.



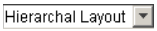
Map View displays the real-time progress of a discovery pattern. Selecting a discovery pattern either in the Discovery Modules pane or the Map View, simultaneously selects that pattern in both places.

This section has the following topics:

- Using the Map View Tab Toolbar – for details, see page 78
- Displaying Data in the Discovery Map View – for details, see page 81
- Understanding Items in the Discovery Map View – for details, see page 84
- Understanding Statistics in the Map View – for details, see page 85
- Understanding Map View Tooltips – for details, see page 87
- Printing the Contents of the Map View Tab – for details, see page 87
- Defining Layer Setup – for details, see page 89
- Understanding Layout Options – for details, see page 90

Using the Map View Tab Toolbar

The following table describes a description of each toolbar option in the Map View tab.

Option Name	Icon	Use this option to...
Print Map		Print the contents of the Map View tab. For details, see "Printing the Contents of the Map View Tab" on page 87.
Layer Setup		Define the map view's layer layout, by assigning positions for the elements in the view. For details, see "Modifying Layer Layout Options" in *View Manager Administration*.
Layout		Select the layout display from the list. For more information, see "Understanding Layout Options" in *View Manager Administration*.
Reorganize layer		Reorganize the map view's elements. This is used when the map's elements have been moved around.
Refresh		Update the statistics in the Map View. For details, see "Understanding Statistics in the Map View" on page 85.
Hide relationship labels		Toggle between showing or hiding the relationship labels.
Hide nodes labels		Toggle between showing or hiding the pattern/CIT labels.
Set labels size		Enter the maximum number of characters you want the labels to contain.

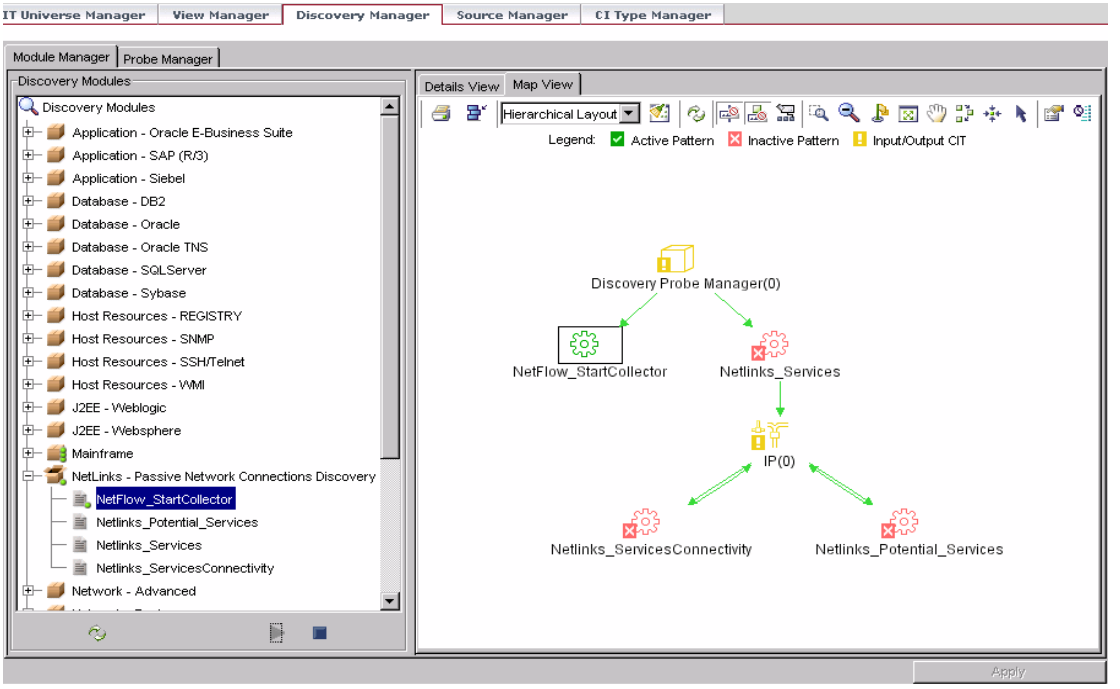
Option Name	Icon	Use this option to...
Zoom		Zoom in on a specific section of the map view by clicking and drawing a selection rectangle around the part you want to magnify. The area you have selected is displayed at the highest percentage that fits in the map view.
Interactive zoom		➤ Decrease the view magnification by clicking and pushing the pointer upwards. ➤ Magnify the view by clicking and pulling the pointer downwards.
Overview map		Open a new window with the topology map contents.
Fit to window		Fit the complete view in the window.
Pan		Drag the view.
Navigation		Take the pointer to the next connected pattern/CIT. ➤ Left-click to go from element to element in a clockwise direction. ➤ Right-click to point to the next element in a clockwise direction. **Note:** You can use this option only on CITs and patterns that are connected by a relationship.
Place in center		Place the selected CIT/pattern in the center of the map.
Select mode		Select an element or multiple elements.

