This Tech Note provides instructions on how to upgrade to W-ClearPass 6.6.0 from versions 6.3.6 and later.

> Be sure to review the "Upgrade and Update Information" section of the Release Notes for this release before proceeding further.

This Tech Note describes the tasks you need to complete before you upgrade to W-ClearPass 6.6.0, detailed instructions for performing a cluster upgrade, and the tasks you might need to complete after a successful upgrade procedure. It also describes the steps to recover from a failed upgrade.

In addition, this document provides information on how to perform an offline upgrade.

- Before You Upgrade W-ClearPass Policy Manager
- Upgrading via the Software Updates Portal
- Performing a Cluster Upgrade
- After a Successful Upgrade
- Recovering from a Failed Upgrade
- Appendix A: Performing an Offline Upgrade

## Before You Upgrade W-ClearPass Policy Manager

Before you begin to upgrade to W-ClearPass 6.6.0, note the following recommendations:

1. From the W-ClearPass Policy Manager user interface, back up the configuration data from the publisher node's Server Configuration page.

2. Be sure to schedule down time for the W-ClearPass upgrade procedure, as the upgrade process can take from one to two hours per node, based on the number of Access Tracker and Accounting records that exist on the server.

   Mobile Device Management (MDM) integration with W-ClearPass can significantly increase upgrades by several hours if the number of audit records in your network is in the hundreds of thousands.

3. On the publisher node, verify from the Server Configuration page that all nodes are replicating successfully.

   To access the Server Configuration page, navigate to **Administration** > **Server Manager** > **Server Configuration**.

Figure 1 *Policy Manager Server Configuration Page*
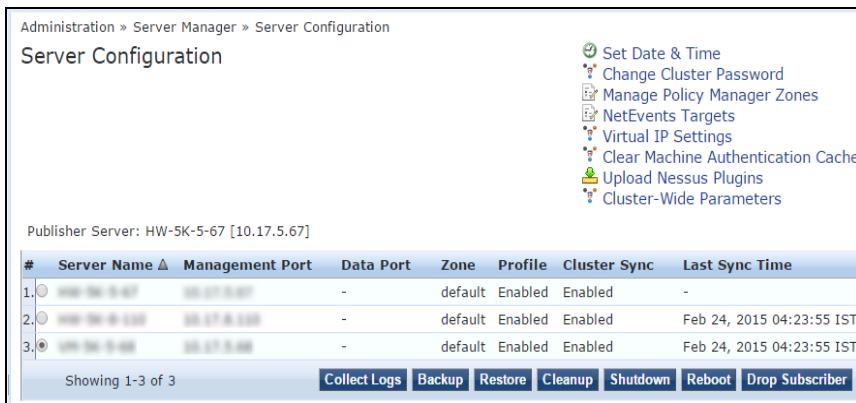
4. Any log settings that were modified prior to the upgrade are not retained and are reset to the default. After the upgrade completes successfully, the administrator should reconfigure any custom log settings.

Virtual Machine Upgrade Considerations

The considerations for upgrading a virtual machine (VM) vary according to the version of Policy Manager you are upgrading from:

- When upgrading from version 6.3.6: If you have two disks already loaded with previous W-ClearPass versions—for example, W-ClearPass 6.2 on SCSI 0:1 and W-ClearPass 6.3 on SCSI 0:2—do the following:

    a. Drop the inactive disk before upgrading.

    b. You must then add a new disk that is twice the size of the old disk.

    The W-ClearPass upgrade process will partition the new disk into two logical volumes.

- If you are upgrading a W-ClearPass Virtual Machine and need to identify the necessary resources for the upgrade to W-ClearPass 6.6.0, review the latest Release Notes and the *Tech Note: Installing or Upgrading W-ClearPass 6.6 on a Virtual Machine*.

- When upgrading to W-ClearPass 6.6, any custom authentication source filters must be migrated manually. During an upgrade, the console displays a warning message when custom filters are defined using tag values for Local and SQL authentication sources.

Version-Specific Upgrade Considerations

You can upgrade to W-ClearPass 6.6.0 from W-ClearPass 6.3.6, 6.4.7, or 6.5.x. Before you proceed with the upgrade, we recommend that you apply the latest available patch updates to your current release. For information on the patch update procedure, see the "Upgrade and Update Information" section of the Release Notes.

