Opsware® System 4.7 Upgrade Guide

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Opsware System 4.7 Upgrade

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This document describes how to perform the following tasks:

- Upgrade a standalone Opsware System core from 4.6 to 4.7
- Upgrade cores in a multimaster mesh from Opsware System 4.6 to 4.7

For information about how to install Opsware System 4.7, see the *Opsware System 4.7 Installation Guide*.

For information about how to upgrade Opsware Agents to Opsware System 4.7, see the *Opsware System 4.7 User's Guide*, Appendix B.

About Running the Opsware Installer Upgrade Script

To upgrade components in a core, you run the Opsware Installer upgrade script by entering one of the following commands.

When upgrading using CD-ROM media:

```
/disk_001/opsware_installer/upgrade_opsware.sh -r
full_path_to_response_file>
```

When upgrading using DVD media:

```
/opsware_installer/upgrade_opsware.sh -r
full_path_to_response_file>
```

Before running the upgrade script `upgrade_opsware.sh`, you must change directories to the root directory by entering the following command:

```
cd /
```

You must provide the full path to the response file.

Mount the Opsware System software on all core servers by mounting the CD or DVD or NFS-mount a directory that contains the Opsware System software distribution contents.

The Opsware Installer must have root read access to the directories from where it installs Opsware components, even NFS-mounted network appliances.

The Opsware upgrade script displays a list of components that you can choose to upgrade. The list only contains components that have been installed on the server where you are running the script.

Preparing for a Standalone Core Upgrade

Before you upgrade an Opsware standalone core, perform the following tasks:

- Obtain the response files that were created when you installed the Opsware System 4.6 standalone core.

  By default, the Opsware Installer saves the response file in the following directory on the servers where you installed the Opsware System components:

  `/var/lc/install_opsware/resp/resp.`*`timestamp>`*

  By looking at the timestamp, choose the latest version of the response file.

- For the Opsware Patch Management Subsystem, upgrade the Microsoft utilities `mssecure.cab` and `mbsacli.exe` to version 1.2.1 or the latest version by performing the following steps:

  1. Go to Microsoft's Web site and download the 1.2.1 or the latest version of `mbsacli.exe` and the latest version of `mssecure.cab`. Have these files on hand prior to the upgrade, and ready to supply to the upgrade process, but do not upload them prior to the upgrade.

Older versions of the `mssecure.cab` and `mbsacli.exe` utilities will not work, and the upgrade process will fail.

Obtain the `mssecure.cab` file at the following web site:

`http://go.microsoft.com/fwlink/?LinkId=18922`

Obtain the `mbsacli.exe` file at the following web site:

`http://www.microsoft.com/downloads/details.aspx?FamilyID=b13ebd6b-e258-4625-b0a3-64a4879f7798&DisplayLang=en`

2. On the server where the Software Repository is installed, put the latest versions of the `mssecure.cab` and `mbsacli.exe` utilities in the directories specified in the Opsware System 4.6 response file. Also, make sure that the `qchain.exe` utility is in the directory specified in the response file.

   In the response file, the following parameters contain the paths for these utilities:

   - The parameter `word_windows_mssecure_file` specifies the path for the `mssecure.cab` utility.
   - The parameter `word_windows_qchain_util` specifies the path for the `qchain.exe` utility.
   - The parameter `word_windows_hfnetchk_util` specifies the path for the `mbsacli.exe` utility.

- If you have configured any Opsware OS Provisioning networks by using the Opsware DHCP Network Configuration Tool, save the `/opt/OPSWdhcpd/etc/dhcpd.conf` file. In each core, save the file from the server where you installed the OS Provisioning Boot Server.

  The upgrade can affect the DHCP configuration in the core. After you save the file, verify that the file contains the customizations that you made. At the end of the upgrade, you will replace the `dhcpd.conf` file in the upgraded core with this file that you have saved.

- Opsware System 4.6 included Help for the Opsware Command Center (the Opsware Documentation component). If you did **not** install the Help for Opsware System 4.6, you can install it during the upgrade to 4.7.

