



## CHAPTER 9

# Provisioning: Deploying QoS Policies

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After you have defined your QoS policies and assigned them to network elements, you can deploy the policies to the network devices.

The following topics describe policy deployment and the tasks associated with the deployment of QoS policies:

- [Understanding Policy Deployment, page 9-1](#)
- [Deploying Policies and QoS Configurations, page 9-2](#)
- [Viewing the Deployment Status, page 9-8](#)
- [Pausing and Resuming a Deployment Job, page 9-9](#)
- [Redeploying a Job, page 9-10](#)
- [Managing Historical Versions, page 9-11](#)
- [Viewing the Status of Devices, page 9-17](#)
- [Previewing the CLI Commands, page 9-18](#)

## Understanding Policy Deployment

QPM deploys the QoS policies in a policy group to your network devices. You can deploy an entire policy group, or you can specify a subset of devices within a selected policy group to which QPM will deploy the appropriate QoS policies. Each deployment event is called a “job.”



### Note

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You can only deploy QoS policies to devices in the network if the devices are real. If you are using virtual devices, you will not be able to deploy your policies to the network.

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When you deploy your QoS policies to network devices, QPM translates the policies into device commands and enters the commands through the device’s command line interface (CLI).

You can choose to deploy your QoS configurations directly to network devices using Telnet. QPM automatically deploys your QoS configurations to configuration files.

This deployment process does not configure the devices but generates configuration files that can be sent manually to the devices.

QoS configurations can be deployed to the device using any application that downloads configuration files to the devices. QPM allows you to monitor the deployment process in real-time, viewing the active deployment jobs and their status.

Through QPM, you can verify the device configuration to ensure that your policy group policy definitions match the actual device configurations, and preview the commands that will be used to configure the devices.

When you deploy a job, a read-only copy of the current policy group is automatically made. This allows you to continue editing the policy group, and also provides a historical version of it.

QPM allows you to restore, as the current editable policy group, a previous version of a policy group that was already deployed to the network.

You can restore a policy group for editing without deploying it, or you can restore and redeploy the policy group. This feature is helpful when unexpected errors occur as a result of a deployment and you need to revert to an earlier version of the policy group.

QPM maintains a history of deployments and their status results. This history allows you to view the policy groups deployed and the deployment status results. QPM also provides static job reports that display the statuses of the devices in the deployment.

**Note**

You can also trigger the deployment process from an application that is external to QPM, by issuing an HTTPS request.

**Related Topics**

- [Deploying Policies and QoS Configurations, page 9-2](#)
- [Viewing the Deployment Status, page 9-8](#)
- [Managing Historical Versions, page 9-11](#)
- [Previewing the CLI Commands, page 9-18](#)

## Deploying Policies and QoS Configurations

QPM provides options for deploying policies and QoS configurations to network devices. Using the Deployment wizard, you can deploy a current or historical version of a policy group. If a deployment job fails, you can redeploy it to some or all of its failed devices.

The Deployment wizard guides you through the steps required for deploying a policy group. You select your policy group, enter the job details and select the deployment options. The wizard gathers and validates all the information that you enter, and allows you to view a summary of the job information. You can confirm or edit this information before deploying.

The following sections describe the step-by-step procedures for creating a deployment job, using the Deployment wizard.

The following topics describe the steps of the wizard:

- [Step 1: Entering the Job Details for Deployment, page 9-3](#)
- [Step 2: Selecting a Policy Group for Deployment, page 9-3](#)
- [Step 3: Validating the Historical Policy Group, page 9-5](#)
- [Step 4: Selecting and Previewing the Devices for Deployment, page 9-6](#)
- [Step 6: Confirming the Wizard Information for Deployment, page 9-7](#)

**Related Topics**

- [Using QPM Wizards, page 3-17](#)

## Step 1: Entering the Job Details for Deployment

The first step in the policy deployment process is to enter the details of the job to be deployed.

In this step of the wizard, you enter a name (a default name is provided) and, optionally, a description for the job you want to deploy. You also select the schedule for deploying the job (either now or at a specified time later).

To enter the job details:

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**Step 1** Choose **Provisioning > Policy Deployment > Create Jobs**.

The first step of the Deployment wizard is displayed—Job Details.

**Step 2** In the Job Details page, enter a name for your policy deployment job (or accept the default).

If required, you can enter a description of the job in the Job Description field.

**Step 3** Schedule the deployment job:

- If you want to deploy the policy immediately after you complete this wizard, click the **Now** radio button.
- If you want to deploy the policy sometime later after you complete this wizard, click the **Run at (server time)** radio button.

You can select the date for policy deployment by clicking the calendar icon, or you can enter the date in MM/DD/YYYY format in the first field. You must enter the time for policy deployment in the second field.