- For 6.5.x upgrades, versions 6.5.0 (FIPS/Non-FIPS) and 6.5.1 (FIPS only) require applying the W-ClearPass 6.6.0 Upgrade Preparation Patch before upgrading to 6.6.0 if the upgrade image needs to be manually imported into the UI or installed through the CLI. This patch is available through the Dell Support site or through the Software Updates portal. Version 6.5.2 and later do not require the preparation patch.

- For 6.4.x upgrades, you must update to 6.4.7 followed by applying the W-ClearPass 6.6.0 Upgrade Preparation Patch before upgrading to 6.6.0 if the upgrade image needs to be manually imported into the UI or installed through the CLI. This patch is available through the Dell Support site or through the Software Updates portal.

- For 6.3.x upgrades, you must update to 6.3.6 followed by applying the W-ClearPass 6.6.0 Upgrade Preparation Patch before upgrading to 6.6.0 if the upgrade image needs to be manually imported into the

UI or installed through the CLI. This patch is available through the Dell Support site or through the Software Updates portal.

- For 6.1.x and 6.2.x, direct upgrades are not supported. Customers on 6.1.x or 6.2.x must intermediately upgrade to 6.3.6, 6.4.7, or 6.5.x first before upgrading to 6.6.0.

- Upgrade images are available within W-ClearPass Policy Manager from the Software Updates portal at **Administration > Agents and Software Updates > Software Updates**.

- Manually imported updates are also supported by accessing the Dell Networking W-Series download site at download.dell-pcw.com, downloading the required image, and then using the Import feature at **Administration > Agents and Software Updates > Software Updates**.

- On a Hyper-V system, upgrading to 6.6.0 is only available from 6.5.x.

Upgrading via the Software Updates Portal

This section describes how to upgrade to W-ClearPass 6.6 using the W-ClearPass Policy Manager Software Updates Portal.

NOTE: For alternate upgrade methods for nodes that are not connected to the Internet, see "Appendix A: Performing an Offline Upgrade " on page 10.

To upgrade to W-ClearPass 6.6:

1. Open W-ClearPass Policy Manager.

2. Navigate to **Administration** > **Agents and Software Updates** > **Software Updates**.

   The Software Updates Portal opens.

Figure 2 *W-ClearPass Policy Manager Software Updates Portal*

3. From the **Firmware & Patch Updates** section, locate the appropriate Upgrade file, and then click **Download**.

   The W-Policy Manager Upgrade executable file downloads to your local system. After you have downloaded the Upgrade file, the button in the **Status** column changes to **Install**.

4. Click **Install**.

   The installation process for the selected W-ClearPass upgrade begins.

The **Install Update** dialog opens and displays the installation log messages that are generated during the installation process.

Performing a Cluster Upgrade

This section describes how to manually upgrade a W-ClearPass Cluster to W-ClearPass 6.6.

A W-ClearPass cluster comprises one publisher node and one or more W-ClearPass servers acting as subscribers. In a W-ClearPass cluster, configuration changes can be performed on the W-ClearPass publisher; they are then replicated to the subscribers. You cannot make configuration changes on subscriber nodes. Each node in a W-ClearPass cluster operates as a fully functional W-ClearPass server.

> **NOTE**
>
> To upgrade a cluster to 6.6.0, we recommend using the Cluster Upgrade Tool. For more information, see Appendix B, "Cluster Upgrade/Update Tool," in the *W-ClearPass Policy Manager User Guide*, and the "Cluster Upgrade Tool" sections in the *W-ClearPass 6.6.0 Release Notes*.

W-ClearPass Cluster Upgrade Overview

You must upgrade the publisher node in the W-ClearPass cluster first, before any of the subscriber nodes are upgraded. If you are using the Session Log Database as an authentication/authorization source, contact W-ClearPass Support for assistance with the upgrade procedure before upgrading (see Session Log Database below).

Upgrading each W-ClearPass node is a two-step process:

1. On the node you need to upgrade, initiate the upgrade from either the W-Policy Manager user interface or the command line interface (CLI).

