

MetaConsole for Unicenter: Getting Started

version 2.3



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Overview

A *management console* is a single tool used to manage entire networks. It is a framework within which device- or service-specific management modules can share a user interface, alarm monitoring, and other basic functions. Popular management consoles include CA Unicenter, Tivoli NetView, Microsoft Management Console (MMC), and HP OpenView.

MetaConsole technology provides a solution that works with multiple management consoles and multiple network protocols on multiple platforms.

This guide describes the architecture of MetaConsole and the installation of MetaConsole in a CA Unicenter environment.

MetaConsole Documentation

For any type of device you want to manage using MetaConsole, there are two relevant documents in the suite of MetaConsole documentation:

- A *getting started* guide describing MetaConsole's components and explaining the requirements, installation steps, and other details specific to the management environment
- A *client user's guide* describing the MetaConsole client's management of a particular type of device

You are reading the getting started guide for MetaConsole in a Unicenter environment.

- Chapter 1, a high-level introduction to the MetaConsole architecture, is useful if you desire a basic understanding of what's happening "under the hood," but you can use MetaConsole without reading this chapter.
- Chapter 2 helps you plan your MetaConsole installation to meet your specific needs.
- Chapter 3 provides instructions for installing and starting MetaConsole for Unicenter.
- Chapter 4 provides introductory information about the MetaConsole client for Unicenter and describes configuration options.
- Chapter 5 covers additional MetaConsole configuration that you perform through text files.
- Chapter 6 provides information to help you solve problems with your MetaConsole configuration.

Chapter 1. MetaConsole Architecture

The MetaConsole application architecture is three-tiered. The major components are:

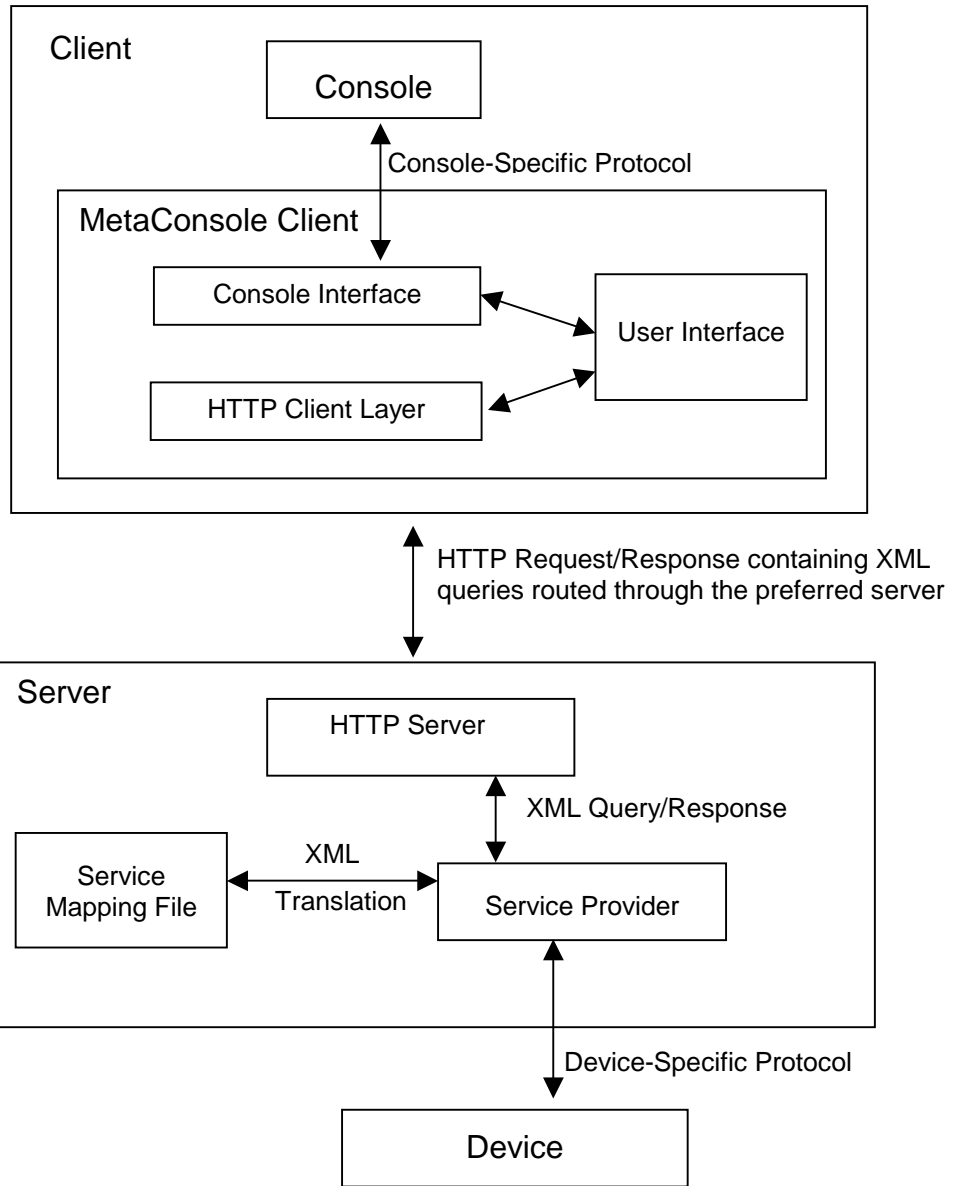
- MetaConsole client —this is the front end that integrates with the console
There is one client per console, managing all supported devices.
- MetaConsole server — this is the back-end component that communicates with MetaConsole clients and with the devices to be managed

A MetaConsole server acts as an agent collecting data for the MetaConsole clients. It can route queries and responses to and from other MetaConsole servers. A server that acts as a proxy in this way is the *preferred server* for the client.

- MetaConsole service providers — these contain the knowledge necessary to communicate with a managed device or service

Typically, a service provider exists for each vendor or class of devices.

The following diagram provides details.



Client

The client component includes three major sub-components:

- The console interface cooperates with the host console so the client functions in a manner native to that console. For example, the console interface in the MetaConsole client for Unicenter uses the Unicenter WorldView API and ensures that the client performs all functions expected of WorldView applications.
- The HTTP client layer communicates with the MetaConsole server using Hypertext Transfer Protocol (chosen because it is a well-defined protocol that works across firewalls). HTTP requests sent by the MetaConsole client contain queries encoded in XML; the responses returned by the MetaConsole server are also encoded in XML and contain style sheets with instructions for rendering the XML data.
- The user interface component is generally common among MetaConsole clients for different management consoles. This sharing provides the same “look and feel” regardless of whether the user has Unicenter, another console, or a browser. The user interface is rendered by the client using the style sheets provided by the server.