  Requirements for installing the Opsware Documentation component:

  - To install the Help, install it in the core before you upgrade the Opsware Command Center.
  - You must install the Opsware Documentation component on the server where you installed the Opsware Command Center component.

    (If you install the documentation after upgrading the Opsware Command Center, you must restart the Opsware Command Center component.)

For the information about how to install the Help, see the topic "Installing a Standalone Core" in Chapter 5 in the *Opsware System 4.7 Installation Guide*.

Upgrading a Standalone Core

To upgrade a standalone core from Opsware System 4.6 to 4.7, perform the following steps:

1. In the core, stop the processes for all Data Access Engines and the Web Services Data Access Engine by entering the following commands as root:
   - On the servers where a Data Access Engine is installed:

     ```
     /etc/init.d/spin stop
     ```

   - On the server where the Opsware Command Center is installed:

     ```
     /etc/init.d/twist stop
     /etc/init.d/spin stop
     ```

2. Stop DCI in the core by performing these steps:
   1. Log on to the DCI server.
   2. From the Start ➤ Control Panel ➤ Administrative Tools ➤ Services, right click on Crystal Report Application Server and select Stop.
   3. Right click on World Wide Web Publishing Service and select Stop.
3. On the server running the Opsware Model Repository (truth), upgrade the Model Repository. Start the Opsware Installer upgrade script and select the Model Repository component.

   See "About Running the Opsware Installer Upgrade Script" on page 1 for the commands to run the Opsware Installer upgrade script.

   While you upgrade the Model Repository, you might be prompted to confirm the Opsware System configuration values. See "Details: Upgrading the Model Repository" on page 16.
4. On each server running a Data Access Engine (spin), upgrade the Data Access Engine. Start the Opsware Installer upgrade script and select the Data Access Engine component.

   See "About Running the Opsware Installer Upgrade Script" on page 1 for the commands to run the Opsware Installer upgrade script.

5 Upgrade the rest of the components in the core. You must upgrade each component separately by running a separate invocation of the Opsware Installer upgrade script that you used. You must upgrade the Opsware components in the core in the following order:

1. Access & Authentication Directory (cast)

The Opsware Installer does not preserve any customizations made to the configuration files for the Access & Authentication Directory. If you have made changes to these files, which are located in `/cust/usr/netscape/server4/slapd-cast/config`, you will need to apply those changes again after the upgrade is complete.

2. Command Engine (way)
3. Software Repository (word)
4. Opsware Command Center (occ)
5. OS Provisioning Build Scripts
6. OS Provisioning Boot Server
7. OS Provisioning Media Server

6 On the server where the OS Provisioning Boot Server is running, restart dhcp by entering the following command:

```
/etc/init.d/dhcpd stop
```

```
/etc/init.d/dhcpd start
```

7 Start DCI in the core by performing these steps:

1. Log on to the DCI server.
2. From the Start ➤ Control Panel ➤ Administrative tools ➤ Services, right click on Crystal Report Application Server and select Start.
3. Right click on World Wide Web Publishing Service and select Start.

8 On the server running the Data Access Engine, restart the Data Access Engine by entering the following command as root:

```
/etc/init.d/spin stop
```

```
/etc/init.d/spin start
```

If you upgrade the Software Repository more than an hour after upgrading the Data Access Engine, you will need to restart the Data Access Engine. If you do *not* restart the Data Access Engine at this point, you will encounter an error when running the Opsware System Diagnosis tool (as directed by step 10 in this procedure). The error will resolve itself when a Communication Test runs.

9 On the server where you installed the OS Provisioning Boot Server, replace the `dhcpd.conf` file that you copied during the upgrade preparation steps.

10 Verify that the Opsware System core upgraded successfully. Log in to the Opsware Command Center as an Opsware administrator and run the System Diagnosis tool on the core.

See the *Opsware System 4.7 Administration Guide*, Chapter 3 "Opsware System Health" for information about running the System Diagnosis tool.

11 After upgrading an Opsware core to Opsware System 4.7, recreate the Windows boot floppies and Linux Boot Images for your Opsware OS Provisioning Subsystem so that the floppies contain the latest version of the Windows OS Boot Agent.

