Installation Guide for QoS Policy Manager on Solaris

Software Release 4.0
CiscoWorks

Americas Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
http://www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

Text Part Number: OL-12556-02

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CONTENTS

Preface

This manual describes how to install and set up CiscoWorks QoS Policy Manager.

Audience

This manual is for network architects and designers, network administrators, network management consultants, and integration partners.

To use QoS Policy Manager, you should have a basic understanding of network management, TCP/IP, and the configuration of your network.

Conventions

This document uses the following conventions:

Item	Convention
Commands and keywords	**boldface** font
Variables for which you supply values	*italic* font
Displayed session and system information	`screen` font
Information you enter	**`boldface screen`** `font`
Variables you enter	*`italic screen`* font
Menu items and button names	**boldface** font

Item	Convention
Selecting a menu item in paragraphs	**Option > Network Preferences**
Selecting a menu item in tables	Option > Network Preferences

Note Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the publication.

Caution Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.

Product Documentation

Note We sometimes update the printed and electronic documentation after original publication. Therefore, you should also review the documentation on Cisco.com for any updates.

You can find product information, including documentation, at this URL on Cisco.com:

http://www.cisco.com/en/US/products/sw/cscowork/ps2064/index.html

Table 1 describes the product documentation that is available.

Table 1 Product Documentation

Document Title	Available Formats
Release Notes for CiscoWorks QoS Policy Manager 4.0 on Windows	• PDF on the product DVD. • On Cisco.com at: http://www.cisco.com/en/US/products/sw/cscowork/ps2064/prod_release_notes_list.html
Release Notes for CiscoWorks QoS Policy Manager 4.0 on Solaris	• PDF on the product DVD. • On Cisco.com at: http://www.cisco.com/en/US/products/sw/cscowork/ps2064/prod_release_notes_list.html
Quick Start Guide for CiscoWorks QoS Policy Manager 4.0	• Printed document included with the product. • PDF on the product DVD • On Cisco.com at: http://www.cisco.com/en/US/products/sw/cscowork/ps2064/prod_installation_guides_list.html
Installation Guide for QoS Policy Manager 4.0 on Solaris	• PDF on the product DVD. • On Cisco.com at: http://www.cisco.com/en/US/products/sw/cscowork/ps2064/prod_installation_guides_list.html
Installation Guide for QoS Policy Manager 4.0 on Windows	• PDF on the product DVD • On Cisco.com at: http://www.cisco.com/en/US/products/sw/cscowork/ps2064/prod_installation_guides_list.html
Getting Started Guide for CiscoWorks QoS Policy Manager 4.0	• PDF on the product DVD and from the CiscoWorks QoS Policy Manager online help. • On Cisco.com at: http://www.cisco.com/en/US/products/sw/cscowork/ps2064/prod_installation_guides_list.html

Table 1 Product Documentation (continued)

Document Title	Available Formats
User Guide for CiscoWorks QoS Policy Manager 4.0	• PDF on the product DVD and from the CiscoWorks QoS Policy Manager online help. • On Cisco.com at: http://www.cisco.com/en/US/products/sw/cscowork/ps2064/products_user_guide_list.html
Readme for CiscoWorks CS 3.0.5 with QoS Policy Manager 4.0	• PDF on the product DVD • On Cisco.com at: http://www.cisco.com/en/US/products/sw/cscowork/ps2064/prod_installation_guides_list.html
Supported Devices for CiscoWorks QoS Policy Manager 4.0	• On Cisco.com at: http://www.cisco.com/en/US/products/sw/cscowork/ps2064/products_device_support_tables_list.html
Context-sensitive Online Help	• Select an option from the navigation tree, then click **Help**. • Click the Help button in the dialog box.

Related Documentation

Note We sometimes update the printed and electronic documentation after original publication. Therefore, you should also review the documentation on Cisco.com for any updates.

Table 2 describes the related documentation that is available.

Table 2 Related Documentation

Document Title	Available Formats
Installation and Setup Guide for CiscoWorks Common Services 3.0.5 on Windows	• PDF on the QPM 4.0 DVD. • On Cisco.com at: http://www.cisco.com/en/US/products/sw/cscowork/ps3996/prod_installation_guides_list.html
Installation and Setup Guide for CiscoWorks Common Services 3.0.5 on Solaris	• PDF on the QPM 4.0 DVD • On Cisco.com at: http://www.cisco.com/en/US/products/sw/cscowork/ps3996/prod_installation_guides_list.html
User Guide for CiscoWorks Common Services 3.0.5	• PDF on the QPM 4.0 DVD • On Cisco.com at: http://www.cisco.com/en/US/products/sw/cscowork/ps3996/products_user_guide_list.html

Obtaining Documentation, Obtaining Support, and Security Guidelines

For information on obtaining documentation, obtaining support, providing documentation feedback, security guidelines, and also recommended aliases and general Cisco documents, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

CHAPTER 1

Overview of QPM 4.0

This chapter contains the following topics:

What is QPM?

QoS Policy Manager (QPM) lets you analyze traffic throughput by application or service class, and then leverage that information to configure QoS policies. This helps you to differentiate the traffic and define the QoS functions to be applied to each type of traffic flow.

By simplifying QoS policy definition and deployment, QPM makes it easier for you to create and manage end-to-end differentiated services in your network, thus making more efficient and economical use of your existing network resources.

For example, you can deploy policies that ensure that your mission-critical applications always get the bandwidth required to run your business.

QPM is suitable for large-scale enterprise deployments, and IP telephony deployments, consisting of hundreds or thousands of devices.

QPM helps you to manage large networks by providing advanced user authorization capabilities through integration with Cisco Access Control Server (ACS).