The client might extend the common MetaConsole user interface in console-specific ways to use all the capabilities of the management console. For example, the navigation tree is usually adapted to reflect the native method used by the console to display devices.

Server

The MetaConsole server includes two sub-components:

- The HTTP server controls communication with the MetaConsole client.
- The Service Provider Interface controls the communication with the various service providers.

The MetaConsole server manages multiple service providers and takes care of routing client requests to the correct service providers.

Service Providers

Each MetaConsole server has one or more service providers that can be loaded on that server. Each service provider performs four main functions:

- Translates the HTTP server’s XML queries into the protocol understood by the device and translates the device’s responses into XML documents
- Has a service mapping file that defines the translations from XML to the device-specific protocol
- Discovers devices in the network
- Polls and listens for alarms from the devices that it is communicating with for the purpose of asynchronous event notification

Chapter 2. Planning Your MetaConsole Deployment

MetaConsole was designed to be deployed in various and diverse environments. MetaConsole runs well for the small workgroup and can be scaled up, with several MetaConsole servers being deployed in a large enterprise to handle very large networks. Due to this scalable design, it is important that you consider how you would like to deploy MetaConsole, making appropriate choices for your environment.

This chapter also covers considerations that are independent of network size and design but that will help you get the best use of MetaConsole.

Using Multiple MetaConsole Servers

You can install the MetaConsole server on as many computers as you like. A MetaConsole server can service multiple clients. These clients can be of different types (Unicenter, NetView, HP OpenView, MMC, and so on).

You can install the MetaConsole client on as many computers as you like. Each client must be able to communicate with at least one MetaConsole server. The client and server can be on the same computer. Each client must designate a specific MetaConsole server as the preferred server.

Given these options, it is important that you plan carefully for your MetaConsole deployment.

A MetaConsole client can communicate with multiple MetaConsole servers, each with its own set of service providers and devices. You should consider using multiple MetaConsole servers within a network when:

- Performance is an issue. To improve performance within a large network, multiple MetaConsole servers can be deployed such that each server has a reasonable set of devices to manage. Clients communicate with different servers depending on the devices that they will be managing.
- Logical groups of devices need to be created. This can be achieved by:
 - Providing each MetaConsole server with a different set of service providers to load, such that each such grouping reflects the different functions one might be seeking to segregate (such as printer management and server management).
 - Providing each MetaConsole server with a different set of sub-net ranges over which to perform discovery. This allows physical segregation of a network. For example, devices on the first floor and devices on the second floor can be managed through different servers.

Segregation by function or by location is useful in large networks.

- Network traffic needs to be reduced. Dividing a network into logical components and assigning each component a MetaConsole server to manage it cuts down on network traffic.

The following will help you in deciding if multiple MetaConsole servers are appropriate for your environment.

Are you managing devices of multiple service providers?

To manage devices of multiple service providers, you might consider dividing the management load among multiple MetaConsole servers. This would also allow you to have multiple administrators with different job functions (such as managing servers and managing printers).

Are you managing a large number of devices?

To manage many devices, you might consider dividing the management load among multiple MetaConsole servers. By decreasing the load on each MetaConsole server, you allow the server to respond more quickly to client requests and improve client performance.

Do devices of the same service provider require different settings?

If different devices belonging to the same service provider require different settings, you can set up two MetaConsole servers, each with a different range for the service provider and with the appropriate alarm events selected.

Must the navigation tree reflect logical groupings of devices?

If devices have logical groupings that need to be reflected in the client's navigation tree, you can use multiple servers. For example, Marketing and Engineering might be set up with separate servers so users from each department can locate appropriate devices easily.

Are you running MetaConsole across a firewall?

If you are using MetaConsole across a firewall, you might consider setting up a MetaConsole server with an address accessible outside the firewall and configure it to manage only the devices that you want the person accessing this server to be able to manage. As MetaConsole clients use HTTP to access the MetaConsole server, access to the server itself will be available; HTTP access is typically available across a firewall.

Running MetaConsole as a Service

If you are running MetaConsole on a computer running Windows NT or Windows 2000, you might consider running MetaConsole as a service. Services can be started automatically after the operating system boots and do not require a user to log on. This is especially useful when you are running MetaConsole on an unattended computer.

Choosing MetaConsole Discovery

The properties file `console.properties` contains the variable `NetaphorDiscover`, which determines whether MetaConsole does device discovery (see Chapter 5 for `console.properties` details).

If `NetaphorDiscover` is set to **true**, the MetaConsole server performs discovery, and MetaConsole can be used to manage devices. This places all relevant devices in the same place in the map, for easy monitoring. If `NetaphorDiscover` is set to **false**, the MetaConsole server does not perform discovery, and MetaConsole cannot be used to manage devices.

Monitoring the Network and Using Alarms

MetaConsole gives you flexibility in the monitoring of network activity. MetaConsole monitors managed devices for changes in state, warnings and errors. Monitoring is done by polling as well as through asynchronous event notification via trap reception.

Each service provider has a pre-decided set of alarms that it can generate. These alarms correspond to a change in state of one or more polled variables on a device or a trap that may be received from a device. For each service provider, you select the types of events that should trigger alarms and the poll rate for alarms. (For details, see the client user's guide for a particular service provider.) You can then view alarms in several ways.

Alarms in Unicenter

When an event of a selected type occurs, the MetaConsole client adds alarms by sending a message to Event Management for processing. These logged alarms can be viewed in EM Console or by launching Console Logs from the Enterprise Management view of Unicenter Explorer. MetaConsole alarms are logged in orange text, and all messages begin with "MetaConsole" followed by the address of the device and text information returned from the device.

Alarms in MetaConsole

When an event of a selected type occurs, MetaConsole notifies you with a flashing message in the status bar of each MetaConsole client (browser) window launched from a Unicenter terminal node. In addition, you can view lists of alarms on the **View Alarms** page within each MetaConsole server's **Configuration** node. (See *Viewing Alarms* on page 22.)

You can use the **Alarm Notification Methods** page at the top level of MetaConsole configuration to select any combination of alert boxes, system beeps, email messages, and pager text messages as additional alarm notification methods. (See *Specifying Alarm Notification Methods* on page 18.) The **Alert Box** option causes a message box to appear when a monitored event is detected. Only one alert box is visible at a time, so additional alarms that occur while an alert box is open will not generate additional alert boxes.

Note: If you are viewing a page that has an object selected for monitoring and a monitored event occurs for that object, one of two things happens. If the page is not editable, it is refreshed automatically. If the page can be edited, a dialog box appears, indicates that an alarm has occurred, and asks whether the page should be refreshed. In the latter case, choose **YES** to update the page immediately or **NO** to ignore the alarm.