See "Creating a Windows Boot Floppy" in chapter 3 in the *Opsware System 4.7 User's Guide* for information.

See "Creating a Linux Boot Image" in chapter 3 in the *Opsware System 4.7 User's Guide* for information.

12 Re-import the Red Hat Linux AS 2.1 OS media.

See "OS Media Management" in Chapter 3 in the *Opsware System 4.7 User's Guide* for the commands to import OS media.

Overview for Upgrading Cores in a Multimaster Mesh

When upgrading the cores in your Opsware System from 4.6 to 4.7, you upgrade one core at a time (also referred to as a "rolling upgrade"). You do not upgrade the cores in the mesh concurrently by shutting down all the cores, upgrading the core simultaneously, then restarting each core.

When upgrading a core, the other cores in the mesh should function normally with one exception. For a few minutes between the time you upgrade the Model Repository and the Data Access Engine in the source core, the multimaster mesh won't be fully functional (you won't be able to run Command Engine scripts).

A rolling upgrade on the cores in a multimaster mesh is accomplished in three phases:

1. Upgrade the schema and the Multimaster Infrastructure Component in all destination cores.
2. Upgrade the schema and data, and the rest of the components in the source core (data changes are replicated automatically to other Model Repositories in the mesh).
3. Upgrade the rest of the components in the destination cores.

Preparing for Multimaster Mesh Upgrades

For each core in your multimaster mesh, perform the following pre-upgrade tasks:

- Obtain the response files that were created when you installed the Opsware System 4.6 cores.

  By default, the Opsware Installer saves the response file in the following directory on the servers where you installed the Opsware System components:

  `/var/lc/install_opsware/resp/resp.<timestamp>`

- For the Opsware Patch Management Subsystem, upgrade the Microsoft utilities `mssecure.cab` and `mbsacli.exe` to version 1.2.1 or the latest version by performing the following steps:

  1. Go to Microsoft's Web site and download the 1.2.1 or the latest version of `mbsacli.exe` and the latest version of `mssecure.cab`. Have these files on hand prior to the upgrade, and ready to supply to the upgrade process, but do not upload them prior to the upgrade.

Older versions of the `mssecure.cab` and `mbsacli.exe` utilities will not work, and the upgrade process will fail.

Obtain the `mssecure.cab` file at the following web site:

`http://go.microsoft.com/fwlink/?LinkId=18922`

Obtain the `mbsacli.exe` file at the following web site:

`http://www.microsoft.com/downloads/details.aspx?FamilyID=b13ebd6b-e258-4625-b0a3-64a4879f7798&DisplayLang=en`

2. On the server where the Software Repository is installed, put the latest versions of the `mssecure.cab` and `mbsacli.exe` utilities in the directories specified in the Opsware System 4.6 response file. Also, make sure that the `qchain.exe` utility is in the directory specified in the response file.

   In the response file, the following parameters contain the paths for these utilities:

   - The parameter `word_windows_mssecure_file` specifies the path for the `mssecure.cab` utility.
   - The parameter `word_windows_qchain_util` specifies the path for the `qchain.exe` utility.
   - The parameter `word_windows_hfnetchk_util` specifies the path for the `mbsacli.exe` utility.

- If you have configured any Opsware OS Provisioning networks by using the Opsware DHCP Network Configuration Tool, save the `/opt/OPSWdhcpd/etc/dhcpd.conf` file. In each core, save the file from the server where you installed the OS Provisioning Boot Server.

  The upgrade can affect the DHCP configuration in the core. After you save the file, verify that the file contains the customizations that you made. At the end of the upgrade, you will replace the `dhcpd.conf` file in the upgraded core with this file that you have saved.

- Opsware System 4.6 includes Help for the Opsware Command Center (the Opsware Documentation component). If you did not install the Help for Opsware System 4.6, you can install it during the upgrade to 4.7.

  Requirements for installing the Opsware Documentation component:

  - To install the Help, install it in each core in the multimaster mesh before you upgrade the Opsware Command Center in that core.
  - You must install the Opsware Documentation component on the server in each core where you installed the Opsware Command Center component.