QPM runs on the CiscoWorks Common Services server. CiscoWorks Common Services provides the infrastructure required by QPM to run from the CiscoWorks desktop environment.

It allows you to manage user roles and privileges, and control user access to specific tasks in QPM.

QPM stores policy and device information in a relational database. Reports generated by QPM are stored separately as XML files. Monitoring task data is also stored separately.

QPM uses the CiscoWorks Common Services server to backup all application data. All QPM application data can also be exported to a destination folder for migrating from one QPM server to another.

Preparing to Install QPM

Before you install QPM, review the installation prerequisites and available installation paths to prevent problems during installation.

- Hardware and Software Requirements, page 1-3
- Installation Prerequisites, page 1-6
- Installation Paths, page 1-8

Hardware and Software Requirements

Table 1-1 shows the hardware and software requirements for the QPM server.

If the server does not meet the recommended system requirements, QPM startup and performance might be slow, or QPM might not work at all on the server.

Table 1-1 Server Hardware and Software Requirements

Processor	The processor requirement depends on the number of devices being monitored by QPM. This further depends on the license (or the combination of licenses) you purchased for QPM. • For around 2500 devices—Sun UltraSPARC IIIi or Sun UltraSPARC IIICu processor, running Solaris 8 or Solaris 9 • For around 10000 devices—Dual Sun UltraSPARC IIIi or Dual Sun UltraSPARC IIICu processor, running Solaris 8 or Solaris 9
Monitor	Monitor with display set to High Color (16 Bit)
Memory (RAM)	• For around 2500 devices—2 GB RAM • For around 10000 devices—4 GB RAM
Virtual memory	• Double the amount of RAM
Available disk drive space	• A minimum of 9 GB. CiscoWorks Common Services 3.0.5 requires 2 GB free disk space, therefore ensure that you have a minimum of 9 GB free disk space before you install CiscoWorks Common Services 3.0.5.and QPM. The available disk space required also depends on the tasks you want to do in QPM. The following are the recommendations: • For around 2500 devices—40 GB • For around 10000 devices—80 GB

Table 1-1 Server Hardware and Software Requirements (continued)

Software[1]	• Solaris 8 and Solaris 9 We recommend that you install the Solaris Operating System in any of the following modes: • Entire Distribution • Entire Distribution plus OEM Support • End User System Support
Browser (optional)	Netscape 7.0.

1. Common Services 3.0.5 supports only US-English and Japanese versions of Solaris Operating Systems. It does not support any other language version. Installation might proceed normally in other locales but there might be problems in the functionality of CiscoWorks.

Table 1-2 shows the requirements for client systems.

Table 1-2 Client Requirements

System hardware and software	• Any of these systems: – IBM PC-compatible computer with 1GHz Pentium IV processor, running Windows – Sun UltraSPARC IIIi, running Solaris 8 or Solaris 9 • Monitor with display set to High Color (16 Bit) • Any of the following OS – Windows 2000 Professional with Service Pack 3 or Service Pack 4 – Windows 2000 Server with Service Pack 3 or Service Pack 4 – Windows 2000 Advanced Server with Service Pack 3 or Service Pack 4 – Windows XP SP1 – Windows XP SP2 – Windows 2003 Server and Enterprise Edition – Windows 2003 Server and Enterprise Edition with Service Pack 1 – Windows 2003 R2 Server (Standard and Enterprise versions) – Windows 2003 Server Standard and Enterprise Editions with SP2 – Windows 2003 R2 Server Standard and Enterprise Editions with SP2 – Solaris 8 or Solaris 9

Table 1-2 Client Requirements (continued)

Memory(RAM)	• 512 MB
Browser	Any of these browsers: On Windows and Windows XP clients: • Microsoft Internet Explorer 6.0 (version 6.0.2600) • Internet Explorer 6.0 with Service Pack 1 (version 6.0.2800) • Internet Explorer 6.0 with Service Pack 2 (version 6.0.2900) for Windows XP • Internet Explorer 6.0 with Service Pack 1 (version 6.0.3790.1830) for Windows 2003 R2 • Netscape Navigator 7.1 On Solaris clients: • Netscape Navigator 7.0 for Solaris 8 and Solaris 9

Installation Prerequisites

We recommend that you use a dedicated server for QPM for maximum performance.

If you cannot use a dedicated server for QPM, you can install QPM on a Common Services server with LAN Management Solution (LMS) 2.6.

Prerequisites for Installing QPM

Before you install QPM, ensure the following:

- The machine on which you are going to install QPM meets the requirements for running QPM. See Hardware and Software Requirements, page 1-3.
- CiscoWorks Common Services 3.0.5 must be installed on the machine before you begin to install QPM.

  The QPM installation DVD contains Common Services 3.0.5 installation files. For more information, see Chapter 2, “Installing and Uninstalling QPM.”

- Set the desktop display to High Color (16 Bit). You can set the color depth under **Display Properties > Settings** on your desktop.

Prerequisites for Installing Common Services

Before you install CiscoWorks Common Services, ensure that you download and install the latest required and recommeded patches for Solaris 8 and Solaris 9 from www.sun.com.

- The required patches are mandatory for all Common Services features to function properly.
- The recommended patches are optional. Some of the Common Services features may not work if these patches are not installed on your system.

Table 1-3 lists the required and recommended patches for Solaris 8 and Solaris 9.