Choosing an Alarms Database

MetaConsole ships with the HSQLDB database. This database stores the alarm (event) information. The HSQLDB database is loaded into memory when the MetaConsole server starts and records alarm information in a flat file in the MetaConsole directory.

The database adds alarm information at the rate of approximately 1000 events per megabyte. Acknowledging all events increases the file size to approximately 500 events per megabyte, but the database is optimized each time the MetaConsole server is started. The optimized database stores alarm events at the rate of 2000 events per megabyte.

Performance is based largely upon the amount of RAM on your system. However, serious degradation to server performance can occur once the database file size increases beyond 50 MB. The larger the database is, the longer it takes to load into memory when the MetaConsole server starts. A 10-MB file can take several minutes to load.

You can save the HSQLDB database by copying and storing the database files `MetaConsoleDB.data`, `MetaConsoleDB.properties`, and `MetaConsoleDB.script`. You can create a new database by deleting the old database files and running the `runcreator.exe` application in the MetaConsole directory.

If you prefer a more familiar and robust database, you can download and install one. The MetaConsole server interfaces with Microsoft's SQL database and MySQL database. The Microsoft SQL database must be purchased and licensed, but the MySQL database can be downloaded free and used under a General Public License. For details about installation, see *Installing MSSQL Database* or *Installing MySQL Database*, beginning on page 13.

Chapter 3. Installation

This chapter describes the installation of MetaConsole. Both the MetaConsole server and the client for Unicenter can be installed on a number of platforms.

The devices that your client will manage need not be present on your network when you install MetaConsole.

Prerequisites

Server

The following table describes the hardware and software requirements for the MetaConsole server.

Platform	Hardware	Software
Windows (NT 4.0 SP6; 2000, 2003, XP)	Pentium 700 MHz 256 MB available RAM 190 MB free hard disk space	
Solaris 8	Sun Ultra 5 512 MB available RAM 190 MB free hard disk space	CDE, XWindows, or OSF Motif
HP-UX 11.x	HP B2000 512 MB available RAM 190 MB free hard disk space	HP VUE, CDE, XWindows, or OSF Motif
Red Hat Linux 7.0, 7.2	Pentium 300 MHz 128 MB available RAM 190 MB free hard disk space	Gnome

Client

The following table describes the hardware and software requirements for the MetaConsole client.

Platform	Hardware	Software
Windows (NT 4.0 SP6; 2000, XP)	Pentium 300 MHz 256 MB available RAM 52 MB free hard disk space	CA Unicenter NSM 3.0 or 3.1 One of these browsers: <ul style="list-style-type: none"> • Microsoft Internet Explorer 5.5 or 6.0 • Netscape Navigator 6.2 or 7.1 Sun's Java Plug-in 1.4 (http://java.sun.com/products/plugin/) Microsoft SQL Server 6.5 or later

Platform	Hardware	Software
Solaris 8	Sun Ultra 5 512 MB available RAM 160 MB free hard disk space	CA Unicenter NSM 3.0 for Solaris CDE, XWindows, or OSF Motif Netscape Navigator 6.2 or 7.0 Sun's Java Plug-in 1.4 (http://java.sun.com/products/plugin/)

Database

The following table describes the databases and corresponding drivers that are supported within MetaConsole.

Database	Notes
HSQldb HSQldb 1.7.0	This is the default database that ships with MetaConsole.
MSSQL 2000 (Version 8.0) MSSQL 2000 Driver for JDBC	For details about installation this database, see <i>Installing MSSQL Database</i> , beginning on page 13. The Microsoft MSSQL database must be purchased and licensed.
MySQL Admin 1.4 MySQL Connector/J 2.0.14 for JDBC	For details about installation, <i>Installing MySQL Database</i> , beginning on page 14. The MySQL software is free and licensed under the General Public License. The software can be downloaded at http://www.mysql.com

Placement of Components

You can install one client per data repository. Each client must be able to communicate with at least one MetaConsole server. The client and server can be on the same computer.

You can install the MetaConsole server on as many computers as you like. A MetaConsole server can service multiple clients. These clients can be of different types (Unicenter, browsers, HP OpenView, and so on).

For more information, see *Using Multiple MetaConsole Servers* on page 5.

Installing MetaConsole Components

An installation program guides you through the process of installing the MetaConsole server, client, or both.

To use the installation program:

1. Insert the MetaConsole CD (for installers distributed via CD-ROM) or locate the `install.html` file (for installers distributed remotely via the Web).

2. Start the installation program:
 - CD-ROM distributions:
 - [Windows] If the installation program does not start automatically, run `<INSTALLER_NAME>.exe` in the `Disk1\InstData\Windows` directory on the CD.
 - [HP-UX, Solaris, Linux]
 - a. Log in as `root`.
 - b. Execute `sh ./<INSTALLER_NAME>.bin` in the `Disk1\InstData\HPUX`, `Disk1\InstData\Solaris`, or `Disk1\InstData\Linux` directory on the CD.
 - Web-based distributions:
 - a. Open the `install.html` file in a web browser.
 - b. Click the **Start Installer** button.

The platform is detected and the platform-specific installer is saved locally and executed.
3. Accept the license agreement.

You cannot install and use MetaConsole if you do not accept the agreement.
4. Select the component or components to install:
 - a. MetaConsole server
 - b. Client for MMC
For information, see *MetaConsole for MMC: Getting Started*.
 - c. Client for HP OpenView
For information, see *MetaConsole for OpenView: Getting Started*.
 - d. Client for Tivoli NetView
For information, see *MetaConsole for NetView: Getting Started*.
 - e. Client for CA Unicenter
5. Specify an installation directory.

The default directory is recommended.
On Windows, this is `C:\Program Files\MetaConsole`.
On HP-UX, Linux, and Solaris, this is `/opt/MetaConsole`.
6. [MetaConsole server] Specify a TCP/IP port number.

The default port number, 80, is recommended, but if it is already in use, you can specify any unused port number.
7. [Windows NT, 2000, and XP] [MetaConsole server] Indicate whether MetaConsole is to run as a Windows NT service.
8. [Windows NT, 2000, and XP] [MetaConsole server] If you chose, in step 7, to run MetaConsole as a service, indicate whether it is to be started automatically at system startup or manually as needed.

