Oracle® Enterprise Manager

System Monitoring Plug-in Installation Guide for Hosts for Dell Change Automation

Release 8 and Release 9 (1.0.4.0.0)

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This document provides a brief description about the Oracle Enterprise Manager System Monitoring Plug-in for Dell Change Automation, details on the versions the plug-in supports, prerequisites for installing the plug-in, and step-by-step instructions on how to download, install, verify, and validate the plug-in.

For information about setting the metric threshold, on the Home page for the Plug-in for Dell Change Automation, click the Metrics and Policy Settings link in the Related Links section and then access the online help.

For information about using configuration utilities, on the Home page for the Plug-in for Dell Change Automation, click any of the links in the Configuration section and then access the online help.

Description

The System Monitoring Plug-in for Dell Change Automation extends Oracle Enterprise Manager Grid Control to add support for managing Dell Change Automation Systems. By deploying the plug-in in your Grid Control environment, you gain the following management features:

- Monitor Dell Change Automation Systems.
- Gather device version information of various installed device components.
- Provide rich out-of-box reports for the user interface based on the gathered data. For details of reports, see Reports.
- Provide out of the box jobs allowing for the installation of Dell Update Packages to one or multiple servers.

Versions Supported

This plug-in supports the following versions of products:

- Enterprise Manager Grid Control 10g Release 4 or higher Management Service
- Enterprise Manager Grid Control 10g Release 4 or higher Agent on Linux
- Enterprise Manager Grid Control 10g Release 4 or higher Agent on Windows

> **Note:** The Plug-in for Dell Change Automation can be deployed on both Linux and Windows Agents.

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Prerequisites

The following prerequisites must be met before you can deploy the plug-in:

- Oracle Enterprise Manager Grid Control 10*g* Release 4 or higher system and Agent.
- Oracle Management System (OMS) version 10.2.0.4 or higher with relevant patches
- An operating system user is created, for example `oracle`

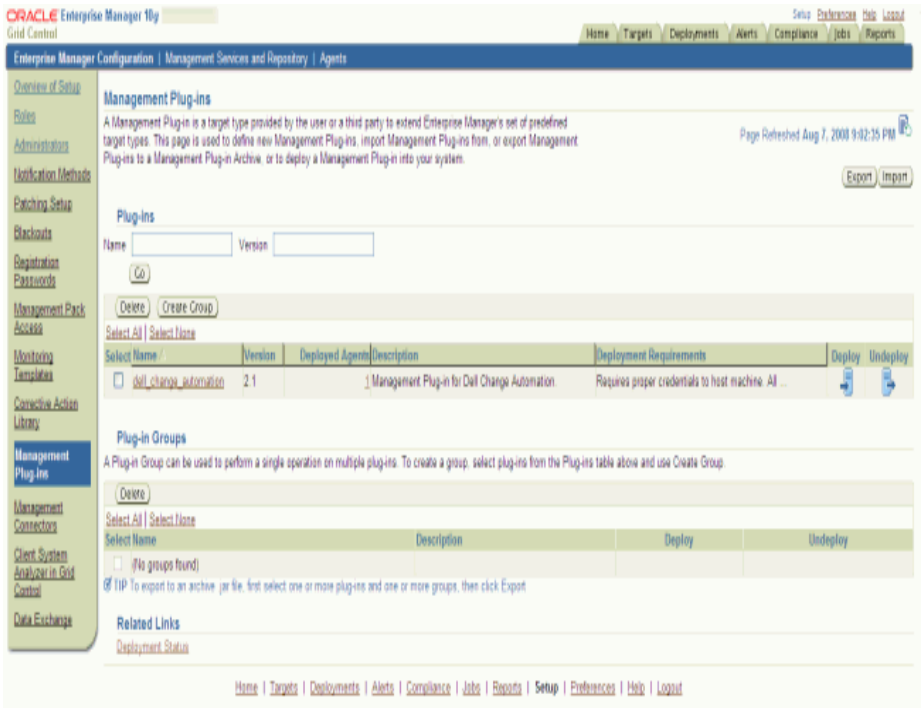
Deploying the Plug-in

After you ensure that the prerequisites are met, follow these steps to deploy the plug-in:

1. Download the Plug-in for Dell Change Automation archive to your desktop or computer on which the browser is launched. You can download the archive from the Oracle Technology Network (OTN).
2. Log in to Enterprise Manager Grid Control as a Super Administrator.
3. Click the **Setup** link in the upper right corner of the Grid Control Home page, then click the **Management Plug-ins** link on the left side of the Setup page.