Table 1-3 Solaris Patches[1]

Operating System	Required		Recommended	
	Server	Client	Server	Client
Solaris 8	111327-05 110945-08 110934-16 110898-09 109326-14 108827-40 108528-29	111626-03 108652-81 108921-21 108940-62	110951-05 110662-12 110615-11 108964-06	110286-11 109324-05
Solaris 9	114224-01 113580-01 112839-04 112233-12 114006-01	112771-14 112661-06 113244-05	113326-01 112998-03 113713-14 112964-07 113575-05 112970-07 112874-31	112808-06

1. Use the **showrev -p** command to verify that these patches have been applied.

Installation Paths

If you have other CiscoWorks products installed on your server, review the information in Table 1-4 to determine the installation path required for QoS Policy Manager to successfully operate.

Table 1-4 Recommended Installation Paths

If You are Installing QoS Policy Manager on a System That...	Then You...
Has no other CiscoWorks products	Install: 1. Common Services 3.0.5 (from the QPM 4.0 DVD) 2. QoS Policy Manager 4.0
Has LMS 2.6	Install QoS Policy Manager 4.0

Further Resources

For further information see the following:

- For information on installing CS 3.0.5 and QPM 4.0, see Chapter 2, "Installing and Uninstalling QPM."

CHAPTER 2

Installing and Uninstalling QPM

This chapter contains the following topics:

Ports Used by QPM

QPM on Solaris uses the following ports, in addition to the ports used by CiscoWorks Common Services:

- 51099—JNDI lookup port
- 51199—JRMP lookup port
- 51299—Admin page port
- 43460—Database port
- 49156—EMS database port
- 51399—PDP port

- 61162—SNMP port for RMON traps
- 47001—RMI port for EMS
- 47002—RMI port for Collector Services

For information about the ports used by CiscoWorks Common Services, see the Installation and Setup Guide for Common Services 3.0.5 (Includes CiscoView) on Solaris.

You can also go to:
http://www.cisco.com/en/US/products/sw/cscowork/ps3996/products_installation_guide_chapter09186a00806ab75a.html

Order of Installation on Solaris

The CiscoWorks Common Services and QPM applications must be installed in the following order:

1. CiscoWorks Common Services 3.0.5
2. Common Services DST patch for Solaris
3. QoS Policy Manager 4.0

Installing Common Services on Solaris

For information regarding the prerequisites for installing Common Services 3.0.5, see Installation Prerequisites, page 1-6

Installation Notes for Common Services 3.0.5

You can note the following points before you install Common Services 3.0.5:

- When there is a prompt during the installation, the values in square bracket are default values. If you press Enter when the installation program prompts you to enter a value, the program takes the default value.
- You must have root privileges to install Common Services.
- Do not run any other program when the installation is in progress.

- Do not install Common Services on a system that does not have Name Lookup.
- If you are running HP OpenView Network Node Manager (HPOVNNM) or NetView, the installation might take significantly longer to complete. Stop all HP OpenView Network Node Manager (HPOVNNM) or NetView services before installing Common Services.
- If your system does not have enough disk space, you might see an error message that the installation system is running out of disk space. You can either free up disk space on the system and continue the installation, or stop and exit the installation.

Installing Common Services 3.0.5

To install Common Services 3.0.5:

Step 1 Mount the QPM 4.0 DVD as root.

Step 2 Enter the following at the prompt:

```
# cd /dvd/qpm4_0/CS_3_0_5_installation/Solaris_K9
# ./setup.sh
```

where *dvd* is the mount point for your DVD drive.

A message appears:

```
Press ENTER to read/browse the following License Agreement
```

Step 3 Press **Enter** to read the license agreement.

The following message appears at the end of the license agreement:

```
You must accept this License Agreement to proceed with the
installation.
If you enter N/n, the installation will exit.
Do you accept all the terms of the License Agreement? (y/n) [n]:
```

Step 4 Enter either:

- **Y** and press **Enter** to accept the license and proceed with the installation.

Or

- **N** and press **Enter** to deny and stop the installation.

Step 5 Press **Y** to continue.

Error messages or warning messages appear if you do not have the required or recommended Server and Client patches.

We recommend you download and install the latest required and recommended patches from www.sunsolve.sun.com, before you run Common Services.

If any of the required Server patches is missing, the following message appears:

```
Installation can proceed without the required Server patches.However,
you must install the required patches listed above before running
CiscoWorks.
Do you want to continue the installation? (y/n) [y]
```

Step 6 If you enter Y and proceed with the installation, the following message appears:

```
Choose the type of Setup you prefer.

1) Typical installation.
Installs the product in the default location /opt/CSCOpx.
Allows you to select the components to be installed.
Prompts for CiscoWorks admin password and System Identity Account
password
Randomly generates CiscoWorks guest database passwords if they do not
exist.

Recommended for most users.

2) Custom installation.

Allows you to select the product location.
Allows you to select components to be installed.
Prompts for CiscoWorks admin, guest, System Identity Account and
database passwords if they do not exist.

Recommended for advanced users.

Select one of the installation modes using its number or (q) to quit
[1]
```

Step 7 Press either:

- **Enter** to proceed with the installation after you select the Typical mode as given in Prerequisites for Installing Common Services 3.0.5.

Or

- **Q** to quit the installation.

If you press **Enter** to proceed with the installation, the following message appears:

```
Enter the location where the product will be installed. The default
location is /opt/CSCOpx. If you choose another location, installation
will create a symbolic link /opt/CSCOpx to that location.

Enter location or q to quit [/opt/CSCOpx]:
```

The Custom path or location you specify cannot be the sub-directory of /opt/CSCOpx.

Caution Do not remove the link after installation. Common Services will not work without this symbolic link.

Step 8 Press **Enter** to accept the default directory for product installation, or enter a different directory.

The installation program calculates the minimum disk space required for installing the product.

If the disk space is sufficient, the following message appears:

```
Sufficient disk space
```

If the drive does not have enough space, an error message appears and the installation exits.

