ClearPass Policy Manager Tech Note
Cluster Upgrade Tool, ClearPass 6.4

This Tech Note provides instructions for upgrading a ClearPass cluster using the Cluster Upgrade Tool.

The Cluster Upgrade Tool is a simple user interface that automates the upgrade procedure for a ClearPass cluster. When the Upgrade is initiated, no manual actions are required until all selected nodes have been upgraded. This tool can be used to upgrade ClearPass 6.2 and 6.3 systems to 6.4.0.

This Tech Note includes the following information:

Process Overview

1. If necessary, download the upgrade image to the Software Updates portal.
2. Install the Cluster Upgrade Tool.
3. Launch the Cluster Upgrade Tool and specify the nodes to be upgraded.
4. Click the Upgrade button. The tool automatically performs the upgrade.
5. After the upgrade, verify that all nodes in the cluster are back in sync and all services are accessible.

Before You Upgrade

- Review this Tech Note and the latest Release Notes for 6.4.x.
- Plan for adequate downtime for the upgrade. Use the upgrade time estimates in "Sample Times Required for Upgrade" on page 2 as a guide.
- Install the Upgrade Tool on the publisher node of your 6.2 or 6.3 version.
- Confirm that all nodes in the cluster are in sync before starting the upgrade.
- On the publisher, download the 6.4.0 upgrade image from the Software Updates portal. The tool automates the process of copying over the upgrade image to the other nodes in the cluster.

Sample Times Required for Upgrade

To help you estimate how much time the upgrade might take, Table 1 shows representative numbers for upgrade times under test conditions. Remember that the figures here are only examples. The actual time required for your upgrade depends on several factors:

- Your hardware or virtual appliance model. In the case of VM installations, upgrade times vary significantly based on the IOPS performance of your VM infrastructure.
- The size of the configuration database to be migrated.
- For Insight nodes, the size of the Insight database.
- For subscriber nodes, the bandwidth and latency of the network link between the subscriber and the publisher.

Table 1: *Sample Times Required for Upgrade*

Hardware Model	Config DB Size	Insight DB Size	Publisher Upgrade Time	Subscriber Upgrade Time	Insight Restoration Time in Publisher OR Subscriber
CP-500	100 MB	5 GB	50 minutes	50 minutes	20 minutes
	200 MB	5 GB	60 minutes	60 minutes	20 minutes
CP-5K	100 MB	5 GB	50 minutes	50 minutes	15 minutes
	200 MB	5 GB	60 minutes	60 minutes	15 minutes
CP-25K	200 MB	5 GB	30 minutes	30 minutes	15 minutes
	500 MB	10 GB	40 minutes	40 minutes	20 minutes

Installing the Cluster Upgrade Tool

The Cluster Upgrade Tool is released as a patch update for ClearPass 6.2 and 6.3 versions. It can be downloaded and installed either through CPPM's Software Updates portal, or from the Aruba Support portal.

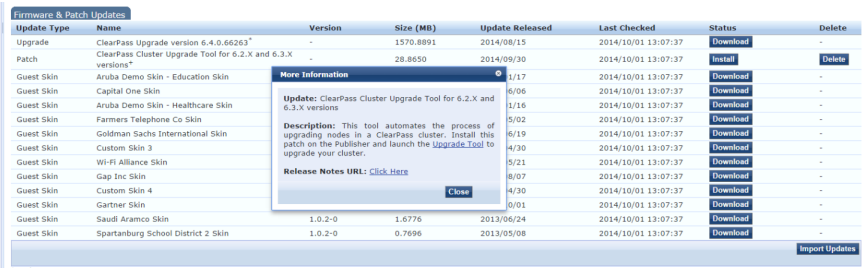
The Upgrade Tool can only be installed on the publisher node.

To install the Upgrade Tool through the Software Updates portal:

1. Log in to CPPM on the publisher node and go to **Administration > Agents and Software Updates > Software Updates**.
2. In the row for the ClearPass Cluster Upgrade Tool patch, click the **Install** button.

   When the installation is complete, the Admin service will be restarted. You do not need to reboot.

To review the Release Notes for the tool, click the patch's row. In the **More Information** window that opens, click the **Release Notes URL** link. The Support site's Release Notes page opens in a new tab.