**Step 4** Click **Next** to move to the next step of the wizard.

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### Related Topics

- [Restoring and Deploying a Historical Policy Group, page 9-12](#)
- [Step 2: Selecting a Policy Group for Deployment, page 9-3](#)
- [Downloading a Historical Job's Configuration Files, page 9-14](#)

## Step 2: Selecting a Policy Group for Deployment

The second step in the deployment process is to select the policy group to be deployed. While the default is to select one of the currently managed policy groups, you can select a historical version of a policy group that was deployed.



### Note

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If deployment was activated from the IP Telephony wizard, the first page of the wizard—Deployment Group Selection, does not display. In this case, the Device Selection and Preview page automatically appears.

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If you select a historical version of a policy group, it is restored as the current deployment group for editing. The existing current deployment group is saved as a historical version.

To select a policy group:

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**Step 1** In the Policy Group Selection page (that is, step 2 of the wizard), choose the type of policy group (current or historical), by selecting

- **Current version of a policy group**

or

- **Restore a previous version of a policy group**

**Step 2** Select the policy group:

- If you are deploying a current policy group, select the policy group name from the list.

To view the details (Owner, Creation Time) of all the policy groups before making your selection:

- a. Click the **View list** link.

The Policy Group List page appears, displaying all the currently managed policy groups. For more information about this page, see [Policy Groups List Page, page C-7](#).

- b. Select the required policy group by clicking the corresponding radio button, and click **Select**.

The selected policy group name will be displayed in the Policy Group list in the second page of the wizard.

- If you are deploying a historical policy group, select the policy group name from the list.

To view the details (Version, Job, Owner, Creation Time) of all the historical deployment groups before making your selection:

- a. Click the **View list** link.

The Job History List page appears, displaying all the historical policy groups. For more information about this page, see [Job History List Page, page C-8](#).

- b. Select the required policy group by clicking the corresponding radio button, and click **Restore**.

The selected policy group name will be displayed in the Policy Group list in the second page of the wizard.

**Step 3** Click **Next** to move to the next step of the wizard:

- If you selected to deploy a current policy group, the next step of the wizard is to select your devices.
  - If you selected to deploy a historical version of a policy group, the next step of the wizard is to validate the policy group.
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#### Related Topics

- [Step 3: Validating the Historical Policy Group, page 9-5](#)
- [Step 4: Selecting and Previewing the Devices for Deployment, page 9-6](#)
- [Managing Historical Versions, page 9-11](#)

## Step 3: Validating the Historical Policy Group

**Note**

This step of the wizard is only available if you selected to deploy a historical version of a policy group in step 2 of the wizard.

Whenever a previous version of a policy group is restored, validation checks must be done on the policy group. The validation process is automatically activated after selecting a historical policy group and clicking the **Next** button.

The system does the following checks and automatically provides a report of violations, where relevant:

- **Missing Network Elements**

This validation procedure checks for the coordination of policies and managed devices. If the validation procedure detects network elements that are missing from the current device group, they will be displayed in the report. The assignments of policies to these network elements in the restored deployment group will be automatically removed.

- **Invalid Assignments**

This validation procedure checks for assigned network elements that no longer match the constraints of their policy groups. Any invalid assignments will be displayed in the report. The network elements will be removed from the assignment.

- **Reusable Components Violations**

This validation procedure checks for the coordination of policies and library components (IP aliases, application aliases and policy group templates).

If the validation process detects some library components in the restored version that are different than the ones in the current libraries, this will be displayed.

The validation process overrides the current library components with the original ones and adds them locally to the policy group. In this case, the dynamic link to the library components will no longer exist.

- **Constraints Violations**

This check validates the policy device constraints against the predefined constraints limitations. These limitations might change from time to time causing some of the policy constraints to be invalid. Policies that are invalid will be displayed and removed along with their assignments.

To validate the historical policy group:

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- Step 1** In the Policy Group Validate Historical page, click the **View Restore Validation Report** button. The Restore Validation Report window opens, displaying any validation violations that were discovered during the deployment group restore procedure. For more information about this window, see [Restore Validation Report Window, page C-9](#).
- Step 2** After you have finished viewing the report, close the window.
- Step 3** Click **Next** or **Finish** to accept any changes made as a result of the validation checks, and move to the next step of the wizard. To stop the deployment without saving any changes, click **Cancel**.
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**Related Topics**

- [Step 4: Selecting and Previewing the Devices for Deployment, page 9-6](#)
- [Managing Historical Versions, page 9-11](#)

## Step 4: Selecting and Previewing the Devices for Deployment

**Note**

If you are deploying a deployment group from the IP Telephony wizard, the Deployment wizard will open automatically on this page.