Option Name	Icon	Use this option to...
Edit properties		Open the Pattern Editor to edit the pattern as required. For details about the Pattern Editor, see, "Understanding the Pattern Editor" on page 64. You can only edit a pattern when it is in a deactivated state. **Note:** You can also double-click the discovery pattern to open the Pattern Editor.
Show schedule info		Displays the scheduling information for starting and stopping a discovery pattern. For details, see "Scheduling a Discovery Pattern to Run on a Periodic Basis" on page 68.

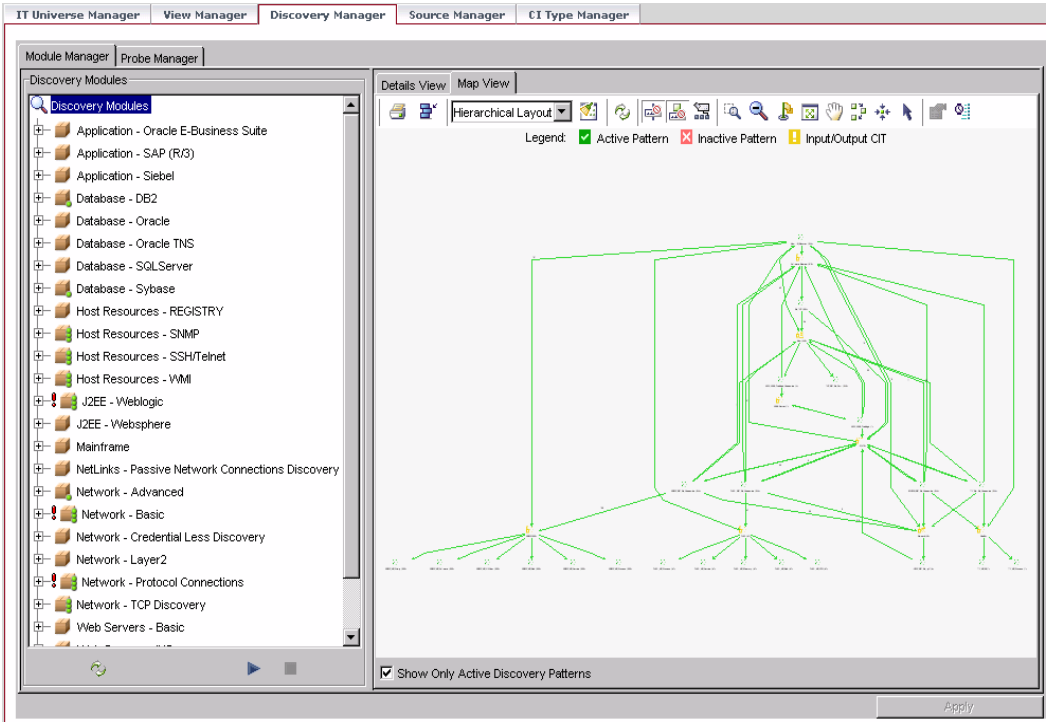
Displaying Data in the Discovery Map View

The discovery Map View displays data according to what is selected in the Discovery Modules pane.

➤ When you select a module in the Discovery Modules pane, the map view displays the module's active and inactive patterns and the input/output CITs, as displayed by the following illustration:

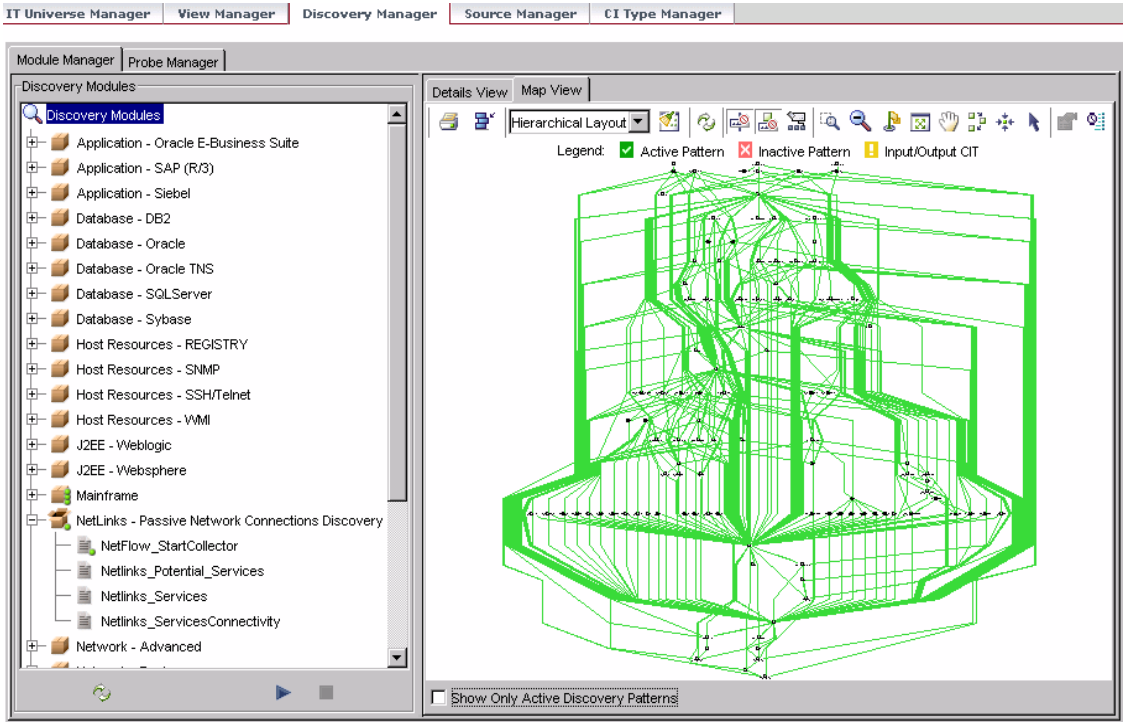


➤ When you select the Discovery Modules root at the top of the Modules pane, and select the **Show only active discovery patterns** check box at the bottom, the map view displays only the active discovery patterns from the modules and the input/output CITs, as seen in the illustration below:



Note: If there are no active patterns, the Map View tab is empty.

➤ When you select the Discovery Modules root at the top of the Modules pane, and clear the **Show only active discovery patterns** check box at the bottom, the map view displays all discovery patterns from the modules and their interdependencies, as seen in the illustration below:



Understanding Items in the Discovery Map View

The following table describes the items in the Map View and what they represent:

Item	Description
	An inactive pattern.
	An active pattern.
	An input (trigger) or output (triggered) CIT. For example, a Host or a Web server. **Note:** The icon varies according to which CIT is displayed. The direction of the arrow linking the CIT to the discovery pattern determines whether it is an input or output CIT. ➤ If the arrow is an outgoing link, that is, pointing from the discovery pattern to the CIT, then it means that it is a CIT that was triggered by the discovery pattern. See the example below.  ➤ If the arrow is an incoming link, that is, pointing from the CIT to the discovery pattern, then it means that it is a CIT that was a trigger for the discovery pattern. See the example below. 

Note: You can edit a discovery pattern by double-clicking it to open the Pattern Editor. For details, see "Understanding the Pattern Editor" on page 64.

Understanding Statistics in the Map View

The Map View tab displays the following statistics on discovery results for the selected pattern:

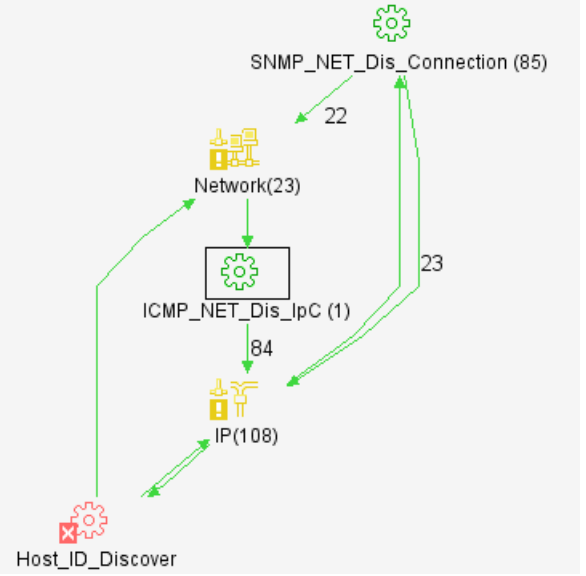
- The number of instances there are of a specific CI in the CMDB.

Note: You can also find the same statistic number in the **Created** column in the **Statistics** table in the Details View pane. For details, see "Using Advanced Options in the Details View Pane" on page 41.

- The number of CI instances that were created by a specific pattern.
- The number of triggered CIs a discovery pattern is currently using to run the discovery pattern.