   The upgrade operation installs the file system for the new version in a secondary location on disk. All services on the node will continue to function and service requests as usual; however, there might be some performance impact due to disk I/O activity.

2. Reboot

   a. W-ClearPass databases are initialized upon reboot. All W-ClearPass services are inaccessible during this time. The amount of time required for this operation depends on the size of your configuration and Insight databases.

   b. If this is a subscriber node, it is added back into the cluster. The amount of time required for this operation depends on the size of your configuration database and the nature of the network link to the publisher node.

   c. The Administration user interface and all services are backed up. The Event Viewer displays the message "Upgrade complete."

Session Log Database

In this release, the Session Log Database is not restored as part of the upgrade process. For more information, see "Restoring the Session Log Database" on page 8. The Session Log Database contains the following elements:

- Access Tracker and accounting records
- Event Viewer
- W-ClearPass Policy Manager Application Log

> **NOTE**
>
> If you are using the Session Log Database as an authentication/authorization source, contact W-ClearPass Support before upgrading for assistance with the upgrade procedure,

Insight Database

The Insight database is *not* part of the Session Log Database. The Insight database is automatically migrated as part of the upgrade process.

Summary of Cluster Upgrade Tasks

This section summarizes the high-level tasks you must complete for a successful cluster upgrade. Each of these tasks is discussed in detail in the following sections:

1. "Preparing for the Upgrade" on page 5
2. "Clearing the Standby Publisher Configuration" on page 5
3. "Upgrading the Publisher Node" on page 6
4. "Upgrading the Subscriber Nodes" on page 7
5. "Recovering from a Failed Upgrade" on page 9

Preparing for the Upgrade

For details on the tasks you need to complete to prepare for the upgrade, see "Before You Upgrade W-ClearPass Policy Manager" on page 1.

Clearing the Standby Publisher Configuration

If you have configured a standby publisher, clear the Standby Publisher configuration:

1. Navigate to **Administration > Server Manager > Server Configuration > Cluster-Wide Parameters**.
2. From the **Cluster-Wide Parameters** page, select the **Standby Publisher** tab.

Figure 3 *Standby Publisher Tab*
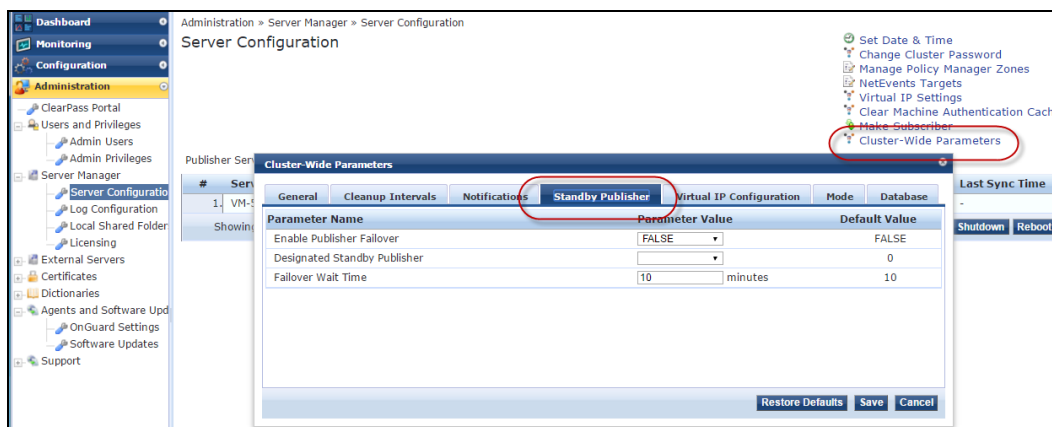
3. To clear the Standby Publisher configuration:
   a. *Enable Publisher Failover*: Set to **FALSE**.
   b. *Designated Standby Publisher*: Leave the field blank.
   c. *Failover Wait Time*: N/A
   d. Click **Save**.

> **NOTE**
> When the upgrade is complete, manually reconfigure the Standby Publisher configuration (see "Reconfiguring the Standby Publisher Configuration" on page 8).

Upgrading the Publisher Node

You must upgrade the publisher node in the W-ClearPass cluster first, before any of the subscriber nodes are upgraded.