In this step of the wizard, you select the devices to which you want to deploy your policies. You can also preview the CLI commands that will be configured on your devices prior to deployment.

This page displays a list of all the devices that are available for deployment and their configurations. Devices whose configurations have changed since the last deployment will be displayed with the check boxes alongside them selected.

You can accept the default selection, or you can make your own selection of devices.

To select and preview the devices for deployment:

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- Step 1** In the Device Selection and Preview page, select the check boxes alongside the devices to which you want to deploy your policies.
- For best performance, select no more than 200 devices at a time. You should also deselect those you do not want to deploy to.
- Step 2** To preview the CLI configuration commands for a device:
- Click the corresponding Policy Configuration link in the table.
 

A preview window opens, displaying the following configuration details for the device:

    - Backup ShowRun configuration commands.
    - Incremental Telnet script commands to be written (if deploying directly to network devices).
  - Click the appropriate buttons to view the relevant configuration details.
  - After you have finished previewing the device's configuration, click **Close** to close the Preview window.
- Step 3** Click **Next** to move to the next step of the wizard.
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**Related Topics**

- [Step 6: Confirming the Wizard Information for Deployment, page 9-7](#)
- [Previewing the CLI Commands, page 9-18](#)
- [Deployment Wizard: Device Selection and Preview Page, page C-11](#)
- [Device Configuration Preview Window, page C-12](#)

## Step 5: Creating QoS Monitoring Task

In this step of the wizard, you create a QoS Historical Monitoring task based on the device you selected in the previous step.

To create a QoS monitoring task, do the following in the QoS Monitoring page of the wizard:

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- Step 1** Check **Enable Monitoring** check box.
  - Step 2** Enter the name of the task in the Name field.
  - Step 3** Choose a polling interval from the Polling Interval (minutes) list box.  
The polling interval is the period of time (in minutes) between each collection of the monitored data.
  - Step 4** Enter a start date and time and an end date and time in the Start Time and End Time fields.  
You can enter each date directly into the field (in the format mm/dd/yyyy), or you can click the **Calendar** button and use the popup calendar that appears. You should enter the time in a 24-hour format.  
If the duration of the task is longer than the limit for the specified polling interval (see [Table 10-1](#)), an error message appears, displaying the duration limit in days.
  - Step 5** Choose the Job Frequency of the monitoring task. You can select daily, weekly, bi-weekly, or monthly schedules.
  - Step 6** Check the Enabled check box to enable the task. If you do not, the task will not run.  
Optionally, you can enter a comment or description for the task in the Enter a comment or description field.
  - Step 7** Check the check box next to the interfaces that appear when you expand the tree of device group and the device.  
QPM lists only those devices you selected in the previous step of the wizard.  
However, do not select more than 20 interfaces.
  - Step 8** Click **Create**.  
The Monitoring Tasks page appears with the new task displaying in the task list.
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## Step 6: Confirming the Wizard Information for Deployment

The last page of the Deployment wizard presents a summary of all the data collected through the Deployment wizard for you to verify. After you are satisfied with the job information, you can deploy the policy group to the network.



### Caution

Jobs are not necessarily deployed to devices in the order in which they are triggered. Avoid deploying several jobs to the same device simultaneously. This could result in the incorrect configuration of the device.

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To confirm the wizard information:

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- Step 1** In the Deployment Wizard - Summary page, verify the job information that displayed on the page. If you are not satisfied with any of the job details, you can go back through the wizard to make the required changes.
- Step 2** After you are satisfied with the job information, click **Schedule (or Deploy)** to confirm the schedule for policy group deployment (or to deploy the policy group) to the network. The Active Jobs page appears, allowing you to view the deployment process.
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#### Related Topics

- [Viewing the Deployment Status, page 9-8](#)

## Viewing the Deployment Status

You can view the status of your job during deployment using the Active Jobs page. The Active Jobs page provides a dynamic view of all the active deployments and their status. For each deployment job, the start time of its configuration, its status, and a summary of the number of devices deployed according to their status, are displayed.

The status of a job deployment or a device deployment might be Pending, In Progress, Completed, or Failed. A job deployment might also have the status of Aborted or Paused.

During the deployment process, an In Progress status will be displayed for a job. When the job is completed successfully, its status will change to Completed.

For a deployment job to be Completed, all the devices must be successfully configured.

If the deployment of one device fails, and all the other devices passed without errors, the overall status of the deployment is Failed. Completed jobs are automatically removed from the display after ten minutes.



#### Note

If the deployment job fails, the QoS monitoring tasks for all the devices associated with the deployment job are not created. In this scenario, you have to manually create the QoS monitoring tasks for the devices on which the deployment is successful.