9. [client for HP OpenView or Tivoli NetView] Enter the name/address of the MetaConsole server host that the client will use. Optionally, specify a port number by following the name or address with a colon and the number.
(Example: *ServerMachineName*:8080)
10. [Windows] [client for HP OpenView] Select the folder where HP OpenView Network Node Manager is installed, and click **OK**.
11. [Windows] [client for Tivoli NetView] Select the drive where Tivoli NetView is installed, and click **OK**.
12. [client for Unicenter WorldView] Enter the name/address of the MetaConsole server host that the client for Unicenter will use. Optionally, specify a port number by following the name or address with a colon and the number.
(Example: *ServerMachineName*:8080)
13. [client for Unicenter WorldView] Select the drive where Unicenter TND is installed, and click **OK**.
14. [client for Unicenter WorldView] Enter the data repository name to be used.
15. [Windows] [client for Unicenter WorldView] Indicate whether the Unicenter service is to be started automatically or manually by selecting **Manual** or **Automatic**.
16. Review the summary of installation options, and click **Install** to begin the installation.
17. Click **Done** to exit the installation program.

Starting the MetaConsole Server After Installation

Note: The MetaConsole installation procedure does not start the MetaConsole server. To use MetaConsole immediately after installation, you must manually start the MetaConsole server.

To start the MetaConsole server on Windows:

1. Click the **Start** button, point to **Programs**, and then point to **MetaConsole**.
2. Do one of the following:
 - To run the MetaConsole server as a program, click **RunMetaConsole**.
 - To run the MetaConsole server as a service, click **StartService**.

To start the MetaConsole server on HP-UX, Linux, and Solaris:

1. Change to the installation directory.
2. Execute `./RunMetaConsole`.

Uninstalling MetaConsole Components

On Windows platforms, you can uninstall MetaConsole components using Add/Remove Programs in Control Panel (they are listed under MetaConsole). Or you can use the **Uninstaller** command:

1. Click the **Start** button, point to **Programs**, and then point to **MetaConsole**.
2. Click **Uninstaller**.

On HP-UX, Solaris, and Linux, you uninstall MetaConsole components by executing the **Uninstaller** command:

1. Change to the `Uninstall` directory under the installation directory.
`Uninstall` is case sensitive.
2. Execute `./Uninstaller`.

Installing MSSQL Database

A simple database for storing alarm information is automatically installed with MetaConsole. The Microsoft SQL Server 2000 database can be used by the MetaConsole server to store alarm information. The following instructions describe how to configure the MetaConsole server to log alarms to a MSSQL database.

1. From <http://www.microsoft.com/sql/downloads>, download the JDBC driver for SQL Server 2000 for Windows.
2. Install the JDBC driver by executing the downloaded file.

The installation program create a `lib` subdirectory that contains the jar files `mssqldriver.jar`, `msutil.jar`, and `msbase.jar`.

3. Copy the three jar files listed in step 2 into the `MetaConsole/lib` directory.
4. Modify the `local.xml` file so that the MetaConsole tables can be configured in the database.

The example below shows the contents of the `dataStore` element in the `local.xml` file. Modify the data shown in italics to connect to your MSSQL server.

```
<dataStore>
  DATABASE_NAME = "MSSQL"
  DATABASE_DRIVER="com.microsoft.jdbc.sqlserver.SQLServerDriver"
  CONNECTION_URL="jdbc:microsoft:sqlserver://10.0.0.200:1433;DatabaseName=MetaConsoleDB;SelectMethod=cursor"
  USER_NAME="root"
  PASSWORD="password">
</dataStore>
```

5. Save and close the `local.xml` file.
6. Make sure the database specified in the `local.xml` file is running and the MetaConsole database has been created.
7. Execute the `runcreator` file in the MetaConsole directory.

This program creates the tables in your MetaConsole database.

8. Modify the `configuration.txt` file (located in the MetaConsole directory) to indicate the alarm database.

Chapter 6 explains the `configuration.txt` file. The database parameter values entered in the `configuration.txt` file should be the same as those entered in the `local.xml` file.

9. Start the MetaConsole server.

Installing MySQL Database

A simple database for storing alarm information is automatically installed with MetaConsole. The MySQL database can be used by the MetaConsole server to store alarm information. The following instructions describe how to configure the MetaConsole server to log alarms to a MySQL database.

1. From <http://www.mysql.com>, download MySQL Connector/J.
2. Extract the `mysql-connector-java-version#.jar` file, and rename it `mysql.jar`.
3. Copy `mysql.jar` into the `MetaConsole/lib` directory.
4. Modify the `local.xml` file so that the MetaConsole tables can be configured in the database.

The example below shows the contents of the `dataStore` element in the `local.xml` file. Modify the data shown in italics to connect to your MSSQL server.

```
<dataStore>
  DATABASE_NAME = "MySQL"
  DATABASE_DRIVER="org.gjt.mm.mysql.Driver"
  CONNECTION_URL="jdbc:mysql://10.0.0.207/ks"
  USER_NAME="root"
  PASSWORD="password">
</dataStore>
```

5. Save and close the `local.xml` file.
6. Make sure that the database specified in the `local.xml` file is running and that the MetaConsole database has been created.
7. Execute the `runcreator` file in the MetaConsole directory.

This program creates the tables in your MetaConsole database.

8. Modify the `configuration.txt` file (located in the MetaConsole directory) to indicate the alarm database.

Chapter 5 explains the `configuration.txt` file. The database parameter values entered in the `configuration.txt` file should be the same as those entered in the `local.xml` file.

9. Start the MetaConsole server.

Chapter 4. Client for Unicenter WorldView

Starting and Stopping the Client

On Windows

The MetaConsole Client for Unicenter WorldView is run as a service on Windows. The service is called *MetaConsole Unicenter SnapIn*. During installation the option to start the service automatically is presented. If during installation you chose to start the service automatically then once Windows is up and running the service will be, too. If not the service can be started manually from the Services program found, depending upon your version of Windows, either in Control Panel or Administrator Tools. It can also be stopped from there. In addition, whether or not it starts automatically can be controlled from there.

On Solaris

The MetaConsole Client for Unicenter WorldView is a program on Solaris. It is called `RunUniSnapIn` and is located in the `Uni` directory inside the installation directory. It can be started from a console window by changing directories into the `Uni` directory and typing `./RunUniSnapIn` to start the client. To determine if it's running use the `ps` command. If it's running the command `ps -Af | grep Uni` will produce output similar to this:

```
root 10050 9949 0 10:42:34 pts/6    0:00 grep Uni
root 9909 809 0 10:41:26 pts/7    0:00 /bin/sh ./RunUniSnapIn
root 9944 9909 1 10:41:28 pts/7    0:09 /opt/MetaConsole/jre/bin/java
com.zerog.lax.LAX /opt/MetaConsole/Uni/./RunUniSn
```

If it's not running the same command will produce output similar to this:

```
root 10050 9949 0 10:42:34 pts/6    0:00 grep Uni
```