To install the Upgrade Tool if the publisher node is not set up to display available updates:

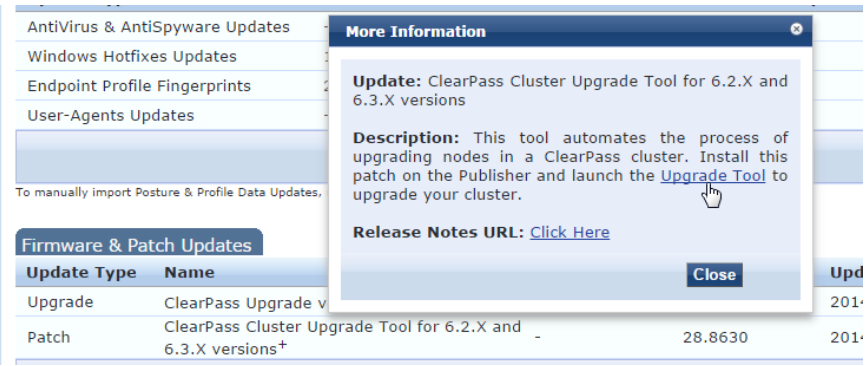
1. On the **Aruba Support** site (support.arubanetworks.com), manually download the Upgrade Tool.
2. On the publisher's **Software Updates** portal, use the **Import Updates** link to upload it.
3. Install the tool as described above.

Opening the Cluster Upgrade Tool

After the Cluster Update Tool is installed, you can open the tool either from the Software Updates portal or through your Web browser.

To open the Cluster Upgrade Tool from the Software Updates portal:

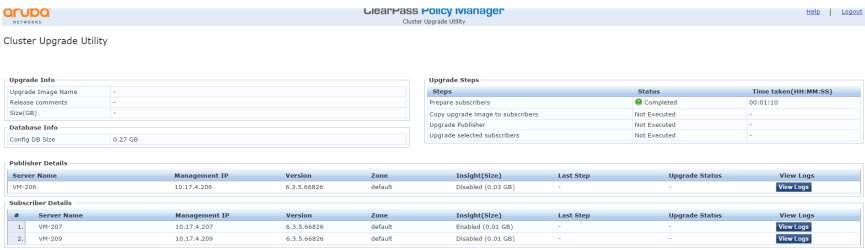
1. In CPPM, go to **Administration > Agents and Software Updates > Software Updates**.
2. In the **Firmware & Patch Updates** area, click the row of the **ClearPass Cluster Upgrade Tool for 6.2.x and 6.3.xx versions** patch.
3. In the **More Information** window that opens, click the **Upgrade Tool** link.



To open the Cluster Upgrade Tool directly through your Web browser:

1. Enter **https://<*CPPM-Publisher-IP*>/upgrade** in your browser's address bar.
2. If you are prompted to log in, use your ClearPass Policy Manager administrator credentials.

The Cluster Upgrade Utility page opens:



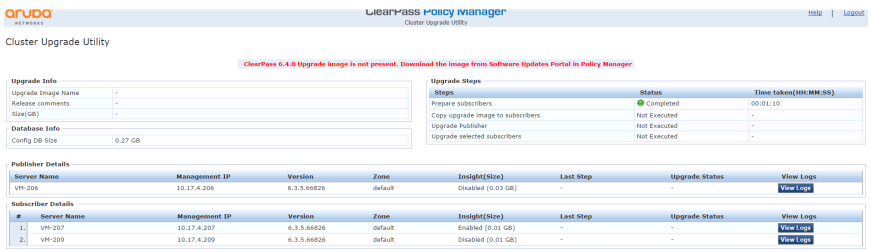
This page includes the following information:

Table 2: *Information on the Cluster Upgrade Utility Page*

Field	Description
Publisher Details	Information for the publisher node and for all subscriber nodes in the cluster. Information includes the node's management IP address, version number, zone, Insight database size, last upgrade step completed, and its upgrade status.
Subscriber Details	
Database Info	Shows the size of the Configuration database.
Upgrade Steps	During the cluster upgrade, this area shows the status of each stage in the process. As each stage completes, it shows how long it took to complete.
View Logs	In each publisher and subscriber row, this link provides detailed status and log messages for each upgrade stage for that node.
Help	Briefly describes the actions performed by the tool.