From the Active Jobs page, you can:

- View the deployment details of a job.
- Pause and resume the deployment process.
- Stop the deployment.
- Redeploy a failed deployment.
- Remove a deployment job from the display.

To view the deployment status:

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**Step 1** Choose **Provisioning > Policy Deployment > Pending Jobs**.

The Pending Jobs page appears, displaying the currently active deployment jobs and their status, in a table.

The display is automatically refreshed every ten seconds. To force a refresh manually, click **Refresh**.

For more information about the Active Jobs page, see [Pending Jobs Page, page C-14](#).

The Active Jobs page appears automatically when you click **Deploy** in the Summary page of the Deployment wizard (see [Step 6: Confirming the Wizard Information for Deployment, page 9-7](#)).

**Step 2** View the status of the active job deployments and device deployments:

- To view the details of a deployment job, select its Job Name link in the table. The Job Details report appears.
  - To remove a deployment job from the table, select it and click **Remove From Display**.
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#### Related Topics

- [Pausing and Resuming a Deployment Job, page 9-9](#)
- [Stopping a Deployment Job, page 9-10](#)
- [Redeploying a Job, page 9-10](#)
- [Viewing the Job Details Report, page 9-15](#)
- [Troubleshooting Deployment Problems, page 14-8](#)

## Pausing and Resuming a Deployment Job

You can pause a job during deployment. However, QPM will not stop the configuration of a device after it has begun. Any devices that are being configured when the Pause command is issued will be finished.

Devices for which deployment had not yet begun will remain with the status Pending. You can also cause any paused deployment to resume configuration of devices. This does not create a new job—it continues the selected job.

To pause and resume a deployment job:

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**Step 1** Choose **Provisioning > Policy Deployment > Pending Jobs**.

The Pending Jobs page appears.

**Step 2** In the Active Jobs list, check the check box next to your deployment job and click **Pause**.

A message appears prompting you whether you are sure you want to pause the deployment of your job.

**Step 3** Click **Yes** to pause the deployment of the job.

**Step 4** To resume the deployment of your job, check the check box next to the job and click **Resume**.

The deployment of the selected job will resume.

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**Related Topics**

- [Viewing the Deployment Status, page 9-8](#)

## Stopping a Deployment Job

You can stop a deployment job that is currently in progress or has been paused. This feature is useful if you want to change a job's configuration details before deploying it, or if a job becomes stuck while in progress.

Terminating a job stops the configuration of the devices. All the devices that were In Progress or Pending will receive a Failed status. You cannot resume a stopped deployment job.

To stop a deployment job:

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**Step 1** Choose **Provisioning > Policy Deployment > Pending Jobs**.

The Pending Jobs page appears.

**Step 2** In the Active Jobs list, check the check box next to the deployment job (In Progress or Pending) that you want to stop, and click **Abort**.

A message appears warning you that the job will be aborted with no option to resume it.

**Step 3** Click **Yes** to confirm the Stop procedure.

The job status for the selected deployment job will display, Aborted.

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**Related Topics**

- [Viewing the Deployment Status, page 9-8](#)

## Redeploying a Job

You can manually request that deployment be retried for either a specific device that failed or all failed devices in any displayed failed job. This does not create a new job—it creates another deployment for the job.

The redeployment process resets the status of the selected devices and re-requests the deployment of the selected job.

To redeploy a deployment job:

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**Step 1** Choose **Provisioning > Policy Deployment > Pending Jobs**.

The Active Jobs page appears.

**Step 2** In the Active Jobs table, select the check box next to the job you want to redeploy and click **Redeploy**.

The Device Selection and Preview page of the Deployment wizard appears, displaying all the failed devices of the job. See [Step 4: Selecting and Previewing the Devices for Deployment, page 9-6](#).

**Step 3** Check the check boxes next to the devices to which you want to deploy your policies.

If required, preview the CLI commands that will be configured on your devices. Then click **Next**.

- Step 4** Enter the job details and select the deployment options, and click **Next** (see [Related Topics, page 9-3](#)).
- Step 5** Verify the job information and click **Deploy** to redeploy your job to the network (see [Step 6: Confirming the Wizard Information for Deployment, page 9-7](#)).
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#### Related Topics

- [Viewing the Deployment Status, page 9-8](#)

## Managing Historical Versions

QPM allows you to restore previous versions of policy groups that were deployed to the network, for editing and deploying.

The Restore feature is helpful when unexpected errors occur as a result of the deployment of a policy group and you need to revert to a previous version of that policy group. You can also view a historical version of a policy group without restoring.

You can manage historical versions of policy groups from the Job History report, which displays a table of historical deployment jobs and all their details.