To upgrade the publisher node:

1. Initiate an upgrade from the Software Updates Portal or from the CLI interface.

2. After the upgrade completes, click **Reboot** in the Software Updates Portal.

   a. Alternately, if you performed the upgrade from the CLI, run the **system restart** command to reboot the appliance.

   After rebooting, the appliance restores and initializes the configuration database in the new version.

   > Based on the size of the configuration database, the upgrade process on the publisher can take up to one or two hours or more, depending on the database size, node type, and VM disk I/O activity. If the number of audit records in your network is in the hundreds of thousands (typically due to Mobile Device Management (MDM) integration with W-ClearPass), this can significantly increase upgrade times by several hours.

3. To confirm that the upgrade is still in progress, log in to the CLI as username *appadmin*.

   The following banner message is displayed:

   CPPM upgrade in progress. Please do not modify configuration.

   > The W-ClearPass Administration user interface will not be available during the upgrade process. *Do not* attempt to start the Administration service from the CLI.

   > If the upgrade is in progress, do not perform any CLI operations, such as stopping or starting services, configuring networking, or powering off the appliance. This will interrupt the upgrade and leave the server in an inconsistent state.

4. The upgrade is complete only when all of the following conditions are true:

   a. When you log in to the CLI as *appadmin,* the message "CPPM upgrade in progress…" is not displayed.

   b. You can access the W-Policy Manager Administration user interface.

   c. In the Event Viewer, an "Upgrade complete" event is registered.

   d. All system services are running.

5. Verify a successful upgrade by performing several test authentications against the publisher.

If the Upgrade Did Not Complete Successfully

- If the upgrade process did not complete successfully, or you notice problems in sanity tests after the upgrade has completed, follow the steps to recover the publisher that are described in "Recovering from a Failed Upgrade" on page 9.

- If possible, collect and download logs for analysis.

- This is also the best time to stop the cluster upgrade procedure and recover from a failed upgrade.

> Do not upgrade any subscriber nodes until the publisher node upgrade failure is resolved.

Upgrading the Subscriber Nodes

After the publisher has upgraded completely and is fully operational, begin upgrading subscriber nodes, one node at a time.

When the subscriber node upgrade is completed, the cluster relationship is re-established automatically, and the subscriber node rejoins the cluster.

1. Initiate the upgrade for the first subscriber node from the Software Updates Portal or from the CLI interface.

    While the upgrade is in progress, the publisher node's Dashboard / Server Configuration screen might indicate that the subscriber node is "down." This is normal and the status will be restored after the upgrade process is completed.

2. After the subscribe node upgrade completes, click **Reboot** in the Software Updates Portal.

    a. Alternatively, if you performed the upgrade from the CLI, run the **system restart** command to reboot the appliance.

    Upon reboot, the node is added back to the cluster as a subscriber. Depending on the size of the configuration database, this could take an hour or more.

> **NOTE:** Do not upgrade multiple subscriber nodes and restart them at the same time. Subscriber nodes must be upgraded and restarted one at a time.

3. To confirm that the upgrade is still in progress, log in to the CLI with the following username: *appadmin*.

    The following banner message is displayed:

    CPPM upgrade in progress. Please do not modify configuration.

> **CAUTION:** The W-ClearPass Administration user interface will not be available during the upgrade process. *Do not* attempt to start the Administration service from the CLI.

> **NOTE:** If the upgrade is in progress, do not perform any CLI operations, such as stopping or starting services, configuring networking, or powering off the appliance. This will interrupt the upgrade and leave the server in an inconsistent state.

4. The upgrade is complete only when all of the following are true:

    a. When you log in to the CLI as *appadmin,* the message "CPPM upgrade in progress..." is not displayed.

    b. You can access the W-ClearPass Administration user interface.

    c. In the Event Viewer, an "Upgrade complete" event is registered.

    d. All system services are running.

5. From the publisher user interface, verify that the subscriber node **Cluster Sync** status is enabled.

6. Repeat these steps for each subscriber node.

Restoring Configurations Lost During the Upgrade Process

Some configuration elements are not carried over during the upgrade process. You might need to restore the following configurations:

- Standby publisher
- Custom values configured for logs

After a Successful Upgrade

This section describes the tasks that you might need to perform in order to restore configuration elements that were not migrated during the successful upgrade to W-Policy Manager 6.6.