    (If you install the documentation after upgrading the Opsware Command Center, you must restart the Opsware Command Center component.)

For the information about how to install the Help, see the topic “Steps for Creating a Mesh and Installing a Second Core” in Chapter 8 in the *Opsware System 4.7 Installation Guide*.

- Log in to the Opsware Command Center as an Opsware administrator and check for and resolve multimaster conflicts by using the Multimaster Tools. You cannot proceed with an upgrade of a core in a multimaster mesh if multimaster conflicts are present in the mesh.

  If the mesh contains conflicts, the Opsware Installer will halt the upgrade and display a message similar to this message:

  [INFO] Performing validation checks.

  java.lang.Exception: There are 1 conflicting transactions in this database which must be resolved before the database can be upgraded.

  [ERROR] Aborting.

  If you attempt to upgrade an Opsware core that has multimaster conflicts, the Model Repository upgrade will fail and the Oracle database is left in restricted session mode. When Oracle is in restricted session mode, the Data Access Engine and Multimaster Infrastructure Components (Vault) cannot start. To resolve this problem, you must restart Oracle or enter the following command as the oracle user:

  ```
  $ sqlplus “/ as sysdba”

  SQL> alter system disable restricted session;
  ```

Upgrading the Cores in a Multimaster Mesh

These upgrade instructions direct you to upgrade the Model Repositories and Multimaster Infrastructure Components in the destination cores in your multimaster mesh first, upgrade the source core in the multimaster mesh, and then upgrade the rest of the components in the destination cores.

In a multimaster mesh, the source core is the first core that you installed, which has the first Model Repository installed. Destination cores are the second, third, and fourth, etc. cores that you installed in the mesh.

1. In **each destination core** in your multimaster mesh, perform the following steps to upgrade the Model Repository schema in that core. Upgrade each core separately. Do not perform this step concurrently in different destination cores.

1. Stop the Data Access Engines (spins), Web Services Data Access Engine (twist), and the Multimaster Infrastructure Component (vault). If the Software Repository is running on the same server as the Model Repository, stop the Software Repository Multimaster Components (mmword). Enter these commands as root:

– On the servers where a Data Access Engine is installed:

```
/etc/init.d/spin stop
```

– On the server where the Opsware Command Center is installed:

```
/etc/init.d/twist stop
```

```
/etc/init.d/spin stop
```

On the server where the Model Repository is installed:

```
/etc/init.d/vaultdaemon stop
```

– On the server where the Software Repository is installed:

```
/etc/init.d/mmworddaemon stop
```

2. If DCI is installed in the destination core, stop DCI by performing these steps:

   a. Log on to the DCI server.

   b. From the Start ➤ Control Panel ➤ Administrative tools ➤ Services, right click on Crystal Report Application Server and select Stop.

   c. Right click on World Wide Web Publishing Service and select Stop.

3. On the server running the Opsware Model Repository (truth), upgrade the Model Repository (truth slave), Consumer Multimaster component. Start the Opsware Installer upgrade script and select the Model Repository (truth), Multimaster Additions component.

   See “About Running the Opsware Installer Upgrade Script” on page 1 for the commands to run the Opsware Installer upgrade script.

   When you perform this step, the Opsware Installer upgrades the Model Repository database schema to Opsware System 4.7.

4. Start the Data Access Engines (spin). On the servers where a Data Access Engine is installed and on the server where the Opsware Command Center is installed:

```
/etc/init.d/spin start
```


5. On the server running the Model Repository, upgrade the Multimaster Infrastructure Component (vault). Start the Opsware Installer upgrade script and select the Multimaster Infrastructure Component.

   See “About Running the Opsware Installer Upgrade Script” on page 1 for the commands to run the Opsware Installer upgrade script.