Step 9 Enter the CiscoWorks admin password and confirm it.

Step 10 Enter the guest password and confirm it.

Step 11 Enter the System Identity Account password and confirm it.

In a multi-server environment, you must configure all systems part of your multi-server setup with the same System Identity Account password.

Step 12 Enter the CiscoWorks Common Services database password and confirm it.

While entering the CiscoWorks user passwords, use a minimum of eight characters.

Step 13 Enter the SMTP server name.

Step 14 Enter the following information to generate a Self-signed certificate and key files for HTTPS:

- Host name
- Administrator's e-mail address
- Country
- State
- City
- Company
- Organization

Only the Host name is mandatory. Other fields are optional. Press **Enter** to skip other fields.

The installation program checks dependencies and system requirements and copies the files to the run time and the installation proceeds.

A message appears:

```
Do you want to see the passwords that were entered/randomly generated?
(y/n) [y]
```

Step 15 Enter **Y** or press **Enter** to display randomly generated and manually entered passwords.

A message appears:

```
Exiting installation beyond this point might result in system
instability.
Do you want to continue the installation? (y/n) [y]
```

Step 16 Enter **Y** to continue the installation.

If you stop the installation after this point, the installation may become unstable and problems may occur when you try to install again.

It takes a while to complete the installation.

The following messages appear at the end of the installation:

```
Software Installation Tool Completed
Possible Warnings/Errors Encountered
```

Any warning and error messages appear after these messages.

Step 17 Unmount the DVD.

For more information on installing Common Services 3.0.5. on Solaris, see the Installation and Setup Guide for Common Services 3.0.5 (Includes CiscoView) on Solaris.

You can also go to:
http://www.cisco.com/en/US/products/sw/cscowork/ps3996/products_installation_guide_chapter09186a00806ab75a.html

Installing the CS DST Patch on Solaris

The Common Services Daylight Saving Time (DST) patch will update the JRE and JPI that are shipped with Common Services. The DST patch can be installed on a server that has CS 3.0.5 already installed.

QPM 4.0 product DVD contains the CS DST patch as **setup.sh**, in the folder *qpm4_0/US_DST_Patch/cwdst3_0_x_sol_K9*. You can directly run this installation program, without the need to download and unzip the CS DST patch from Cisco.com.

Please refer the pdf file cwdst3_0_x_sol.readme.pdf in the same folder, to know more about performing the DST patch installation on Solaris.

Installing QPM on Solaris

QPM is automatically installed in the CiscoWorks Common Services installation directory. The default location is /opt/CSCOpx.

The installation process also copies the QPM export and import utilities to the QPM server. For more information about these utilities, see Chapter 4, "Migrating QPM."

Before You Begin

- Ensure that CiscoWorks Common Services 3.0.5 is installed on your computer before you install QPM.

- Verify TCP ports that QPM uses and check for conflicts with existing applications. See Ports Used by QPM, page 2-1.
- Verify that you have superuser permissions.

To install QPM 4.0 on Solaris:

Step 1 Go to the root directory and mount the QPM DVD on the CiscoWorks Common Services server.

We recommend that you do not install QPM from a network DVD drive.

Step 2 Enter the following at the prompt:

```
# cd /dvd/qpm4_0/QPM_4_0_installation/Solaris_K9
# ./setup.sh
```

where *dvd* is the mount point for your DVD drive.

A message appears prompting you to read the license agreement.

Step 3 Press **Enter**. Continue to press **Enter** until the prompt to accept the license agreement ends.

Step 4 Enter either:

- **Y** to accept the license and proceed with the installation,

Or

- **N** to deny and stop the installation.

The installation proceeds if you have selected **Y**.

Step 5 Enter the mode of license to be installed (Purchased Version or Evaluation Version).

The installation proceeds based on the mode of license you selected.

Step 6 Unmount the DVD after installation is complete. You do not need to restart the computer before running QPM for the first time.

Notes:

- Before you begin to work with QPM, ensure you have the correct user permissions. If you intend to work with ACS device groups and user permissions, configure settings in ACS and CiscoWorks as described in Chapter 3, “Setting Up the QPM Server.”

- After setup is complete, verify the QPM installation. See Verifying QPM Installation, page 2-10 for details.
- If you encounter problems while installing QPM, stop the installation and reinstall the product using the QPM 4.0 installation DVD. Also see Appendix A, "Troubleshooting QPM Installation."
- For information on exporting QPM application data on Solaris, see Exporting QPM Application Data, page 4-3.
- For information on importing QPM application data on Solaris, see Importing QPM Application Data, page 4-3.

Uninstalling QPM on Solaris

Use the CiscoWorks Common Services **`uninstall`** script to remove QoS Policy Manager files and settings.

Uninstalling QPM does not remove your deployed policies from the network devices.

The license details will get deleted during QPM 4.0 uninstallation. You should add the license file again during the subsequent installation.

If you want the current QPM 4.0 application data to be used after uninstallation, you should run the export.pl utility before you proceed with the uninstallation. See Exporting QPM Application Data, page 4-3 for details.

Caution You must use the uninstall script to remove the product. If you try to remove QPM or its components manually, you might damage your system.

To uninstall QPM 4.0:

Step 1 Go to the root directory in Common Services and start the uninstall script, by entering the following commands:

```
# cd /
# /opt/CSCOpx/bin/uninstall.sh
```

where */opt/CSCOpx* is the default installation directory of Common Services.

A list of CiscoWorks components appears.

Step 2 Enter the number corresponding to the option you have chosen or **q** to quit.

You can select more than one component. Enter the number corresponding to the components, separated by commas.

Step 3 Press **Enter** to continue.