This section contains the following topics:

Installing the MySQL Driver

If you are using MySQL and wish to install the MySQL driver, please contact Dell Product Support, who can provide the driver patch for your specific version of W-ClearPass.

Reconfiguring the Standby Publisher Configuration

If you cleared the configuration of the Standby Publisher (see "Clearing the Standby Publisher Configuration" on page 5), you must manually reconfigure the Standby Publisher configuration.

1. Go to **Administration > Server Manager > Server Configuration > Cluster-Wide Parameters**.

2. From the Cluster-Wide Parameters page, select the **Standby Publisher** tab.

Figure 4 *Cluster-Wide Parameters: Standby Publisher Page*

3. Reset the Standby Publisher parameters to the desired settings, then click **Save**.

Restoring Custom Modifications

Any custom modifications performed on the W-ClearPass Server during the course of its operation, such as changing system-level parameters while logged in as *arubasupport* by Aruba TAC, are not carried over during the upgrade process.

- You can incorporate custom changes into the W-ClearPass configuration after the upgrade is complete. In this scenario, you should apply these custom configuration parameters via the W-ClearPass configuration process.

- User modifications on default services (for example, dynamically received data, such as Guest SSIDs) are not carried forward after the upgrade. You must reconfigure these inputs after you upgrade.

Restoring the Session Log Database

To reduce downtime during the upgrade process, the default upgrade behavior backs up the Session Log Database and Access Tracker records, but they are not restored as part of the upgrade. If required, you can manually restore them after the upgrade through the user interface.

	The Insight databases are automatically restored as part of the upgrade process.

The Session Log Database contains the following components:

- Access Tracker and Accounting records
- Event Viewer
- W-ClearPass Guest Application Log

	Do not restore the Session Log Database on the Publisher node while any node in the cluster is still undergoing the upgrade process.

	Depending on the size of your Session Log Database, the restoration process could take several hours. All services are accessible and the services can handle requests during the restoration, but there is a performance impact while the restoration is in progress. We recommend that you perform this operation during a planned change window.

To restore the Session Log Database after the upgrade through the user interface:

1. Go to **Administration > Server Manager > Local Shared Folders**.
2. Restore the Session Log Database from the auto-generated **upgradebackup.tar.gz** file.
3. Repeat this process on each server in the cluster that should retain the Session Log Database.

The log restoration process continues in the background even if the user interface is closed or the session times out. When the log restoration is complete, a "Restore complete" event is logged in the Event Viewer.

1. Go to **Administration > Server Manager > Server Configuration**.
2. Select the appropriate server, then click **Restore**.
3. In the Restore Policy Manager Database window:
   a. Select the **File is on server** option.
   b. Select the **upgrade-backup.tar.gz** file.
4. Also select (enable) the following options:
   - **Restore CPPM session log data (if it exists on the backup)**
   - **Ignore version mismatch and attempt data migration**
   - **Do not back up the existing databases before this operation**
5. Uncheck (disable) the **Restore CPPM configuration data** option.
5. Click **Start**.

Recovering from a Failed Upgrade

The upgrade process can fail due to multiple reasons. When there is an upgrade failure, you can recover the W-ClearPass appliance to the earlier version using the following steps:

1. If the W-ClearPass Administration user interface is accessible after the upgrade, collect logs on the upgraded version so that Support can analyze them.
2. Log in to the CLI of the appliance as user *appadmin*.
3. You can view the list of W-ClearPass versions currently installed on the appliance by running the following command:

```
system boot-image -l
```

The screen shown in Figure 5 appears:

Figure 5 *System Command Boot-Image Screen*

```
[appadmin@rr-dell-eval]# help

ad                      Domain Controller set of commands
alias                   Create aliases
backup                  Backup Policy Manager data
cluster                 Policy Manager cluster related commands
configure               Configure the system parameters
dump                    Dump Policy Manager information
exit                    Exit the shell
help                    Display the list of supported commands
krb                     Kerberos authentication commands
ldapsearch              Search entries in the LDAP repository
network                 Network troubleshooting commands
quit                    Exit the shell
restore                 Restore Policy Manager database
service                 Control Policy Manager services
show                    Show configuration details
system                  System commands

[appadmin@rr-dell-eval]# system boot-image -l

ClearPass Platform 6.2.1.56137 on SCSI (0:1)
Aruba ClearPass 6.3.0.61700 [Active] on SCSI (0:0)

[appadmin@rr-dell-eval]# _
```