   Figure 1 shows the Management Plug-ins page.

Figure 1 Management Plug-ins Deployment Page



4. Click **Import**.
5. Click **Browse** and select the plug-in archive.

6. Click **List Archive**, which lists the plug-ins from the selected archive.
7. Select the plug-in and click **OK**.
8. Verify that you have set preferred credentials on all Agents where you want to deploy the plug-in.
9. In the Management Plug-ins page, click the icon in the **Deploy** column for Plug-in for Dell Change Automation. The Deploy Management Plug-in wizard appears.
10. Click **Add Agents**, then select one or more Agents to which you want to deploy the plug-in. The wizard reappears and displays the Agent you selected.
11. Click **Next**, then click **Finish.**

    If you see an error message stating that the preferred credential is not set up, go to the Preferences page and add the preferred credentials for the Agent target type.

Adding Instances for Monitoring

After successfully deploying the plug-in, follow these steps to add the plug-in target to Grid Control for central monitoring and management:

1. From the Agent home page where the Plug-in for Dell Change Automation was deployed, select the **Dell Change Automation** target type from the **Add** drop-down list, then click **Go**.

   The Add Dell Change Automation page appears as shown in Figure 2.

Figure 2 Configuration Properties Page

2. Provide the following information for the parameters:
   - **Name** — Name for the plug-in instance

Setting the Dell Change Automation Preferred Credentials

Dell Change Automation jobs require root privilege to execute the Dell Update Package or Inventory Collector. The Plug-in for Dell Change Automation allows submitted jobs to execute with preferred credentials, which can be established on the Preferences page. Following are the two types of credentials:

- Default Credentials: These credentials use the user name as defined in the sudoers file for nmosudo access. For details, see Adding Sudo Privilege Delegation Provider (PDP) support (Linux only). The **Run as** value must be set to root, and the **Run Privilege** set to Sudo from the drop down list.
- Target Credentials: These credentials use the user name as defined in the suderos file nmosudo access. For details, see Adding Sudo Privilege Delegation Provider (PDP) support (Linux only). The **Run as** value must be set to root.

Prerequisites for Running a Job

These steps are need before running any job within the Plug-in for Dell Change Automation:

Creating Central Repository Table

> **Note:** The dca_config.sql file can be found on the agent after deployment at `<agent_home>sysman/admin/scripts/emx/dell_change_automation`.

Plug-in for Dell Change Automation requires the use of a central repository to hold the `Catalog xml` file, Inventory Collector binaries, and the Dell Update Packages. When you execute the jobs supported by this plug-in, the table is queried to determine the location where OMS can locate the files. The files are automatically copied from the directory to the Dell Change Automation targets indicated in the job.

For Release 9, the central repository location is defaulted to `C:\Temp` for Windows and `/tmp` for Linux. To change the default location, run the `dca_config.sql` file using sysman account. It is advisable that security conscious customers change the default location.

Adding Sudo Privilege Delegation Provider (PDP) support (Linux only)

Setup of sudo PDP and nmosudo is a multi-step process that requires issuing `emcli` commands against the agents and modification of the agents sudoers file. Following is an overview of sudo PDP and use of nmosudo followed by specific details on installation.

Enterprise Manager uses a trust-based model that permits specification of responsibilities with a high degree of granularity. Administrators can set up sudo configuration entries to assign specific Enterprise Manager functional privileges to their OS users. A new executable has been introduced in the Management Agent called `nmosudo`. Administrators will be able to configure sudo such that a less privileged user can run nmosudo as a more privileged user.

In the following example, if an administrator wants user `oracle` to run any Enterprise Manager job as user `root`, the corresponding entry in the `/etc/sudoers` file would be:

```
(DCA_INVCOL_USERS) ALL : (RUNAS_USERS) AGENT_HOME/bin/nmosudo *
```

Where `oracle` would be in the `DCA_INVCOL_USERS` list and `root` would be in the `RUNAS_USERS` list.