From the Job History report, you can do the following:

- Restore a historical policy group to edit and deploy it.
- View a historical policy group's policies.
- Delete a historical job.
- Lock a job to prevent automatic deletion when the history cache is full, or release a job from being locked.
- Download the configuration files of a historical deployment job.
- View a Job Details report for each deployment job.
- View a Deployment History report for each deployment job.
- View the results of a DNS host name resolution check for a deployment job.

To manage historical deployment versions:

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- Step 1** Choose **Provisioning > Policy Deployment > Completed Jobs**.

The Job History report appears.

For more information about the Job History report, see [Completed Jobs Page, page C-16](#).

- Step 2** Select the required historical report, and click the appropriate button or link depending on the procedure you want to do.
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The following topics provide more information about managing historical versions of policy groups:

- [Restoring and Deploying a Historical Policy Group, page 9-12](#)
- [Viewing a Historical Policy Group, page 9-13](#)
- [Deleting a Historical Job, page 9-13](#)
- [Locking and Unlocking a Historical Job, page 9-14](#)

- [Downloading a Historical Job's Configuration Files](#), page 9-14
- [Viewing the Job Details Report](#), page 9-15
- [Viewing the Deployment History Report](#), page 9-16
- [Viewing the DNS Resolution](#), page 9-17

## Restoring and Deploying a Historical Policy Group

This topic describes how you can restore a previous version of a specific policy group that was deployed to the network, for editing purposes. It also describes how to deploy the restored version, if required.



### Note

If required, you can view a history of all the policy group restore operations, from the Restore Reports page.

To restore and deploy a historical policy group:

**Step 1** Choose **Provisioning > Policy Deployment > Completed Jobs**.

The Job History report appears.

**Step 2** Select the historical job you want to restore, in the table.

**Step 3** Click **Restore**.

Validation checks are automatically done on the policy group. If the restore process detects any validation violations, the results will be written to a report.

The Restore Policy Group page appears, from which you can view the validation report. For more information about this page, see [Restore Policy Group Page](#), page C-17.

**Step 4** To view a validation report:

a. Click **Show Restore Report**.

The Restore Validation Report window opens.

For more information about this window, see [Restore Validation Report Window](#), page C-9.

b. When you have finished viewing the report, close the window.

**Step 5** Click **OK** to confirm the Restore process, or **Cancel** to stop the process.

If you clicked **OK**, the restored version will be selected as the current editable policy group.

The Policy View page appears, displaying the policies for the current policy group (see [Modifying a Policy](#), page 8-15).

If you want to deploy the restored version, follow the steps of the Deployment wizard (see [Related Topics](#), page 9-3 through [Step 6: Confirming the Wizard Information for Deployment](#), page 9-7).

### Related Topics

- [Step 3: Validating the Historical Policy Group](#), page 9-5
- [Managing Historical Versions](#), page 9-11
- [Working with Policies](#), page 8-1
- [Deploying Policies and QoS Configurations](#), page 9-2

## Viewing a Historical Policy Group

If you want to verify the details of a historical version of a deployment job, QPM allows you to view its policies. In this case, you will not be able to make changes to the policy group or deploy it to the network.

You can view only one historical policy group at a time. The policy group will not be saved.

If you select another policy group, you will lose the previous version you selected to view. To view it, you will have to select it again from the Job History report page.

To view a Historical Policy Group:

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**Step 1** Choose **Provisioning > Policy Deployment > Completed Jobs**.

The Job History report appears.

**Step 2** Select the historical job in the table and click **View Policy Group**.

The Policy View page appears in read-only mode, displaying the selected policy group and its policies.

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### Related Topics

- [Managing Historical Versions, page 9-11](#)
- [Working with Policies, page 8-1](#)

## Deleting a Historical Job

You can delete historical jobs from the Job History report list.

To delete Historical Jobs:

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**Step 1** Choose **Provisioning > Policy Deployment > Completed Jobs**.

The Job History report appears.

**Step 2** Select the Historical jobs you want to remove from the report, and click **Delete**.

A dialog box opens, warning you that the selected jobs will be deleted.

**Step 3** Click **OK** to confirm the deletion.

The jobs will be deleted from the list of historical jobs. You will no longer be able to restore them.

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### Related Topics

- [Managing Historical Versions, page 9-11](#)

## Locking and Unlocking a Historical Job

The Job History report can display up to a predefined maximum number of jobs. When the history cache is full, the oldest historical jobs are automatically deleted. You can prevent this automatic deletion by locking a job. Similarly, you can unlock a historical version, making it available for deletion.

To lock or unlock a Historical Job:

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**Step 1** Choose **Provisioning > Policy Deployment > Completed Jobs**.

The Job History report appears.

**Step 2** Select the Historical job you want to prevent from automatic deletion, and click **Lock Job**.

The Lock Job status of the job in the report will display **Lock**.