6. Start the Web Services Data Access Engine and Software Repository Multimaster Component. On the server where the OCC is installed, enter this command:

   ```
   /etc/init.d/twist start
   ```

   On the server where the Software Repository is installed, enter this command:

   ```
   /etc/init.d/mmworddaemon start
   ```

   On the server where the Opsware Command Center is installed, enter this command:

   ```
   /etc/init.d/spin start
   ```

Before you upgrade the components in your source core (step 2 on page 11), change which Data Access Engine is designated the multimaster central Data Access Engine so that one of them in the source core has this designation. Having the source core contain the multimaster central Data Access Engine allows your multimaster mesh to take advantage of the enhanced Multimaster Tools functionality in Opsware System 4.7.
See Opsware System 4.7 Installation Guide, “Designating the Multimaster Central Data Access Engine” in chapter 8 for information.

2 After the Model Repository and Multimaster Replication Engine in each destination core is upgraded, upgrade the **source** core in the multimaster mesh by performing these steps:

1. Stop the Data Access Engines (spins), Web Services Data Access Engine (twist), and the Multimaster Infrastructure Component (vault). If the Software Repository is running on the same server as the Model Repository, stop the Software Repository Multimaster Components (mmword). Enter these commands as root:

– On the servers where a Data Access Engine is installed:

```
/etc/init.d/spin stop
```

– On the server where the Opsware Command Center is installed:

```
/etc/init.d/twist stop
```

```
/etc/init.d/spin stop
```

On the server where the Model Repository is installed:

```
/etc/init.d/vaultdaemon stop
```

– On the server where the Software Repository is installed:

```
/etc/init.d/mmworddaemon stop
```

2. If DCI is installed in the destination core, stop DCI by performing these steps:

   a. Log on to the DCI server.

   b. From the Start ➤ Control Panel ➤ Administrative tools ➤ Services, right click on Crystal Report Application Server and select Stop.

   c. Right click on World Wide Web Publishing Service and select Stop.

3. On the server running the Opsware Model Repository (truth), upgrade the Model Repository (truth), Multimaster Additions. Start the Opsware Installer upgrade script and select the Model Repository (truth), Multimaster Additions component.

   See “About Running the Opsware Installer Upgrade Script” on page 1 for the commands to run the Opsware Installer upgrade script.

   While you upgrade the Model Repository, you might be prompted to confirm the Opsware System configuration values. See “Details: Upgrading the Model Repository” on page 16.

   When you perform this step, the Opsware Installer upgrades the Model Repository database schema and data to Opsware System 4.7.

4. On the servers running the Data Access Engine, upgrade the Data Access Engine (spin). Start the Opsware Installer upgrade script and select the Data Access Engine (spin), Multimaster Component.

5. On the server running the Command Engine, upgrade the Command Engine (way). Start the Opsware Installer upgrade script and select the Command Engine (way), Multimaster Component.

6. On the server running the Model Repository, upgrade the Multimaster Infrastructure Component (vault). Start the Opsware Installer upgrade script and select the Multimaster Infrastructure Component.

7. In the **source** core, upgrade the rest of the components. You must upgrade each component separately by running a separate invocation of the Opsware Installer upgrade script. The Opsware Installer upgrade script displays a list of components that you can choose to upgrade. The list only contains components that have actually been installed on the server where you are running the script.

   You must upgrade the Opsware components in the core in the following order:

   1. Access & Authentication Directory (cast)

The Opsware Installer does not preserve any customizations made to the configuration files for the Access & Authentication Directory. If you have made changes to these files, which are located in `/cust/usr/netscape/server4/slapd-cast/config`, you will need to apply those changes again after the upgrade is complete.

   2. Software Repository (word), Multimaster Component
   3. Opsware Command Center (occ), Multimaster Component
   4. OS Provisioning Build Scripts
   5. OS Provisioning Boot Server
   6. OS Provisioning Media Server

3. In *each* **destination** core, upgrade the rest of the components. You must upgrade each component separately by running a separate invocation of the Opsware Installer upgrade script.

Do *not* upgrade components at the same time in different cores (especially the Software Repository and the Command Engine), because the same data might end up modified at the same time in different cores causing multimaster conflicts.

   The Opsware Installer upgrade script displays a list of components that you can choose to upgrade. The list only contains components that have actually been installed on the server where you are running the script.