Enterprise Manager will guarantee that the `nmosudo` executable will only honor requests to run remote operation requests from the OMS via the Agent. The `nmosudo` executable will not run the remote operation if it cannot validate that the request came from the Agent. Thus, as shown in the example above, it will not be possible for user `oracle` to invoke nmosudo directly from the command line and run a Perl script as user `root`.

Note: To ensure system security, the administrator must provide the full path to the `nmosudo` executable.

On Linux, Dell requires the root privilege to execute the inventory collector and to apply a Dell Update Package. The Plug-in for Dell Change Automation jobs are marked as trusted and use SUDO PDP to elevate the user to root privilege.

Note: After deployment of Dell Change Automation, you should establish the preferred credentials for the Dell Change Automation target type.

Dell Update Packages may require access to commands that are not in the users path. Contact Dell to provide a list of commands executed by the Package.

For example, Dell Update Packages uses the shutdown command when using the Auto Reboot option. The shutdown command, and therefore the reboot of the server, will fail if the system is unable to locate the command in the users PATH environment.

Installing PDP

To install PDP, configure sudo PDP through emcli.

Note: Execution of the `emcli` command is done on the OMS server.

On the Enterprise Manager Grid Console, execute step 1, 2, and 3 to provide access to emcli utility and configure the PDP. The emcli utility must be at version 10.2.0.4 or higher. You can use the `-setup` option to determine the current version.

1. Setup emcli and verify version using the following command:

```
export ORACLE_HOME=<console omslocation>
export JAVA_HOME=$ORACLE_HOME/jdk
cd $ORACLE_HOME/bin
./emcli -setup
```

2. Create the privilege delegation setting:

   Replace <full_path_sudo_location> with the directory and name of sudo on your system. This is the location on the agents. Use the command which sudo to determine location on the AGENT. If all agents contain the same location for sudo, you need to create the following only once.

   ```
   ./emcli create_privilege_delegation_setting
   -setting_name=sudo_1 -setting_type=SUDO
   -settings="SETTINGS:<full_path_sudo_location> -S -u %RUNAS% %command%"
   ```

   For example, when all agents have the same location for sudo:

   Execute which sudo on any target agent:

   ```
   /user/bin/sudo (output from which command on agent1)
   ```

   Execute emcli on OMS:

   ```
   ./emcli create_privilege_delegation_setting
   -setting_name=sudo_1
   -setting_type=SUDO
   -settings="SETTINGS:/usr/bin/sudo -S -u %RUNAS% %command%"
   ```

3. Assign the PDP to the agent. You can apply the setting name defined in Step 2 to one or multiple agents. Target hostnames are separated by a semicolon. For the next command, replace <agent_hostname1;agent_hostname2> with the target hostnames.

   ```
   ./emcli apply_privilege_delegation_setting
   -setting_name=sudo_1
   -target_type=host
   -target_names="<agent_hostname1;agent_hostname2>"
   ```

   For example, (where dellsrv1 and dellsrv2 are Dell servers):

   ```
   ./emcli apply_privilege_delegation_setting
   -setting_name=sudo_1
   -target_type=host
   -target_names="dellsrv1;dellsrv2"
   ```

4. Modify sudoers file on each agent: This is done on the target agent, not OMS and must be done for all agents being targeted for the Plug-in for Dell Change Automation, The user name provided in this command must match the preferred credentials user name set up earlier.

   Add the following to the sudoers file. Use visudo to modify the sudoers file:

   ```
   oracle  ALL=    <ORACLE_AGENT_HOME>/bin/nmosudo *
   ```

Downloading the latest Catalog.xml and invCol binaries from ftp.dell.com

Before the Plug-in for Dell Change Automation can collect inventory data, you must download the Catalog.xml and the inventory collector binary. Dell stores the latest versions of the Catalog and inventory collection binary on its ftp site http://ftp.dell.com/. The Catalog.cab file contains the compressed Catalog.xml and can be found in the Catalog directory under the ftp's root directory.