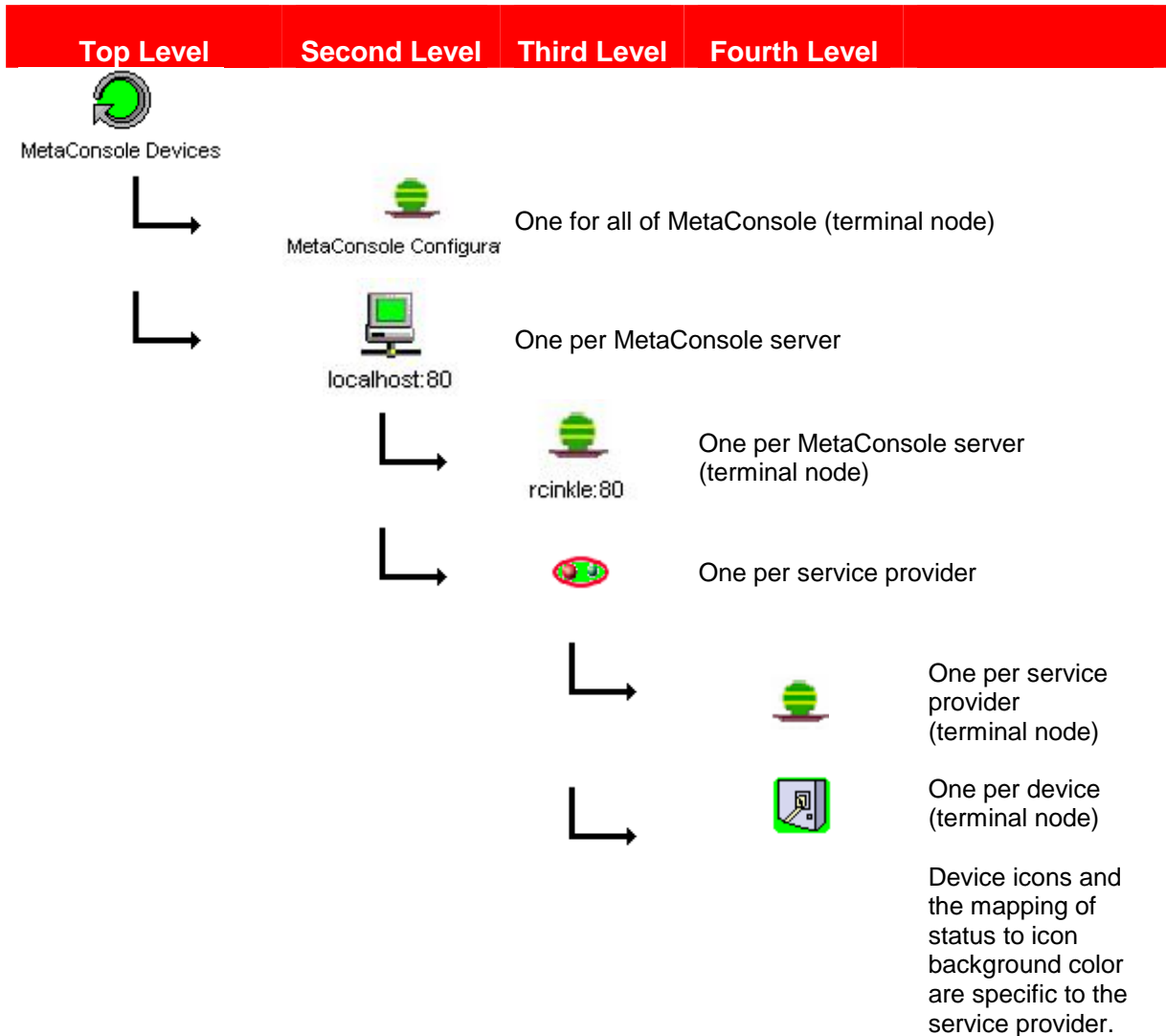
Once running the client can be stopped by using control-C in the console window, closing the console window, or by killing the process. To kill the process you need to know its PID. This can be found by using the `ps` command in the same manner as described above for determining if the program is running. In the example above the PID is 9944 and so, in that case, the command `kill 9944` should stop the `RunUniSnapIn` program.

Client UI on Unicenter WorldView

The MetaConsole Client for Unicenter WorldView integrates with the Unicenter 2D Map and with Unicenter Explorer. Both are supported on Windows, but only Unicenter Explorer is supported on Solaris.

MetaConsole adds a *MetaConsole Devices* folder to the Unicenter 2D Map and a *MetaConsole Devices* node to the repository's node in the Topology view in Unicenter Explorer. (This chapter assumes that MetaConsole discovery is used. See *NetaphorDiscover* on page 26.)

In Unicenter 2D Map folders have nodes, some of which reveal sub-folders. There are four levels of MetaConsole-related nodes. In Unicenter Explorer the Topology view shows a hierarchy of nodes.



A node with no sub-folders (or sub-nodes) is a *terminal* node, which you can use to open a browser displaying the MetaConsole client.

Note: There might be a delay; the browser does not open until the submap or parent node is fully populated.



➔ To view information or change settings for MetaConsole, a MetaConsole server, or a service provider, right-click the appropriate configuration node, and on the menu that appears, click **Configure**. (This chapter describes configuration information and options.)

All configuration settings for the server or a service provider are maintained by the MetaConsole server and are not client specific. All clients use the same values; if any client changes a particular setting, the change affects all clients that use that setting.

- ➔ To view information or change settings for a device, right-click a device node, and on the menu that appears, click **Show device details**. (Client user's guides describe displayed information and options for devices.)


You use the *navigation tree* in the *navigation pane* on the left to select the information you want displayed in the *details pane* on the right.

Refreshing Displayed Information


You can update the MetaConsole information that is displayed in Unicenter and in the MetaConsole client (browser) window. When you update information in Unicenter, anything that you have manually added to the submap is lost.

Unicenter WorldView

To refresh information for a service provider in the 2D Map:

-  1. Double-click **MetaConsole Devices**.
2. In the submap that opens, double-click the server's icon.
3. In the submap that opens, right-click the service provider's icon, and on the menu that appears, click **Refresh**.

To refresh information for a service provider in the Topology view of Unicenter Explorer:

-  1. Double-click **MetaConsole Devices** node to expand it.
2. Double-click the server's node to expand it.
3. Right-click the service provider's node, and on the menu that appears, click **Refresh**.

MetaConsole Client


To update a page of device information:

1. In the navigation pane, right-click the node whose information you want to update.
2. On the menu that appears, click **Refresh**


Refreshing a specific page of device information updates the information on that page.

Configuring the Server List

To display the server list in the 2D Map:

-  1. Double-click **MetaConsole Devices**.
2. In the submap that opens, right-click **MetaConsole Configuration**, and on the menu that appears, click **Configure**.