When you remove CiscoWorks Common Services, the uninstall script removes changes made to the */etc/services* file. The /etc directory still contains all system file changes. The uninstall messages are written to the /var/tmp/ciscouninstall.log file.

After the uninstallation is complete, a message appears:

```
All files were deleted successfully.
```

Step 4 Check the following files:

- /etc/syslog.conf for syslog changes.
- /etc/services to ensure that port assignments for the QPM applications have been removed.

Verifying QPM Installation

QoS Policy Manager is accessed from the CiscoWorks Homepage.

To verify QPM installation:

Step 1 Go to your web browser and start CiscoWorks.

The default URL is http://*QPMinstall*:1741, where *QPMinstall* is the name of the computer with the QPM installation.

The CiscoWorks Homepage is displayed.

Step 2 Verify that the browser you are using is a supported version, and that JavaScript and cookies are enabled.

If they are not enabled, change your browser preferences to enable them, then continue to the next step.

Step 3 Log into CiscoWorks with your username and password.

The CiscoWorks homepage appears.

Step 4 Click the **QoS Policy Manager** link in the QoS Policy Management panel.

QPM opens in a separate browser window.

If you encounter problems starting QPM, see Appendix A, "Troubleshooting QPM Installation" for possible causes and solutions.

Re-installing QPM

QPM 4.0 supports re-installation. This allows you to troubleshoot any accidental corruption of files during installation.

Please make note of the following points before you perform re-installation:

- No additional license is required to perform re-installation of QPM 4.0
- The already existing license will get restored during re-installation
- QPM data gets backed up automatically (at the location */opt/CSCOpx*/MDC/qpm/install) during re-installation. You should run the import.pl utility to import this data back to QPM 4.0. See Importing QPM Application Data, page 4-3 for details.

CHAPTER 3

Setting Up the QPM Server

This chapter contains the following topics:

User Permissions for QPM

CiscoWorks Common Services provides management of QPM user roles and privileges. QPM can work with either Cisco Secure Access Control Server (ACS) permissions or CiscoWorks permissions.

QPM permissions for authentication and authorization are mapped to CiscoWorks permission roles or ACS permission roles, as specified.

Note To use ACS authentication and authorization, ACS must be installed on the network.

Before you begin to work with QPM, you should ensure that you have the appropriate permissions.

ACS and CiscoWorks permissions in QPM rely on the usergroup or username, the command set or privileges associated with the usergroup or username, and the device or device group for which privileges are requested.

If your username or usergroup is not authorized for certain QPM actions, the related menu items, TOC items, and buttons will be hidden or disabled.

CiscoWorks User Permissions

QPM uses a separate set of permissions for each type of task.

Table 3-1 shows how QPM permissions are mapped to CiscoWorks roles.

Table 3-1 QPM Permissions Mapped to CiscoWorks Roles

QPM Permissions	CiscoWorks Roles				
	System Admin	Network Admin	Network Operator	Approver	Help Desk
Device Inventory					
View	X	X	X	X	X
Add/Modify	X	X			
Policy Configuration					
View	X	X	X	X	X
Modify		X	X	X	
Deployment					
View	X	X	X	X	X
Deploy		X			
Delete jobs and logs	X				
Monitor					
Real Time Status					
View Report Card	X	X	X	X	X
Launch Real Time Chart	X	X	X	X	X

Table 3-1 QPM Permissions Mapped to CiscoWorks Roles (continued)

QPM Permissions	CiscoWorks Roles				
	System Admin	Network Admin	Network Operator	Approver	Help Desk
Launch Event browser	X	X	X	X	X
Historical Trends					
View	X	X	X	X	X
Delete	X				
Create Analysis Tasks		X	X	X	
Threshold Configuration					
View	X	X	X	X	X
Create Threshold Sets		X			
Assign Threshold Sets		X			
Delete Threshold Jobs	X				
Admin					
View Audit logs	X	X	X	X	X
Delete Audit logs	X				
Backup/Retrieve Backup	X				
SNMP Configuration Rights	X	X			
License	X				

To view the QPM tasks allowed for each CiscoWorks role in QPM, select **Administration > User Permissions Report**.

CiscoWorks roles have the following permissions in QPM:

- System Admin
  - View all information in QPM
  - Make changes to devices in the QPM device inventory
  - Delete policy deployment jobs and logs
  - Launch Real Time Charts and Event Browsers
  - Delete Monitoring Tasks (under Historical Trends)
  - Delete Threshold Assignment jobs
  - Delete Audit logs
  - Create and retrieve backups of the QPM database
  - Configure SNMP Configuration Rights
  - Add/remove licenses

  System admin is the only user role that can delete logs, jobs, and reports in QPM.
- Network Admin
  - View all information in QPM
  - Make changes to devices in the QPM device inventory
  - Create and edit policies
  - Deploy policies on devices
  - Launch Real Time Charts and Event Browsers
  - Create Monitoring Tasks (under Historical Trends)
  - Create Threshold Sets and assign Threshold Sets to interfaces
  - Configure SNMP Configuration Rights

  Network admin is the only user role that can deploy QoS policies on the devices in the network.

- Network Operator
  - View all information in QPM
  - Create and edit policies
  - Launch Real Time Charts and Event Browsers
  - Create Monitoring Tasks (under Historical Trends)
  - Create and run monitoring tasks
- Approver
  - View all information in QPM
  - Create and edit policies
  - Launch Real Time Charts and Event Browsers
  - Create Monitoring Tasks (under Historical Trends)
- Help Desk
  - View all information in QPM
  - Launch Real Time Charts and Event Browsers

Setting Up CiscoWorks Usernames and Permissions for QPM

You can add your username for CiscoWorks authentication from the CiscoWorks Homepage.