Note: The `Catalog.cab` file can be uncompressed on a Window system.

Dell also provides the latest version of the inventory collector within the directory cmsdk under the ftp's root directory, the inventory collector is provide in the following formats:

- `invCol_RNNNNNN.exe` for Windows
- `invcol_RNNNNNN` for Linux

You should download the latest version based on the date time stamp of the file. Use the `ls -lt` command to display the files in ascending order.

The inventory file must be renamed to `invCol.exe` for Windows and `invCol` for Linux and copied to the `<dca_home>` directory.

```
chown -R oracle:oinstall /dell
```

For Windows, the files must be named `Catalog.xml` and `invCol.exe`. For Linux, the files must be named `Catalog.xml` and `invCol`.

Note: All filename are case-sensitive.

Executing the Dell Push Catalog.xml invCol Job

After you have placed the files in the <dca_home> directory, select the **Jobs** tab and then select **Dell Push Catalog.xml invCol** from the Create Job drop down selection list and click **Go**. In the General section, use any name to define the job and select **Add**. In the Targets section, select the Dell Change Automation host and then click **Select**. Once the files are transferred to the target, you will need to execute the Dell Inventory Job.

Note: You can select multiple targets for a job.

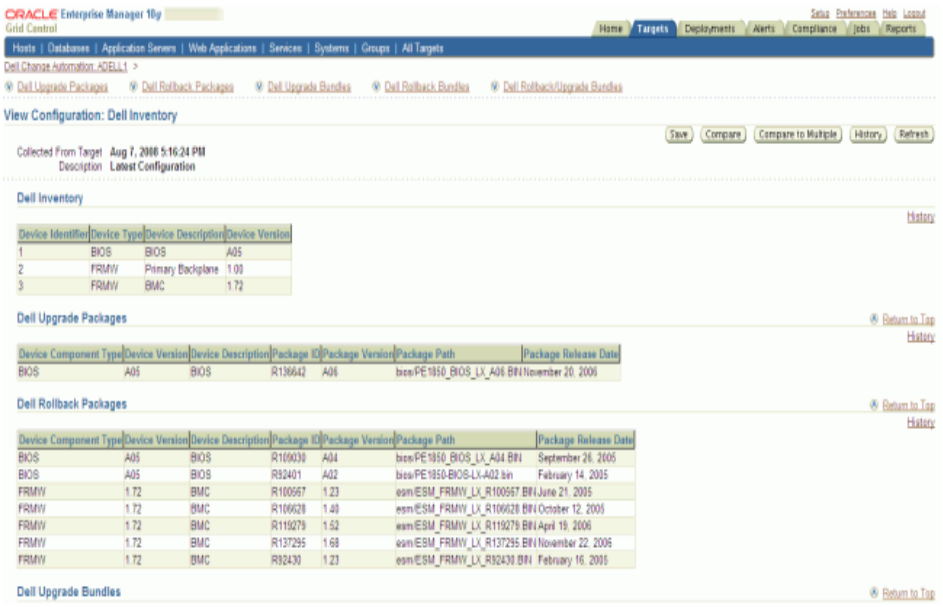
Executing the Dell Inventory Collector Job

After you have transferred the files to the targets, select the **Jobs** tab and then select Dell Inventory Collector from the **Create Job** drop down selection list and click **Go**. In the General section, use any name to define the job and click **Add**. In the Targets section, select the Dell Change Automation host and click **Select**.

Collecting Data for Reports and Views

Select the View Configuration link on the Dell Change Automation Home page and then click **Refresh** for data collection to occur from the inventory generated.

Figure 3 Dell Inventory



Note: You can view individual reports by selecting the Reports link in the Dell Change Automation page.

Downloading Dell Update Package (DUP)

The Dell Apply Package and Dell Apply Bundle jobs of the Plug-in for Dell Change Automation apply one or more packages to the server. In order to apply, the DUP must be downloaded and stored in the `<dca_home>` directory defined in the prerequisite step. The package directory and name must mirror the value located in the `Package Path` column.

Note: On Windows, substitute the path separator "\" for Linux path separator "/".