To release a Historical job from being locked from automatic deletion, select it and click **Unlock Job**.

The Lock Job status of the job in the report will display **Unlock**.

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### Related Topics

- [Managing Historical Versions, page 9-11](#)

## Downloading a Historical Job's Configuration Files

When QPM deploys QoS configurations to files, it generates configuration files that can be sent manually to the devices. Individual files are created for each device, and the complete set of files are saved as a single zip file to your hard disk.

From the Job History report, you can download to your desktop the zip file that contains the individual configuration files for each device in a historical deployment job that you select for editing.

To download a Historical Job's configuration file:

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**Step 1** Choose **Provisioning > Policy Deployment > Completed Jobs**.

The Job History report appears.

**Step 2** Select the Historical job whose configuration zip file you want to download, and click its Files icon.

The File Download dialog box opens.

**Step 3** Save the zip file to the required location on your desktop and extract the configuration files.

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### Related Topics

- [Managing Historical Versions, page 9-11](#)
- [Related Topics, page 9-3](#)

## Viewing the Job Details Report

The Job Details report shows the final status of all the deployments of a selected job. It can also show the current deployment status of a job that is still in progress.

The redeployment process can result in more than one deployment for a job (see [Redeploying a Job](#), page 9-10).

The job's deployment details are displayed at the top of the page, and a table of all the devices related to the deployment is displayed below. From this report, you can view details about any errors or warnings that resulted from the deployment of a device. You can also view the CLI commands that were used to configure a device.

If the error message for a failed job displays

`Internal error - unknown device state`, some of the devices might be stuck in progress. In such a case, QPM will not be able to determine what was configured on these devices. You should contact technical support on the Cisco TAC web site to resolve this problem.

To view the Job Details Report:

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**Step 1** Choose **Provisioning > Policy Deployment > Completed Jobs**.

The Job History page appears.

**Step 2** Click the Job Name link of the job whose details you want to view or click the Details icon for the job.

You can also open the Job Details page, by clicking the Job Name link for a job in the Active Jobs page, or by clicking the Job Name link for a device in the Managed Devices report.

The Job Details Report page appears, displaying the job's details and a table listing status information for each device in the job. For more information about the Job Details Report page, see [Job Details Report Page](#), page C-19.

- To view details about an error or warning that resulted from the deployment of a device, click the **Errors/Warnings** link for the required device in the table.

The Device Errors and Warnings page appears.

- To view the CLI commands that were used to configure a device:

- a. Check the check box next to the required device in the table.
- b. Click **View CLI Commands**.

A preview window opens, displaying the following configuration details for the device:

- Backup ShowRun configuration commands.
- Any incremental Telnet script commands that were written (if deployed directly to network devices).

- c. Click the appropriate buttons to view the relevant configuration details.

- d. Click **Close** to close the Preview window.
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### Related Topics

- [Managing Historical Versions](#), page 9-11
- [Viewing Device Deployment Errors and Warnings](#), page 9-16
- [Viewing the Status of Devices](#), page 9-17

## Viewing Device Deployment Errors and Warnings

In the Device Errors and Warnings page, you can view details about any errors or warnings that resulted from the deployment of a device. The page displays the reason for the error or warning message, and the time it occurred.

To view the device deployment errors and warnings:

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**Step 1** In the Job Details Report page, click the Errors/Warnings link for the device whose deployment error details you want to view.

The Device Errors and Warnings page appears.

For more information about this page, see [Device Errors and Warnings Page, page C-20](#).

**Step 2** When you have finished viewing the error or warning messages, close the page.

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### Related Topics

- [Viewing the Job Details Report, page 9-15](#)

## Viewing the Deployment History Report

The Deployment History report displays the deployment history details of a selected deployment.

The redeployment process can result in more than one deployment for a deployment job (see [Redeploying a Job, page 9-10](#)). A Deployment History report shows only the devices that were configured in the selected deployment.

These might not be all the devices in the Deployment job.

To view Deployment History report:

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**Step 1** Choose **Provisioning > Policy Deployment > Completed Jobs**.

The Job History page appears.

**Step 2** Click the Deployments link of the job whose deployment details you want to view.

The Deployment History report is displayed for the selected deployment.

For more information about the Deployment History report, see [Deployment History Report Page, page C-20](#).

To view the job details of the selected deployment, click the Deployment Type link. A Job Details report appears for the selected deployment.

---

### Related Topics

- [Managing Historical Versions, page 9-11](#)
- [Viewing the Job Details Report, page 9-15](#)

## Viewing the DNS Resolution

QPM resolves newly added host names to their IP addresses, to update any changes in the network.