4. To select the previous version to boot up on restart, run the command:

    system boot-image -a `<version number>`

    For example:

    ```
    system boot-image -a 6.5.0.54353
    ```

5. Then restart the system by issuing the following command:

    system restart

    The system boots into the earlier version of W-ClearPass.

6. Take care to revert the publisher node *before* you revert any Subscriber nodes that might have been upgraded.

7. Verify that all subscriber nodes continue to be part of the cluster and are replicating correctly.

8. If a subscriber node is disabled in the publisher, manually add the node back into the cluster.

Appendix A: Performing an Offline Upgrade

This section describes how to perform an offline upgrade to W-ClearPass 6.6. An offline upgrade is necessary when W-ClearPass is not connected to the Internet and so cannot download the upgrade image from the Software Updates Portal.

To download the W-ClearPass 6.6 Upgrade image file:

1. Log in to the Dell Networking W-Series download site at download.dell-pcw.com and download the appropriate upgrade file.

> **NOTE**
>
> Be sure to note the location on your system where the downloaded file is saved.

2. Go to the W-ClearPass Policy Manager Software Updates Portal at **Administration > Agents and Software Updates > Software Updates**.

3. In the **Firmware & Patch Updates** section of the Software Updates Portal, click the **Import Updates** button.

The **Import from File** dialog opens.

Figure 6 *Import from File Dialog*
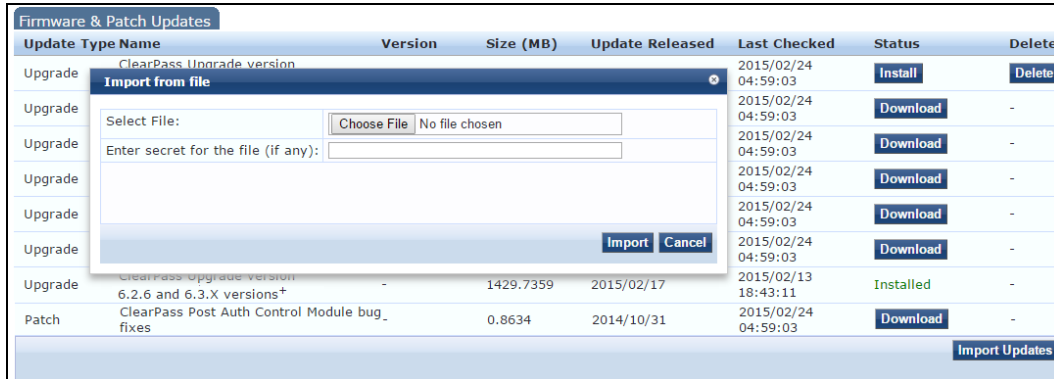
4. Browse to the location of the upgrade file on your system.

5. Click **Import**.

The selected upgrade file is uploaded to W-ClearPass. Once the upload completes, the upgrade image will be listed in the Firmware & Patch Updates section.

6. In the **Firmware & Patch Updates** section of the Software Updates Portal, click **Install**.

The installation process for the selected W-ClearPass upgrade begins.

The **Install Update** dialog opens and displays the installation log messages that are generated during the installation process.

Upgrading from an SCP Server or Web Server

The **system upgrade** command also supports upgrading the W-ClearPass image from a Secure Copy Protocol (SCP) server and a Web server.

Upgrading from an SCP Server

To upgrade the W-ClearPass image from an SCP server:

1. Upload the upgrade image to your SCP server.

2. Use the following syntax to upload the upgrade image:

```
system upgrade user@hostname:/<filename> [-w] [-l] [-L]
```

Upgrading from a Web Server

To upgrade the W-ClearPass image from a Web server:

1. Upload the upgrade image to a Web server.

2. Use the following syntax to upload the upgrade image:

```
system upgrade http://hostname:/<filename> [-w] [-l] [-L]
```