Note: You can also find the same statistic number at the bottom right-hand corner of the Triggered CI pane, where it says, for example, 25 out of 90. In this case, 90 would be the number of triggered CIs being used for the discovery pattern.

The example below displays the the following statistics:



- The discovery pattern **SNMP_NET_Dis_Connection** created 23 instances of **IP** CIs.
- The discovery pattern **SNMP_NET_Dis_Connection** created 22 instances of **Network** CIs.
- There are 23 instances of **Network** CIs in the CMDB.
- There are 108 instances of **IP** CIs in the CMDB.
- The discovery pattern **ICMP_NET_Dis_IpC** is using one triggered CI to run the discovery pattern.
- The discovery pattern **SNMP_NET_Dis_Connection** is using 85 triggered CIs to run the discovery pattern.

Note: To update the statistics in the Map View, click the **Refresh** button (for details, see "Using the Map View Tab Toolbar" on page 78).

Understanding Map View Tooltips

When the cursor is moved over either a CI or discovery pattern, a tooltip displays the description.

Printing the Contents of the Map View Tab

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

To print the contents of the Map View tab:

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

   For details about the **Layer Setup** option, see "Defining Layer Setup" on page 89.



3. Click the **Print Map** button to open the Print Setup dialog box.
   - Select **Print Entire Graph** to print the complete view.
   - Select **Print Current Window** to print the part of the view that appears in the window.
   - Select **Print Current Selection** to print anything currently selected in the map.
4. In the **Scale By** area:
   - Select **Pages** and enter the number of columns and rows in the **Page Columns** and **Page Rows** boxes.
   - Select **Actual Size** to print the view as it really is.
   - Select **Zoom Level** to print the view at the zoom level that you are currently using.

5 In the **Caption** area:

- ➤ To print a caption for the printout, select **Print Caption**.
- ➤ Enter the caption in the text area.
- ➤ Click **Font** to format the font you want to use for the caption.
- ➤ Select the position of the caption from the **Position** list.

6 In the **Multipage Printing** area:

- ➤ Select **Print Page Numbers** if you want to print the page numbers.
- ➤ Select **Print Crop Marks** if you want the printed view to display the crop marks.

7 In the **Other** area:

- ➤ Select **Print Border** if you want the printed view to have a border and click **Color** to select a color for the border.
- ➤ Select **Print Background** if you want to print the background behind the view.
- ➤ Select **Print Grid** if you want to print a grid behind the printed view.

8 Click **Page Setup** to set the printer settings.

9 Click **OK**. These definitions are applied to your printouts. The Print dialog box appears.

10 Click **OK**.

Defining Layer Setup

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

The definitions that are set in the dialog boxes 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.

To define a layer layout:

1 Click **Layer Setup** to open the Layer Properties dialog box with the following tabs:

- **General** – Defines general layout types for all layout types. For details, see "General Layout" in *View Manager Administration*.
- **Disconnected** – Defines general layout parameters for disconnected and connected elements. For details, see "Disconnected Layout" in *View Manager Administration*.
- **Hierarchical** – Shows the precedence relationships of the elements in the selected layer. For details, see "Hierarchical Layout" in *View Manager Administration*.
- **Orthogonal** – Routes links only horizontally and vertically. For details, see "Orthogonal Layout" in *View Manager Administration*.
- **Symmetric** – Displays a clear representation of complex networks. For details, see "Symmetric Layout" in *View Manager Administration*.
- **Routing** – Leave elements where they are in the graphic representation and reroutes the edges orthogonally. For details, see "Routing Layout" in *View Manager Administration*.

2 Enter new values for the layout type you want to change. See the following section for details on each layout type.

- 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.

Understanding Layout Options

You can display the contents of the topology map using one of the following layout options.

- **Symmetric Layout** – Enables you to display clear representations of complex networks. For details, see "Symmetric Layout" in *View Manager Administration*.
- **Hierarchical Layout** – Enables you to display the precedence relations in the topology map. For details, see "Hierarchical Layout" in *View Manager Administration*.
- **Orthogonal Layout** – Enables you to display views of outstanding clarity that are achieved by employing only horizontal and vertical edge routing. For details, see "Orthogonal Layout" in *View Manager Administration*.
- **Manual Layout** – Enables you to manually change the map view display by dragging the displayed elements 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.

Protocol Definitions

This section contains the definitions that are needed for Mercury Business Availability Center protocols.

Protocol	Parameter	Description
snmpprotocol	Community	The password used for authentication
	Connection Timeout	Timeout in milliseconds after which the Discovery Probe stops trying to connect to the SNMP agent
	Network Address	The discovered IP net address or the net address range
	Note	A textual message
	Port Number	The port number on which the SNMP agent listens
	Retry	The number of times the Discovery Probe tries to connect to the SNMP agent. If the number is exceeded, the Discovery Probe stops attempting to make the connection.