Upgrading the Cluster

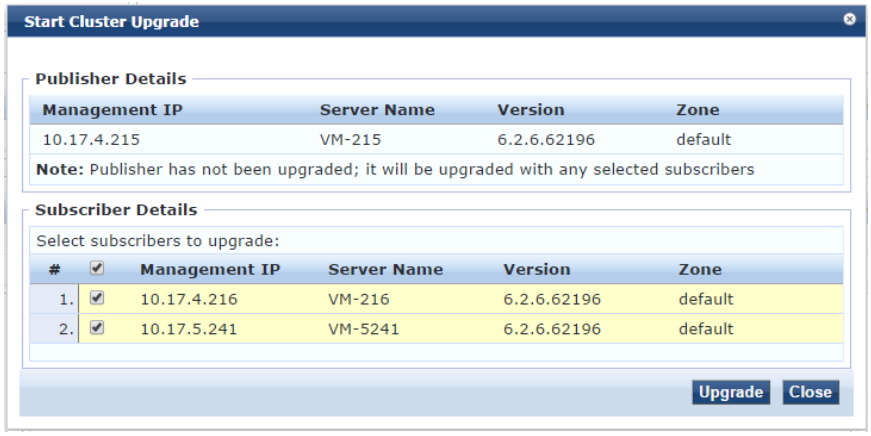
1. Before you start the upgrade, verify that the ClearPass 6.4 Upgrade Image is downloaded and available in the Software Updates portal. If the upgrade image is not available, the Cluster Upgrade Utility page displays a message advising you to download it.



2. When you open the Cluster Upgrade Tool, it immediately prepares the subscribers for upgrade by automatically installing a patch that provides required API support. A progress indicator is shown.

To install the patch for API support on the subscriber nodes, subscribers must be able to access the publisher over HTTP, or they must be able to access the publisher over HTTPS using its hostname and validate the certificate that is presented (trust the issuer and match the hostname in the certificate CN).

3. When the 6.4 Upgrade image is available locally and all subscribers have been patched, the **Start Upgrade** link is available in the upper-right corner. Click **Start Upgrade**. The Start Cluster Upgrade window opens.



4. You can upgrade the entire cluster or just a subset of nodes. In the **Start Cluster Upgrade** window, use the check boxes to select the subscribers to upgrade, and then click **Upgrade**. The tool begins the automated upgrade process.

   No further manual steps are required until all selected nodes have been upgraded. For information on the automated process, see "Steps in the Tool's Automated Workflow" on page 6.

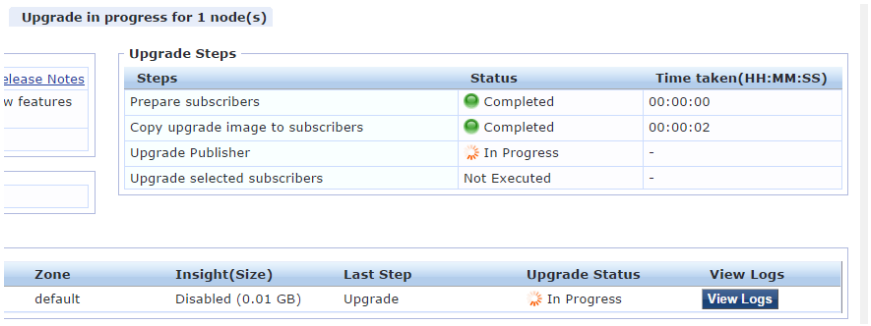
   The publisher is always the first node that will be upgraded and rebooted. The Upgrade Tool will not be available while the publisher node is rebooted and data migration is in progress. When the publisher upgrade is complete, you may use the Cluster Upgrade Utility page to monitor upgrade progress, as described in "Viewing Upgrade Status" on page 5.

5. After successful upgrade, confirm that all the nodes in the cluster are back in sync and all the services are accessible. Verify that any pre-existing standby publisher settings are restored (**Administration > Server Manager > Server Configuration > Cluster-Wide Parameters link > Standby Publisher tab**).