From the Job History report, you can view the results of a DNS resolution check done by QPM on the host names that QPM resolved to IP addresses, for a selected Deployment job.

To view the DNS Resolution of a Historical job:

---

**Step 1** Choose **Provisioning > Policy Deployment > Completed Jobs**.

The Job History report appears.

**Step 2** Select the historical job in the table and click **DNS Resolution**.

The DNS Resolution page appears, displaying a list of IP addresses to which the host names were resolved, for the selected deployment job.

For more information about the DNS Resolution page, see [DNS Resolution Page, page C-18](#).

---

### Related Topics

- [Managing Historical Versions, page 9-11](#)
- [Creating an Online Preview Job, page 9-19](#)

## Viewing the Status of Devices

The Job Details page (for both completed and pending deployment jobs) allows you to view the status of all devices in the device group that were configured (deployed to) by QPM.

To view the status of devices:

---

**Step 1** Choose **Provisioning > Policy Deployment > Completed Jobs**.

The Completed Jobs page appears.

**Step 2** To view details about the device's Deployment job, click the Job Name link for the device.

A Job Details report is displayed.

**Step 3** Choose **Provisioning > Policy Deployment > Pending Jobs**.

The Pending Jobs page appears.

To view details about the device's deployment job, click the Job Name link for the device.

A Job Details report is displayed

---

### Related Topics

- [Viewing the Job Details Report, page 9-15](#)

## Previewing the CLI Commands

QPM allows you to view in advance the CLI commands that will be sent to the devices upon policy deployment. You can also create an online CLI Preview job to view the commands for the current policy group, while the policy is being deployed on devices. Online CLI previews are determined by querying the devices for their existing configuration and then calculating the incremental changes.

QPM provides several ways in which you can view the CLI commands that are already configured, or will be configured, on devices in your policy group:

- Using the Local Preview page, you can translate the policies attached to a device, to CLI commands
- Using the Online Preview wizard, you can activate an Online Preview job in which CLI commands are generated for all or some of the devices, which have policies attached from a selected policy group.
- During the deployment process, you can preview the CLI commands that will be configured on a single device, prior to deployment (see [Step 4: Selecting and Previewing the Devices for Deployment, page 9-6](#)).
- In the Job Details report, you can view the CLI commands that were configured on a selected device.

### Related Topics

- [Viewing the Job Details Report, page 9-15](#)
- [Creating an Online Preview Job, page 9-19](#)
- [Viewing the Online Preview Jobs, page 9-21](#)

## Local Preview

You can have a preview of CLI commands for each device (which already has a policy attached) in the device inventory.

To generate a local preview:

---

**Step 1** Choose **Provisioning > Policy Management > Policy Preview > Local Preview**.

The Local Preview page appears with a list of all devices in the device inventory.

**Step 2** Click the check box corresponding to the device whose CLI command you want to preview, and click **Preview QoS Configuration** at the bottom of the page.

The Translation page appears with the CLI translation of the selected device.

The message `No CLI Translation available` appears if there are no policies attached to the selected device.

---

## Online Preview

You can have an online preview of the CLI commands for the devices on which the policies are currently being deployed. You create a CLI Preview job, and specify the devices for which you want to see the CLI preview, through the CLI Preview wizard.

QPM stores these Online Preview jobs, so that you can later refer to it for analysis.

**Related Topics**

- [Creating an Online Preview Job, page 9-19](#)
- [Viewing the Online Preview Jobs, page 9-21](#)

## Creating an Online Preview Job

The Online Preview wizard guides you through the steps required to create a new Online Preview job for all the devices on which policies of a particular policy group are attached (or being attached).

The steps of the Online Preview wizard are:

- [Step 1: Selecting the Policy Group for an Online Preview Job, page 9-19](#)
- [Step 2: Previewing and Selecting the Devices for an Online Preview Job, page 9-20](#)
- [Step 3: Confirming the Wizard Information for an Online Preview Job, page 9-20](#)

**Related Topics**

- [Using QPM Wizards, page 3-17](#)
- [Previewing the CLI Commands, page 9-18](#)

### Step 1: Selecting the Policy Group for an Online Preview Job

In this step of the wizard, you select the policy group that contains the policies that have been attached to the devices. The policy group must be one of those that are currently managed.