To display the server list in the Topology view of Unicenter Explorer:

-  1. Double-click the **MetaConsole Devices** node to expand it.
2. Right-click **MetaConsole Configuration**, and on the menu that appears, click **Configure**.

In either case:

The MetaConsole client opens.

To add to the list of MetaConsole servers:

In the navigation pane, expand the top-level **Configuration** node and click **Server Discovery**.

1. In the **MC Server Address** boxes, type the IP address of the MetaConsole server you are adding to the list.
2. In the **Port** box, type the port number where the MetaConsole server is found.
3. Click **Add**.

The new server appears in the **Server List** box and in the navigation tree.

To remove a MetaConsole server from the list:

1. In the navigation pane, expand the top-level **Configuration** node and click **Server Discovery**.
2. In the **Servers** box, click the address of the MetaConsole server you are removing from the list.
3. Click **Remove**.

The server is removed from the list and from the navigation tree.

Specifying Alarm Notification Methods

Which events you want to trigger alarms is configured individually for each service provider at each MetaConsole server. How MetaConsole presents those alarms is determined at the highest level of MetaConsole configuration.

To display alarm notification settings in the 2D Map:

1. Double-click **MetaConsole Devices**.
2. In the submap that opens, right-click **MetaConsole Configuration**, and on the menu that appears, click **Configure**.

To display alarm notification settings in the Topology view of Unicenter Explorer:

1. Double-click the **MetaConsole Devices** node to expand it.
2. Right-click **MetaConsole Configuration**, and on the menu that appears, click **Configure**.

In either case:

The MetaConsole client opens.

To specify how MetaConsole notifies you of alarms:

1. In the navigation pane, expand the top-level **Configuration** node and click **Alarm Notification Methods**.
2. Select the check box for each notification method you want MetaConsole to use.

If you select **Alert Box**, each alarm causes a message to appear on screen, indicating the device name or IP address where the alarm originated.

If you select **Audible Alarm**, each alarm causes a beep.

If you select **Email**, each alarm causes the sending of a formatted email message containing alarm time, device information, and alarm text to the recipients specified in the **Email Settings** form (see below).

If you select **Pager**, each alarm causes the sending of a formatted text page message containing alarm time, device information, and alarm text to the pager devices specified in the **Pager Settings** form (see page 20).

In any case, you can view details about the alarm; see *Viewing Alarms* on page 22.

3. Click **Apply**.

To specify settings for email notification:

1. In the navigation pane, expand the top-level **Configuration** node and click **Alarm Notification Methods**.

2. Click the **Settings...** button next to the **Email** check box.

Email notification settings appear at the bottom of the details pane.

3. Specify primary recipients by doing one or both of the following:

- To add a recipient to the **To: List**: In the **To: Email Address** box, type an email address; then click the adjacent **Add** button.
- To remove an address from the **To: List**: Click the address; then click the adjacent **Remove** button.

4. Specify “carbon copy” recipients by doing one or both of the following:

- To add a recipient to the **Cc: List**: In the **Cc: Email Address** box, type an email address; then click the adjacent **Add** button.

- To remove an address from the **Cc: List**: Click the address; then click the adjacent **Remove** button.
5. Specify “blind carbon copy” recipients by doing one or both of the following:
 - To add a recipient to the **Bcc: List**: In the **Bcc: Email Address** box, type an email address; then click the adjacent **Add** button.
 - To remove an address from the **Bcc: List**: Click the address; then click the adjacent **Remove** button.
 6. In the **From** box, type the email address to be displayed as the sender of alarm email messages.

Typically, this is a network administrator’s email address.
 7. In the **Subject** box, type text to be included in alarm email messages as the subject.

Typically, this text indicates the purpose of the message (for example, “Device Alert!”).
 8. In the **Relay Server** box, type the name or IP address of the local network’s email (SMTP) server computer.

Note: Alarm notification email cannot be delivered if this information is missing or incorrect.
 9. To send a test email message to the recipients specified in steps 3, 4, and 5, select the **Test Email on Apply** check box.
 10. Click **Apply**.

To specify settings for pager notification:

1. In the navigation pane, expand the top-level **Configuration** node and click **Alarm Notification Methods**.
2. Click the **Settings...** button next to the **Pager** check box.

Email notification settings appear at the bottom of the details pane.
3. Specify primary recipients by doing one or both of the following:
 - To add a recipient to the **Pager List**:
 - a. In the **Pager ID** box, type a pager ID (typically a 10- or 11-digit phone number).
 - b. In the **Pager Service** list, click the name of the paging service to be used.
 - c. Click the adjacent **Add** button.
 - To remove a recipient from the **Pager List**: Click the pager ID; then click the adjacent **Remove** button.
4. In the **From** box, type the email address to be displayed as the originator of alarm page messages.

Typically, this is a network administrator’s email address.
5. In the **Subject** box, type text to be included in page messages as the subject.

Typically, this text indicates the purpose of the message (for example, “Device Alert!”).

6. In the **Relay Server** box, type the name or IP address of the local network's email (SMTP) server computer.

Note: The SMTP server is used to send pages. Alarm notification pages cannot be delivered if this information is missing or incorrect.

7. To send a test page to the recipients specified in step 3, select the **Test Page on Apply** check box.
8. Click **Apply**.

Getting MetaConsole Component Version Information

To help you with support issues, technicians sometimes must know the version numbers of your MetaConsole components (server, service providers, and client).

To determine version numbers for the MetaConsole server and service providers in the 2D Map:

1. Double-click **MetaConsole Devices**.
2. In the submap that opens, double-click the icon for the individual server.
3. In the submap that opens, right-click the configuration node, and on the menu that appears, click **Configure**.

To determine version numbers for the MetaConsole server and service providers in the Topology view of Unicenter Explorer:

1. Double-click the **MetaConsole Devices** node to expand it.
2. Double-click the node for the individual server to expand it.
3. Right-click the configuration node, and on the menu that appears, click **Configure**.

In either case:

The MetaConsole client opens. In the navigation pane, expand the MetaConsole server node, and click **Version Information**.

The version number of the MetaConsole server software is shown at the top of the page. Below it are version numbers for all service providers, including

- Persistent Devices — a special service provider that manages persistent data
- ServerList Devices — a special service provider that manages the list of MetaConsole servers

Enabling and Disabling Service Providers

To display service provider settings in the 2D Map:

1. Double-click **MetaConsole Devices**.
2. In the submap that opens, double-click the icon for the individual server.
3. In the submap that opens, right-click the configuration node, and on the menu that appears, click **Configure**.