To select a role or a number of roles:

Step 1 Select **Common Services > Server > Security** in the CiscoWorks Homepage.

The Security Settings page appears.

Step 2 Click **Local User Setup** in the TOC.

The Local User Setup page appears.

Step 3 Click **Add**.

The User Information dialog box appears.

Step 4 Enter the username in the Username field.

Step 5 Enter the password in the Password field.

Step 6 Re-enter the password in the Verify Password field.

Step 7 Enter the E-mail ID in the Email field, if the user has an Approver role.

Step 8 In the Roles pane, select the check box corresponding to the role(s) to be assigned to the user.

See the *User Guide for CiscoWorks Common Services 3.0.5* for more information about setting CiscoWorks usernames and permissions.

CiscoWorks permissions cannot be customized. However, you can create a role for a user with the permissions of more than one CiscoWorks role. For example, a user can have both System Admin and Approver roles.

Tip You can create a superuser (permissions for everything) by giving both system administrator and network administrator roles to a user.

ACS User Permissions

When you configure CiscoWorks Common Services to use ACS authorization and authentication, QPM adds permissions in ACS.

Table 3-2 shows the default mapping of QPM permissions to ACS roles. This is the same as for the CiscoWorks roles, but when using ACS authorization and authentication you can modify the default roles.

Table 3-2 QPM Permissions Mapped to ACS Roles

QPM Permissions	ACS Roles				
	System Admin	Network Admin	Network Operator	Approver	Help Desk
Device Inventory					
View	X	X	X	X	X
Add/Modify	X	X			
Policy Configuration					
View	X	X	X	X	X
Modify		X	X	X	
Deployment					
View	X	X	X	X	X
Deploy		X			
Delete jobs and logs	X				
Monitor					
Real Time Status					
View Report Card	X	X	X	X	X
Launch Real Time Chart	X	X	X	X	X
Launch Event browser	X	X	X	X	X

Table 3-2 QPM Permissions Mapped to ACS Roles (continued)

QPM Permissions	ACS Roles				
	System Admin	Network Admin	Network Operator	Approver	Help Desk
Historical Trends					
View	X	X	X	X	X
Delete	X				
Create Analysis Tasks		X	X	X	
Threshold Configuration					
View	X	X	X	X	X
Create Threshold Sets		X			
Assign Threshold Sets		X			
Delete Threshold Jobs	X				
Admin					
View Audit logs	X	X	X	X	X
Delete Audit logs	X				
Backup/Retrieve Backup	X				
SNMP Configuration Rights	X	X			
License	X				

To modify global components, such as library components, global device settings, and so on, you must have appropriate permissions for the device group that contains the CiscoWorks Common Services server.

ACS roles have the following default permissions in QPM:

- System Admin

  - View all information in QPM
  - Make changes to devices in the QPM device inventory
  - Delete policy deployment jobs and logs
  - Launch Real Time Charts and Event Browsers
  - Delete Monitoring Tasks (under Historical Trends)
  - Delete Threshold Assignment jobs
  - Delete Audit logs
  - Create and retrieve backups of the QPM database
  - Configure SNMP Configuration Rights
  - Add/remove Licenses

  System admin is the only user role that can delete logs, jobs, and reports in QPM.

- Network Admin
  - View all information in QPM
  - Make changes to devices in the QPM device inventory
  - Create and edit policies
  - Deploy policies on devices
  - Launch Real Time Charts and Event Browsers
  - Create Monitoring Tasks (under Historical Trends)
  - Create Threshold Sets and assign Threshold Sets to interfaces
  - Configure SNMP Configuration Rights

  Network admin is the only user role that can deploy QoS policies on the devices in the network.

- Network Operator
  - View all information in QPM
  - Create and edit policies
  - Launch Real Time Charts and Event Browsers
  - Create Monitoring Tasks (under Historical Trends)
  - Create and run monitoring tasks
- Approver
  - View all information in QPM
  - Create and edit policies
  - Launch Real Time Charts and Event Browsers
  - Create Monitoring Tasks (under Historical Trends)
- Help Desk
  - View all information in QPM
  - Launch Real Time Charts and Event Browsers

If you intend to work with ACS device groups and user permissions, you must perform the setup configuration described in Setting up ACS User Groups and Permissions for QPM, page 3-11.

ACS allows you to modify the default permission roles. For details about modifying permissions in ACS, see the ACS Online help.

After you change the permission roles, you must restart the ACS server.

If QPM is open, log out and log in again to QPM for the changes to take effect.

Setting up ACS User Groups and Permissions for QPM

If you want to use ACS user groups and permissions for QPM, ACS must be installed on the network.

To work with ACS user groups and user permissions, you must register the QPM server with ACS and configure CiscoWorks Common Services to use ACS authorization and authentication.

The following steps describe this process:

Step	Task	Procedure
Step 1	Register the QPM server with ACS.	1. Login to ACS server. 2. In the navigation bar of the ACS home page, click **Network Configuration**. The Network Configuration page appears with a list of the Network Device Groups (NDGs). You can create your own QPM server Network Device Group, and add the QPM server as AAA client in it. The following steps describe this process. 3. Under the Network Device Groups table, click **Add Entry**. 4. In the Network Device Group Name box, type the name of the new NDG, for using QPM 5. In the Key box, enter a key for the Network Device Group. The maximum length is 32 characters 6. Click **Submit**. The Network Device Groups table displays the new NDG. 7. Click the name of the new NDG, and click **Add Entry** below the AAA Clients table 8. In the Add AAA Client page, enter the QPM client details like Hostname, IP Address, and Key. 9. Click **Submit + Apply**. If you do not want to create a new NDG for QPM, you can click the **Not Assigned** link in the NDG table (instead of Step 3 and the subsequent steps above), and click **Add Entry** to define the QPM client in ACS. For details about all these steps, see the chapter *Network Configuration,* in the ACS User Guide.