To select the policy group:

- 
- Step 1** Choose **Provisioning > Policy Management > Policy Preview > Online Preview**.  
The Online Preview page appears.
- Step 2** Click **New Preview**.  
The Online Preview wizard appears with the first page—Policy Group Selection.
- Step 3** Select the current policy group from the list box.  
To view the details (Owner, Creation Time) of all the current policy groups, and then make your selection:
- a. Click the **View list** link.  
The Policy Groups List page appears.
  - b. Select the required policy group and click **Select**.  
The policy group will appear as selected in the Policy Group Selection page of the wizard.
- Step 4** Click **Next** to move to the next step of the wizard.  
The Device Selection and Preview page appears.
- 

**Related Topics**

- [Creating an Online Preview Job, page 9-19](#)
- [Step 2: Previewing and Selecting the Devices for an Online Preview Job, page 9-20](#)

## Step 2: Previewing and Selecting the Devices for an Online Preview Job

In this step of the wizard, you select the devices and preview their configurations. This page displays a list of all the devices that are assigned to policies in the selected policy group.

To preview and select the devices:

- 
- Step 1** In the Device Selection and Preview page, select the check boxes alongside the devices whose configuration details you want to preview.
- By default, all the devices will be selected.
- Step 2** To preview the CLI configuration commands for a device:
- a. Click its Policy Configuration link.
 

A preview window opens, displaying the following configuration details for the device:

    - Backup ShowRun configuration commands.
    - Any incremental Telnet script commands that will be written (if deploying directly to network devices).
  - b. Click the appropriate buttons to view the relevant configuration details.
  - c. After you have finished previewing the device's configuration, click **Close** to close the Preview window.
- Step 3** Click **Next** to move to the final step of the CLI Preview wizard.
- 

### Related Topics

- [Creating an Online Preview Job, page 9-19](#)
- [Step 3: Confirming the Wizard Information for an Online Preview Job, page 9-20](#)

## Step 3: Confirming the Wizard Information for an Online Preview Job

The last step of the Online Preview wizard asks you to verify the policy group name and the number of devices that were selected for previewing.

To confirm the wizard information:

- 
- Step 1** Verify the job information displayed on the page. If you are not satisfied with any of the job details, you can go back through the Online Preview wizard to make the required changes.
- Step 2** Click **Preview**.
- The Online Preview page appears, allowing you to view the current CLI jobs that are being executed.
- 

### Related Topics

- [Creating an Online Preview Job, page 9-19](#)
- [Viewing the Online Preview Jobs, page 9-21](#)

## Viewing the Online Preview Jobs

The Online Preview page displays a table of all the Online Preview job requests that were created and those that are currently being executed. This page provides a dynamic view of all the Online Preview jobs and their status.

It also displays the time the last preview was initiated for a job, the job's status, and its owner. The status of an Online Preview job may be Pending, In Progress, Completed, or Failed.

During the Online Preview process, CLI commands are generated for all the devices in the policy group.

A status of In Progress will be displayed for a job during this process. When the job is completed successfully, its status will change to Completed.

From the Online Preview page, you can:

- Create a new Online Preview job.
- View the details of an Online Preview job. The Online Preview Details report describes the details of a Online Preview job. From this report, you can also view the CLI commands that were used to configure a device.
- View the results of a DNS host name resolution check for a selected CLI Preview job.
- Delete a Online Preview job from the list.

To view the Online Preview Jobs, choose **Provisioning > Policy Management > Policy Preview > Online Preview**.

The Online Preview page appears. This page appears automatically when you click **Finish** in the last step of the CLI Preview wizard (see [Step 3: Confirming the Wizard Information for an Online Preview Job, page 9-20](#)).

For more information about the Online Preview page, see [Online Preview Page, page C-2](#).

To view the details of an Online Preview job:

---

**Step 1** Select the Online Preview job whose details you want to view

**Step 2** Click its Details icon or click **View Preview Details**.

The Online Preview Details page appears. For more information about the Online Preview Details page, see [Online Preview Details Page, page C-3](#).

---

To view the CLI commands that were used to configure a device:

---

**Step 1** Check the check box next to the required device in the table.

**Step 2** Click **View CLI Commands**.

A preview window opens, displaying the Backup ShowRun configuration commands and any incremental Telnet commands that were written to the device.

**Step 3** Click the appropriate buttons to view the relevant configuration details.

**Step 4** Click **Close** to close the Preview window.

---

To view the results of a DNS host name resolution check:

---

**Step 1** Select the preview job

**Step 2** Click **DNS Resolution**.

The DNS Resolution page appears, displaying a list of IP addresses to which the host names were resolved, for the selected preview job.

For more information about the DNS Resolution page, see [DNS Resolution Page, page C-18](#).

---

To delete Online Preview jobs:

---

**Step 1** Select the jobs you want to remove from the list, and click **Delete**.

A dialog box opens, warning you that the selected jobs will be deleted.

**Step 2** Click **OK** to confirm the deletion.

The jobs will be deleted from the list of Online Preview jobs.

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#### Related Topics

- [Previewing the CLI Commands, page 9-18](#)
- [Creating an Online Preview Job, page 9-19](#)
- [Viewing the DNS Resolution, page 9-17](#)