Protocol	Parameter	Description
sqlpprotocol	Connection Timeout	Timeout in milliseconds after which the Discovery Probe stops trying to connect to the database
	Database Name	The database name
	Database SID (Oracle, DB2)	The database SID
	Database Type	The database type, such as Oracle and Microsoft SQL Server
	Network Address	The discovered IP net address or the net address range
	Note	A textual message
	Port Number	The port number on which the database listens
	User Name	The user name
	User Password	The user password
wmiprotocol	Connection Timeout	Timeout in milliseconds after which the Discovery Probe stops trying to connect to the WMI agent
	Network Address	The discovered IP net address or the net address range
	Note	A textual message
	User Name	The user name
	User Password	The user password
	WMI Domain	The Microsoft domain name

Protocol	Parameter	Description
weblogicprotocol	Connection Timeout	Timeout in milliseconds after which the Discovery Probe stops trying to connect to the WebLogic application server
	Network Address	The discovered IP net address or the net address range
	Note	A textual message
	Port Number	The port number
	User Name	The user name
	User Password	The user password
jbossprotocol	Connection Timeout	Timeout in milliseconds after which the Discovery Probe stops trying to connect to the JBOSS application server
	Network Address	The discovered IP net address or the net address range
	Note	A textual message
	Port Number	The port number
	User Name	The user name
	User Password	The user password
telnetprotocol	Connection Timeout	Timeout in milliseconds after which the Discovery Probe stops trying to connect to the remote machine
	Network Address	The discovered IP net address or the net address range
	Note	A textual message
	Port Number	The port number
	User Name	The user name
	User Password	The user password

Protocol	Parameter	Description
ftpprotocol	Connection Timeout	Timeout in milliseconds after which the Discovery Probe stops trying to connect to the FTP server
	Network Address	The discovered IP net address or the net address range
	Note	A textual message
	Port Number	The port number
	User Name	The user name
	User Password	The user password
sshprotocol	Connection Timeout	Timeout in milliseconds after which the Discovery Probe stops trying to connect to the remote machine
	Key Path	Location of the authentication key.
	Network Address	The discovered IP net address or the net address range
	Note	A textual message
	Port Number	The port number
	User Name	The user name
	User Password	The user password

Protocol	Parameter	Description
siebelgtwyprotocol	Connection Timeout	Timeout in milliseconds after which the Discovery Probe stops trying to connect to the Siebel gateway
	Network Address	The discovered IP net address or the net address range
	Note	A textual message
	Port Number	The port number
	Siebel Site Name	The name of the Siebel site
	srvrmgrpath	The directory in which the **srvr.exe** file is located
	User Name	The user name
	User Password	The user password
sapprotocol	Connection Timeout	Timeout in milliseconds after which the Discovery Probe stops trying to connect to the SAP server.
	Network Address	The discovered IP net address or the net address range
	Note	A textual message
	Port Number	The port number
	Sap Client	An independent unit within the R/3 system, which is identified by three-digit number.
	Sap Router String	A string that contains the host and port of the SAP router
	Sap System Number	An unique identifier of SAP system
	User Name	The user name
	User Password	The user password

Protocol	Parameter	Description
oracleprotocol	Network Address	The discovered IP net address or the net address range
	Note	A textual message
	User Name	The user name
	User Password	The user password
ibmhttpserverprotocol	Admin Console Port	The port on which the admin console is listening
	Connection Timeout	Timeout in milliseconds after which the Discovery Probe stops trying to connect to the IBM HTTP server
	Install Root Dir	Directory in which the IBM HTTP server is located
	Network Address	The discovered IP net address or the net address range
	Note	A textual message
	Port Number	The port number
	User Name	The user name
	User Password	The user password

Protocol	Parameter	Description
websphere	Connection Timeout	Timeout in milliseconds after which the Discovery Probe stops trying to connect to the WebSphere server
	Network Address	The discovered IP net address or the net address range
	Note	A textual message
	Port Number	The port number
	Trust Store	The location of SSL trust store file
	Trust Store Password	The SSL trust store password
	User Name	The user name
	User Password	The user password
ntadminprotocol (pstools/xcmd)	The following protocols enable you to run commands on remote Windows workstations. In each command, a new connection should be established.	
	Connection Timeout	Timeout in milliseconds after which the Discovery Probe stops trying to connect to the remote machine
	Network Address	The discovered IP net address or the net address range
	User Name	The user name
	User Password	The user password

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