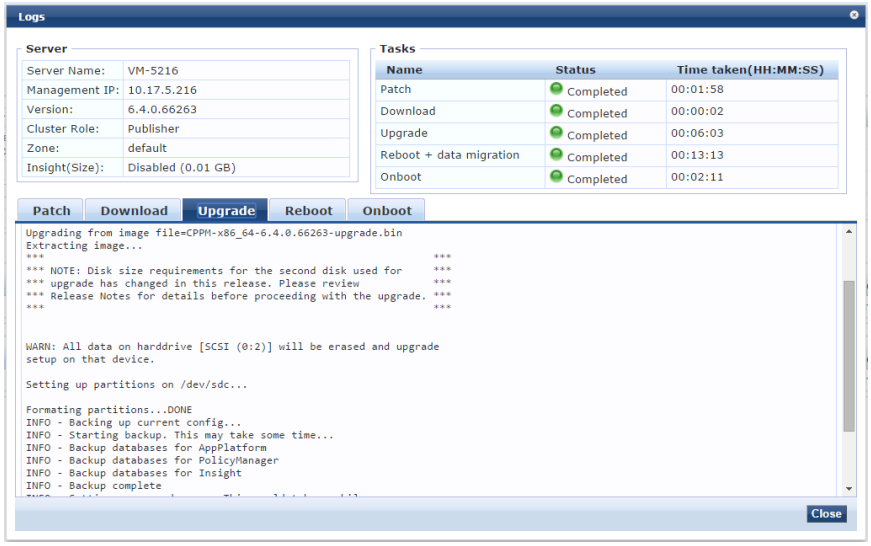
Viewing Upgrade Status

After you select the nodes and initiate the automated upgrade, the tool provides two ways to monitor the upgrade's progress:

- On the Cluster Upgrade Utility page, progress indicators in the **Upgrade Steps** area show the status of some of the main steps. Indicators in the **Publisher Details** and **Subscriber Details** areas also show when each node is in progress or completed. When the upgrade is complete, these areas should show a successful Upgrade Status for every node.



- For detailed progress information for each node, click the **View Logs** button in the node's row. The Logs window opens. This window includes tabs for the **Patch**, **Download**, **Upgrade**, **Reboot**, and **Onboot** logs. You can view detailed status in these logs during and after the upgrade. (This option is not available while the publisher node is rebooted and data migration is in progress. It is available again when the publisher upgrade is complete.)



Steps in the Tool's Automated Workflow

This section describes the steps that are automatically completed by the Cluster Upgrade Tool.

1. To prepare the subscribers for upgrade, a patch that provides required API support is automatically installed by the tool on all nodes. The Cluster Upgrade Tool uses remote API calls to control and monitor upgrade progress on the nodes.

NOTE

To install the patch for API support on the subscriber nodes, subscribers must be able to access the publisher over HTTP, or they must be able to access the publisher over HTTPS using its hostname and validate the certificate that is presented (trust the issuer and match the hostname in the certificate CN).

2. After you select subscribers and click Upgrade, the upgrade image is copied to the subscribers you selected. The subscribers copy the upgrade image over an HTTPS connection to the publisher. If the upgrade image is already present on a subscriber (you have downloaded it from the Software Updates portal, or uploaded it in the Software Updates portal), the existing upgrade image on the node will be used for upgrade.
3. If standby publisher settings were configured, they are temporarily disabled. This setting is restored after all nodes have been upgraded.
4. The publisher node is the first to be upgraded and rebooted. Configuration database and Insight database migration is performed on reboot.
5. When the publisher upgrade is complete, the Cluster Upgrade Utility page can be used to review log messages.
6. When the publisher upgrade is complete, upgrade is initiated on each selected subscriber node. When possible, multiple subscriber nodes are upgraded in parallel. When each node is complete, the node is rebooted.
7. When each subscriber node is rebooted, it is added back to the cluster. Insight data is migrated and restored.
8. When all selected subscribers have been upgraded, you may select and trigger upgrade for any additional subscriber nodes.
9. When all the nodes in the cluster have been upgraded, standby publisher settings are restored.

Detailed information for each of these steps is available in the Logs window during and after upgrade.

Troubleshooting

- If you encounter errors while upgrading a subscriber, use a manual upgrade procedure to upgrade the node after the root cause for the upgrade failure has been fixed.
- If you need to revert to the previous version of CPPM, you can do so manually from the CLI for individual nodes. Be aware that all status and progress information will be reset when the publisher is reverted to a previous version. You can initiate the upgrade again from the tool.