   You must upgrade the Opsware components in the core in the following order:

   1. Data Access Engine (spin), Multimaster Component

2. Command Engine (way), Multimaster Component
3. Access & Authentication Directory (cast)

The mesh might have only one Access & Authentication Directory. If it has already been upgraded to Opsware System 4.7, you do not need to upgrade it again.

Before you upgrade the Software Repository, stop the Software Repository Replicator by entering the following command on the server where the Software Repository is installed:

```
/etc/init.d/replicator stop
```

4. Software Repository (word), Multimaster Component

   After upgrading the Software Repository, restart the Software Repository Replicator by entering the following command:

   ```
   /etc/init.d/replicator start
   ```

5. Opsware Command Center (occ), Multimaster Component
6. OS Provisioning Build Scripts
7. OS Provisioning Boot Server
8. OS Provisioning Media Server

4 In every core you upgrade, the server where the OS Provisioning Boot Server is running, restart dhcp by entering the following commands:

```
/etc/init.d/dhcpd stop
```

```
/etc/init.d/dhcpd start
```

5 In each core where DCI is installed, start DCI by performing these steps:

1. Log on to the DCI server.
2. From the Start ➤ Control Panel ➤ Administrative tools ➤ Services, right click on Crystal Report Application Server and select Start.
3. Right click on World Wide Web Publishing Service and select Start.

6 On the server running the Data Access Engine, restart the Data Access Engine by entering the following commands as root:


```
/etc/init.d/spin stop
/etc/init.d/spin start
```

If you upgrade the Software Repository more than an hour after upgrading the Data Access Engine, you will need to restart the Data Access Engine. If you do *not* restart the Data Access Engine at this point, you will encounter an error when running the Opsware System Diagnosis tool (as directed by step 9 in this procedure). The error will resolve itself when a Communication Test runs.

7. In each core on the server where you installed the OS Provisioning Boot Server, replace the `dhcpd.conf` file that you copied during the upgrade preparation steps.
8. Verify that the Opsware System core upgraded successfully. Log in to the Opsware Command Center as an Opsware administrator and run the System Diagnosis tool on the core.

   See the *Opsware System 4.7 Administration Guide*, Chapter 3 “Opsware System Health” for information about running the System Diagnosis tool.
9. Verify that the multimaster mesh is functioning properly after the upgrade. Log in to the Opsware Command Center as the admin user, open the Multimaster Tools page (click Administration ➤ Multimaster Tools in the navigation panel).

   See the *Opsware System 4.7 Administration Guide*, Chapter 2 “Opsware System Administration” for information about running the Multimaster Tools.
10. After upgrading an Opsware core to Opsware System 4.7, recreate the Windows boot floppies and Linux Boot Images for your Opsware OS Provisioning Subsystem so that the floppies contain the latest version of the Windows OS Boot Agent.

    See “Creating a Windows Boot Floppy” in chapter 3 in the *Opsware System 4.7 User’s Guide* for information.

    See “Creating a Linux Boot Image” in chapter 3 in the *Opsware System 4.7 User’s Guide* for information.
11. Re-import the Red Hat Linux AS 2.1 OS media.

    See “OS Media Management” in Chapter 3 in the Opsware System 4.7 User’s Guide for the commands to import OS media.

Details: Upgrading the Model Repository

During the Model Repository upgrade, you will receive prompts and messages about any system configuration values that were changed in the Opsware System core. Review the changes and select the correct value. In most cases, you should select the recommended action.

For example, if you changed the value for the Opsware Support email address in the Help page (as documented in the *Opsware System 4.7 Installation Guide*), the following message and prompt appears while running the Opsware Installer upgrade script:

```
[INFO] Upgrading Opsware Configuration stored in the Model
Repository.

   2/3) occ owm.name.opswareadministratoremail:

   Deployed value: helpdesk@xyz.com (has been changed since
   original installation)

   New value: support@opsware.com

   Action: Keep old value (recommended)

   Enter 't' to toggle behavior or 'c' to continue. c

Summary of changes to be made:

   1) occ owm.name.opswareadministratoremail: Leave as
   helpdesk@xyz.com.

Enter 'b' to go back or 'c' to continue with the above
action(s). c

[INFO] Successfully upgraded Opsware configuration.
```