To display service provider settings in the Topology view of Unicenter Explorer:

1. Double-click the **MetaConsole Devices** node to expand it.

2. Double-click the node for the individual server to expand it.
3. Right-click the configuration node, and on the menu that appears, click **Configure**.

In either case:

The MetaConsole client opens.

To enable a service provider:

1. In the navigation pane, expand the MetaConsole server node, and click **Service Providers**.
2. In the **Disabled** list, click the name of the service provider you want to enable.
3. Click **Enable**.
4. To manually update discovered information in the map or the navigation pane, see *Refreshing Displayed Information* on page 17.


To disable a service provider:

1. In the navigation pane, expand the MetaConsole server node, and click **Service Providers**.
2. In the **Enabled** list, click the name of the service provider you want to disable.
3. Click **Disable**.
4. To manually update discovered information in the map or the navigation pane, see *Refreshing Displayed Information* on page 17.


Viewing Alarms

Note: The time that is displayed for each alarm is the time the MetaConsole server logged that alarm, and is based on the MetaConsole server's time.

To display alarm information in the 2D Map:

-  1. Double-click **MetaConsole Devices**.
2. In the submap that opens, double-click the icon for the individual server.
3. In the submap that opens, right-click the configuration node, and on the menu that appears, click **Configure**.

To display alarm information in the Topology view of Unicenter Explorer:

-  1. Double-click the **MetaConsole Devices** node to expand it.
2. Double-click the node for the individual server to expand it.
3. Right-click the configuration node, and on the menu that appears, click **Configure**.

In either case:

The MetaConsole client opens.

To view alarms:

1. In the navigation pane, expand the node for the MetaConsole server node whose alarms you want to check, and click **View Alarms**.

If the database is not configured, a message indicates that fact. Otherwise, alarm log information displays for up to 50 alarms.

2. To view more alarms, click one of the following in the **Action** list:

- **Get Next 50 Alarms**
- **Get Previous 50 Alarms**
- **View All Alarms**

Viewing all alarms can be slow if there are many alarms in the database.

3. In the **Sort by** list, click **Most Recent Alarm** or **Device** to sort the alarms.

Most Recent Alarm shows the most recent alarms at the top of the page and older alarms at the bottom. **Device** shows alarms by device, with numbers in ascending order (for example, 10.0.0.1, 10.0.0.2) followed by letters in alphabetical order (for example, Alpha, Beta).

4. In the **Filter by** list, click an option to determine which alarms are shown.

New Alarms limits the display to log entries that have not been acknowledged.

Show All Alarms shows all acknowledged and unacknowledged log entries.

The name of a service provider shows all alarms, both acknowledged and unacknowledged, for that service provider.

To acknowledge an alarm as having been read:

→ Select the **Acknowledge** check box for that alarm, and select the Update Current View from the **Action** list.

To acknowledge all alarms as having been read:

→ Select the Acknowledge All Alarms from the **Action** list.

When you acknowledge an entry, its red text changes to gray and the alarm does not display when you click **New Alarms** in the **Filter by** list.

To delete all entries from the alarm log:

→ Select Delete All Alarms from the **Action** list.

To acknowledge or delete specific entries:

→ Select the **Acknowledge** or **Delete** check box for each alarm entry and select Update Current View from the **Action** list.

Chapter 5. Configuration Text Files

Configuration of MetaConsole server properties is governed by entries in a text file, `configuration.txt`. The MetaConsole client has a corresponding properties file, `console.properties`.

Note: Changes in `console.properties` do not take effect until you stop and restart the Unicenter client.

Configuration.txt

The `configuration.txt` file is created during installation and resides in the top-level installation directory. If the file is not present, MetaConsole uses the default values, originally set at installation time.

Configuration file entries have the form *keyword=value*. This chapter includes an example file and a description of each keyword (including the keyword's value when MetaConsole is shipped).

Example File

```
# HTTP server port
Port=80

# HTTP server root directory
Root=root

# SNMP Providers - disabling/enabling sets
AllowWrites=true

# Service providers folder
ServiceProviderDirectory=mcsp

# whether logging to console is needed
LogToConsole=true

# whether logging to a stream (file) is needed
LogToFile=false

# file to log to
LogFile=MetaConsole.log

# whether file logged to is appended, or rewritten
AppendToFile=false

# start page for the MetaConsole server, start page must
# be in the root for the server
StartPage=start.html

# will log HTTP query type and client IP address for all
# connections
LogClientIP=false
```

Keywords

Keyword	Description	Comments
Port	HTTP server port number.	Original value is 80 .
Root	HTTP server root directory name.	Original value is root . Do not change this value.
AllowWrites	Indicates whether the server will allow sets.	Original value is true . Do not change this value.
ServiceProviderDirectory	Name of the service provider directory.	Original value is mcsp . Do not change this value.
LogToConsole	Indicates whether status and error information generated by the MetaConsole server is displayed on the user's screen.	Valid values are true and false .
LogToFile	Indicates whether status and error information generated by the MetaConsole server is written to a file.	Valid values are true and false . See next entry (LogFile).
LogFile	File to which status and error information is written if previous entry (LogToFile) is true .	
AppendToFile	Indicates whether new status and error information is appended to existing information in the log file, instead of overwriting it.	Valid values are true (append) and false (overwrite). Original value is false .
StartPage	File name of the server start page.	Original value is start.html . Do not change this value.
LogClientIP	Indicates whether HTTP query type and IP Address information are logged for each connection.	Valid values are true (log) and false (do not log). Original value is false .

console.properties

In this file, keywords and values are separated by white space. This file is located in the Uni directory in the installation directory.

Example File

```

Version                3.0
LogToFile              true
LogToScreen            true
LogFile                console.log
HostName               100.0.0.99
PortNumber             8080
Repository             SQLServer
NetaphorDiscover       true
MetaConsoleConfiguration MetaConsole Configuration

MetaConsoleConfigurationPage /start.html
ServerConfigurationPage   /start.html
ServiceProviderConfigurationPage /start.html

```

DeviceConfigurationPage

/start.html

Keywords

Keyword	Description	Comments
Version	The version of the client that this properties file is designed to run with.	Do not change this value.
LogToFile	Indicates whether errors generated by the client for Unicenter are sent to the file named in LogFile (see below).	True or False .
LogToScreen	N/A	Do not change this value.
LogFile	File to which information is written if LogToFile (see above) is true .	
HostName	The host name of the MetaConsole server, specified as an IP address (such as 100.0.0.99).	
PortNumber	The port number (such as 8080).	If you do not specify a port, 80 is assumed.
Repository	Repository name for Unicenter WorldView data object store	
NetaphorDiscover	Indicates whether the system uses Netaphor discovery.	If true , MetaConsole does discovery and the MetaConsole Devices submap appears with the appropriate submap. If false , MetaConsole does no discovery, and devices will not be manageable with MetaConsole.
MetaConsole-Configuration	The string used by the client for Unicenter for MetaConsole configuration.	Do not change this value.
MetaConsole-ConfigurationPage	The start page for MetaConsole configuration.	Do not change this value.
ServerConfiguration-Page	The start page for server configuration.	Do not change this value.
ServiceProvider-ConfigurationPage	The start page for service provider configuration.	Do not change this value.
DeviceConfiguration-Page	The start page for device configuration.	Do not change this value.