Step	Task	Procedure
Step 2	Register ACS with QPM.	1. Login to CiscoWorks in the CMF Mode. 2. In the CiscoWorks homepage, select Common Services > Server > Security > AAA Mode Setup. 3. Click the **TACACS+** radio button 4. Click **Change**. The Login Module Options window appears. 5. Enter the ACS server IP/Name and Key (the same Key that you entered in Step 1) in the corresponding fields, and click **OK**. The Login Module Change Summary page appears. 6. Click **OK**. 7. In the AAA Mode Setup page, click the **ACS** radio button. 8. Enter the ACS sever details. 9. Enter the login details including the Shared Secret Key (the same key that you entered in Step 1). 10. Check the Register all installed applications with ACS checkbox. 11. Click the HTTP or HTTPS radio button to specify the current ACS administrative protocol. 12. Click **Apply**. The Login Module Change Summary page appears with the following message: `ACS Server Credentials updated successfully` 13. Close down all the QPM and CS Windows, restart the deamon manager. For details about these steps, see the section *Setting up the AAA mode* in the chapter *Configuring the Server,* in *User Guide for CiscoWorks Common Services 3.0.5*.

Step	Task	Procedure
Step 3	Synchronize device groups in ACS Server with QPM	1. In QPM, select Devices > Device Grouping > Sync Privileges. The Sync Privileges page appears. 2. Check whether the Server mode is set to ACS, and click **Sync**.
Step 4	Define usernames and user groups and permissions, in ACS.	1. In the navigation bar of the ACS homepage, click **User Setup**, and define usernames. 2. In the navigation bar of the ACS homepage, click **Group Setup**, and define user groups and their permissions. For details about these steps, see the chapters *User Management* and *User Group Management,* in the ACS User Guide.

To change the authorization and authentication mode back to CiscoWorks permissions, you must configure CiscoWorks Common Services to use local authorization and authentication.

For details of this procedure, see the *User Guide for CiscoWorks Common Services 3.0.5*.

CHAPTER 4

Migrating QPM

This chapter contains the following topics:

Migrating to a New QPM Server on Solaris

You can migrate QPM application data from one QPM 4.0 server to another. This section describes the sequence of tasks for migrating QPM 4.0 information to a new QPM server running Solaris.

Note You need to buy a new license for remote migration beacuse QPM license is a node-lock license. Also, the device limit with the new license should be equal to or more than the device limit supported by the old server.

To migrate to a new QPM 4.0 server:

Step 1 Take a backup of the CS 3.0.5 data using the Common Services Backup utility (available in QPM 4.0 under **Administration > Configuration Backup**).

Step 2 Export all QPM 4.0 application data from the old QPM server using the export.pl utility either in the QPM DVD or in the QPM installation folder.

See Exporting QPM Application Data, page 4-3 for details.

Step 3 Copy the CS backup data and the QPM export data to the new server.

Step 4 Install CiscoWorks Common Services 3.0.5 on the new server.

See Installing Common Services on Solaris, page 2-2

Step 5 Install QPM 4.0. on the new server.

See Installing QPM on Solaris, page 2-7 for details.

Step 6 Execute the CSrestorebackup.pl script (in CS 3.0.5) in the new server to restore the CS data.

Step 7 Import the QPM 4.0 application data to the new server using the import.pl utility in the QPM installation folder in the new server.

See Importing QPM Application Data, page 4-3 for details.

Before you begin to work with QPM, ensure that you have the appropriate permissions. See Chapter 3, "Setting Up the QPM Server" for details.

If you are working with ACS user permissions, register the new QPM server in CiscoWorks and ACS. See Setting up ACS User Groups and Permissions for QPM, page 3-11 for details.

Exporting and Importing QPM Application Data

The following topics describe how to use the QPM export and import utilities:

- Exporting QPM Application Data, page 4-3
- Importing QPM Application Data, page 4-3

Note The export utility is available on the QPM installation DVD, and is also copied to the QPM server during the installation process. The import utility will be available in the QPM server after the installation.

Exporting QPM Application Data

You can export the following QPM application data:

- QPM database containing device and policy information
- QPM monitoring task information
- QPM reports
- QPM configuration information

Use the export utility when you want to migrate QPM application data from one QPM 4.0 server to another.

You must specify the destination folder to which you want the data exported.

To export the application data, go to the root directory and enter the following commands to start the export utility:

 # cd */opt/CSCOpx*/**MDC/qpm/bin**

*/opt/CSCOpx*/**bin/perl export.pl** *destination directory*

where */opt/CSCOpx* is the default installation directory, and *destination directory* is the directory to which you want to export the data.

The utility stops CiscoWorks services, and exports the QPM data. When the export process is completed, the CiscoWorks services are restarted

Importing QPM Application Data

Use the import.pl utility to import the QPM application data that was exported from QPM.

Note The exported data is platform dependent. Therefore you cannot import the QPM data onto a Solaris server if this data was exported from a Windows server.

When you use the import utility, any existing QPM data is overwritten.

To import the application data, go to the root directory and enter the following commands to start the import utility:

 # cd */opt/CSCOpx*/**MDC/qpm/bin**

*/opt/CSCOpx*/**bin/perl import.pl** *export directory*

where */opt/CSCOpx* is the default installation directory, and *export directory* is the directory that contains the exported data.