Chapter 6. Troubleshooting

How to Enable Logging

To help solve problems with MetaConsole for Unicenter it can be helpful to capture a log of what the snapin is doing. This is especially the case if Technical Support must be contacted for assistance. To determine what is wrong, Technical Support will require a log from the MetaConsole Unicenter SnapIn service (on Windows) or RunUniSnapIn program (on Solaris). To obtain this log, change the **LogToFile** option in `console.properties` (see Chapter 5) from **false** to **true** and then stop and restart the MetaConsole server and the MetaConsole Unicenter SnapIn service (on Windows) or RunUniSnapIn program (on Solaris). For details, see **Starting and Stopping the Client**, in Chapter 4. After they have been running for a few minutes, open the file `console.log` using a text editor and see if anything has been logged. Make a copy of this file to provide to Technical Support. Both `console.properties` and `console.log` are in the `Uni` directory in the installation directory.

MetaConsole for Unicenter SnapIn Not Installed

The “Typical” installation does not include the MetaConsole for Unicenter SnapIn. You must choose the snapin explicitly, which changes the type of installation to “Custom.”

Discovered Devices Not in Service Provider’s Submap in 2D Map (Windows only)

To ensure that all devices on the service provider’s submap are visible, right click the background of the service provider’s window, and on the **Arrange Objects** menu that appears, click an arrangement type.

When a device is added to a service provider while the 2D Map is running, the service provider’s window is open, and there is already a device in the window, the new device may be placed on top of the existing device icon. The old device may no longer be seen. Resizing the window, zooming in and out, or closing and reopening the window do not show the hidden icon. The arrange objects procedure in the previous paragraph does show all devices.

MetaConsole Devices Icon Not in 2D Map (Windows only)

From Control Panel or Administrator Tools, depending on your version of Windows, verify that the MetaConsole for Unicenter SnapIn service exists and is running. If the service is missing, uninstalling and reinstalling is the safest way to correct the problem. Be sure to explicitly select the MetaConsole for Unicenter SnapIn during installation as described under **MetaConsole for Unicenter SnapIn Not Installed**, above. If the service exists but is not running, start it. If the service is running, stop and restart it.

If the 2D Map is already up when MetaConsole for Unicenter adds the root MetaConsole object, the object is not shown, nor are any of its subordinate objects. Stop and restart the 2D Map to view the root MetaConsole object.

The 2D Map does not show instances of any classes that are added after the 2D Map is already running. If any operation takes place that involves adding classes while the 2D Map is running, the 2D Map must be stopped and restarted. The 2D Map should be started after MetaConsole server and MetaConsole Unicenter SnapIn have been started.

If the 2D Map is run after the MetaConsole server and the MetaConsole Unicenter SnapIn are running and the **MetaConsole Devices** icon does not appear, stop and then restart the MetaConsole server and the MetaConsole Unicenter SnapIn.

If the 2D Map is run after you stop and restart the MetaConsole server and the MetaConsole Unicenter SnapIn, and the **MetaConsole Devices** icon still does not appear, obtain a log and contact Technical Support.

MetaConsole Devices Node Not in Topology View of Unicenter Explorer (on Windows)

From Control Panel or Administrator Tools, depending on your version of Windows, verify that the MetaConsole for Unicenter SnapIn service exists and is running. If the service is missing, uninstalling and reinstalling is the safest way to correct the problem. Be sure to explicitly select the MetaConsole for Unicenter SnapIn during installation as described under **MetaConsole for Unicenter SnapIn Not Installed**, above. If the service exists but is not running, start it. If the service is running, stop and restart it.

If the Unicenter Explorer is run after you stop and restart the MetaConsole server and the MetaConsole Unicenter SnapIn, and the **MetaConsole Devices** node still does not appear in the Topology view, obtain a log and contact Technical Support.

MetaConsole Devices Node Not in Topology View of Unicenter Explorer (on Solaris)

Determine if the RunUniSnapIn program is running by using the ps command. If it is running, stop it and restart it. For details, see **Starting and Stopping the Client**, in Chapter 4.

If it isn't running change directories to the Uni directory in the MetaConsole directory and type ./RunUniSnapIn. If there is no Uni directory or the program isn't in the directory, uninstalling and reinstalling is the safest way to correct the problem. Be sure to explicitly select the MetaConsole for Unicenter SnapIn during installation as described under **MetaConsole for Unicenter SnapIn Not Installed**, above. If after running the program from the command line the process still doesn't show up, obtain a log and contact Technical Support.

If the Unicenter Explorer is run after you stop and restart the MetaConsole server and the RunUniSnapIn program, and the **MetaConsole Devices** node still does not appear in the Topology view, obtain a log and contact Technical Support.

Wrong Icons Appear for Nodes in Topology View of Unicenter Explorer

If Unicenter Explorer is already running when the snapin is started the default icons may show for some MetaConsole nodes. Stopping and restarting Unicenter Explorer may correct this.

Old MetaConsole Classes or Objects Exist

If you upgrade from an earlier version of MetaConsole for Unicenter, you should uninstall the old version MetaConsole and then recreate the repository before installing the new version of MetaConsole. Ordinarily, uninstalling MetaConsole removes the old MetaConsole classes and objects from the repository, but recreating the repository guarantees that no old classes or objects are left around to cause conflicts.

Browser Fails to Run for “Configure” or “Show Device Details” Menu Items

The Configuration and Show Device Details menu items are acted upon by launching a web browser with the appropriate URL. This is implemented by calling a script file called `launchurl.bat`. This script file is installed where it can be found on the path. On Windows the script file is a batch file that runs a program called `rundll32.exe` to call a function in a DLL called `url.dll`. This call starts the default browser if it isn't running and passes the URL to the default browser. On Solaris the script file assumes that the browser is compatible with Netscape 6.2.3. It looks to see if a process is running that includes the text "netscape" and if there is one it uses the "-remote" command line option supported by newer versions of Netscape. If there isn't such a process then the script starts Netscape. In both cases it assumes that netscape can be run by calling the version of netscape found first on the path. If these assumptions aren't correct then the `launchurl.bat` script needs to be changed to adapt. Of course, care must be taken in changing the script file, but no compiled code should need to change.