The utility stops CiscoWorks services, and imports the QPM data. When the import process completes, the CiscoWorks services are restarted.

APPENDIX A

Troubleshooting QPM Installation

The following topics can help you troubleshoot problems you might encounter while installing QPM, or starting QPM:

Troubleshooting Problems During Installation

Table A-1 Installation Error Messages

Message	Reason for Message	User Action
License Validation Failed Or No Valid License Found	The license file you selected during installation is not valid.	Quit the current installation, and reinstall with proper license file.
Evaluation license expired.	The QPM 4.0 Evaluation License expired.	Install the new license in QPM though Administration > License > Install License option

Table A-1 Installation Error Messages

Message	Reason for Message	User Action
Getting License Device Limit Failed	The license file you selected during installation is not valid.	Quit the current installation, and reinstall QPM 4.0.
Upgrade only allowed for QPM Combined License	Upgrade is supported only for QPM Combined license, and not for QPM Monitoring or QPM Restricted licenses	Obtain the QPM Combined license, and perform the upgrade installation.

Troubleshooting Problems Starting Common Services

Common Services might not start for any of the following reasons:

- Terminal Services is Enabled, page A-2
- Port Conflict, page A-3

Terminal Services is Enabled

Problem—If Terminal Services is enabled on Windows Advanced Server, Common Services will not work. If you installed Common Services on a Windows Advanced Server where Terminal Services was enabled, and then disabled before you uninstalled Common Services, Common Services might still not work.

Recommended Action—Do not enable Terminal Services on a Windows Advanced Server before or after installation of Common Services.

Port Conflict

Problem—You cannot start Common Services because port 1741, which is used by Common Services, is in use by another application.

Recommended Action—Try the following:

- Restart the QPM server.
- To run CiscoWorks, enter http://*QPMinstall*:1741/login.html, where *QPMinstall* is the name or IP address of the QPM server.

If ports are still in use, open the JbossStdout.log file and look for the error "java.rmi.server.ExportException:Port already in use:*port-number*". Check whether the listed port is in use by another application. If so, stop the other application or change the port it is using.

Troubleshooting Problems Starting QPM

QPM might not start for any of the following reasons:

QPM Server Does Not Meet System Requirements

Problem—QPM startup and performance might be slow, or QPM might not work at all.

Recommended Action—Install QPM on a server that meets system requirements.

Incorrect User Permissions

Problem—Many buttons in the user interface are grayed out because you might not have the correct user permissions to perform those tasks.

Recommended Action—Verify your user permissions in the CiscoWorks desktop (**Server > Security**), or in ACS (depending on the method you are using for user authentication).

For more information about working with ACS user permissions, see Setting up ACS User Groups and Permissions for QPM, page 3-11.

You might also encounter display problems if the browser version on the client system does not meet the client system requirements.

Changed Database Password

Problem—If you change the QPM database password in CiscoWorks Common Services, and then try to start QPM without restarting the QPM server, the connection to the database is lost.

Recommended Action—After changing the QPM database password, restart the QPM server.

Different HTTP/HTTPS Port in Common Services and QPM

Problem—If the HTTPS port number used by CiscoWorks Common Services is different from the HTTPS port number configured in QPM, you will not be able to launch QPM.

Recommended Action—Update QPM with the Common Services port number, using the updateSSLPort utility. This utility updates QPM with the new port and restarts the services.

To start the utility from the QPM server, in the Command window:

Step 1 Change directory to */opt/CSCOpx/MDC/qpm/bin* where */opt/CSCOpx* is the default installation directory.

Step 2 Enter *updateSSLPort new port number*

Unknown Cause

Problem You are not able to launch QPM for any reasons other than those mentioned above.

Recommended Action—Restart the QPM server.

Obtaining Information for Troubleshooting and Cisco Technical Support

The following topics describe how to obtain information for troubleshooting and Cisco Technical Support:

Obtaining System Status Information for Troubleshooting

To send the diagnostics results to a TAC representative, you can run the MDCSupport utility, which collects configuration and system information in a tar file, called mdcsupportinformation.tar.

The MDC Support Information file includes any problems that occurred during the installation or the running of QPM. You can send this file to the Cisco Technical Assistance Center (TAC) support staff to assist in diagnosing the problems.

To send the diagnostics results to a TAC representative:

Step 1 At the command line of */opt/CSCOpx/MDC/bin* (where */opt/CSCOpx* is the default installation directory), enter **mdcsupport** and press **Enter**.

A tar file named mdcsupportinformation.tar is created under */opt/CSCOpx/MDC/etc*.

Step 2 Email this file to the TAC representative.

Obtaining Debug Information for Cisco Technical Support

If Cisco Technical Support requests that you gather additional debug information in the trace files, you can set the QPM trace logging mode to collect the information.

Collecting debug information reduces the performance of your server, and the collected data can only be interpreted by Cisco.

Owing to this, do not collect debug information unless requested. After you have collected the information, reset the logging mode to only collect informational messages.

To set the QPM trace logging mode for collecting information:

Step 1 Go to the */opt/CSCOpx/MDC/qpm/bin* where */opt/CSCOpx* is the default installation directory, and enter this command to begin collecting debug information:

```
setqpmloggermode -debug
```

Wait for five minutes before proceeding to the next step. This is to allow time for the system to prepare for collecting debug messages.

Step 2 Repeat the activities you were doing in QPM that led to the problems you encountered.

Step 3 When sufficient debug information has been collected under */opt/CSCOpx/MDC/*log, compress the *log* folder (to .zip or .tar), and email it to your Cisco Technical Support representative.

Step 4 Enter the following command to reset the logging mode so that only informational messages are collected (the default behavior):

setqpmloggermode -info

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