For example, a PowerEgde 1850 Server running the Dell Change Automation Plug-in lists the current BIOS, A05, as applicable for upgrade to BIOS version A06, using package ID R136642. The package is listed with the “Package Path” of bios/PE1850_BIOS_LX_A06.BIN.

To apply this package, execute the following steps:

1. Create the directory `bios` under the directory `<dca_home>`.

```
cd <dca_home>
mkdir bios
```

2. Download the bios from Dell’s FTP site:

```
ftp ftp.dell.com
cd bios
binary
get PE1850_BIOS_LX_A06.BIN
```

3. Copy or download the binary into the directory `<dca_home>/bios`.
4. Execute the Dell Apply Package or Dell Apply Bundle job. For more information about these jobs, see Creating and Editing Jobs.

Creating and Editing Jobs

To create and edit jobs, follow these steps:

1. In Grid Control, click the **Jobs** tab. Grid Control displays the Job Activity page.
2. Select a job type from the Create Job menu and click **Go**. The following jobs are defined as part of the Plug-in for Dell Change Automation:
   - Dell Push Catalog.xml invCol
   - Dell Inventory Collector
   - Dell Apply Package
   - Dell Apply Bundle

   Note: If you want to edit a job, then select an existing job from the list and click **Edit**.
3. In the **General** tab of the Create <Job Type> Job page, provide a name for the job and add the individual targets or one composite target such as a Group.

   Note: If you are editing a job, then modify the job name and the selected targets.
4. In the **Parameters** tab of the Create <Job Type> Job page, from the Options menu, select an appropriate option to make the job function accordingly when it starts.

   You can select one of these options:

Table 1 Jobs and Available Parameters

Job Name	Available Parameters
Dell Push Catalog.xml invCol	None
Dell Inventory Collector	None
Dell Apply Package	Check (Drop down selection) - Apply Package (Default) - Check Package Selecting the Check Package, will validate the package is applicable for the server. The Package is NOT applied with the option, only validated

Table 1 (Cont.) Jobs and Available Parameters

Job Name	Available Parameters
	Force (Drop down selection) - Do not allow downgrade Package (Default) - Allow downgrade If the package to be applied will downgrade the device, select this option to allow the downgrade. Package ID to Apply (Text Field) Enter one or multiple packages. A colon separates multiple packages. Packages can be upgrade or rollback packages or a mix of both. If any package is a rollback package, the Force Option must set to "Allow Downgrade" to allow the downgrade. Reboot - Manual Reboot (Default) - Auto Reboot If the package to be applied needs a reboot to complete the installation, selecting Auto Reboot will cause the package to automatically reboot the server. Note: If the package does not require a reboot, no reboot is initiated.
Dell Apply Bundle	Check (Drop down selection) - Apply Package (Default) - Check Package Selecting Check Package will validate that the package is applicable for the server. The Package is NOT applied with the option, only validated Force (Drop down selection) - Do not allow downgrade Package (Default) - Allow downgrade If the package to be applied will downgrade the device, select this option to allow the downgrade. Reboot - Manual Reboot (Default) - Auto Reboot If the package to be applied needs a reboot to complete the installation, selecting Auto Reboot will cause the package to automatically reboot the server. Note: If the package does not require a reboot, no reboot is initiated. Bundle ID to Apply (Text Field) Enter one Bundle to apply. A Bundle may contain one or more packages that can be upgrade or rollback packages or a mix of both. If any package, within the bundle, is a rollback package, the Force Option must set to "Allow Downgrade" to allow the downgrade.

5. In the **Credentials** tab of the Create <Job Type> Job page, select an appropriate option for credentials. You can choose to use the preferred

credentials that are already set or override the preferred credentials with new credentials. In either case, you need to provide the credentials for target.

To set the preferred credentials, click **Preferences** at the top-right corner of the Grid Control console. From the left-vertical navigation bar, click **Preferred Credentials**. Grid Control displays the Preferred Credentials page. On this page, you can set the preferred credentials.

6. In the **Schedule** tab of the Create <Job Type> Job page, schedule the job.
7. In the **Access** tab of the Create <Job Type> Job page, define or modify the access you want other users to have to this job.
8. Click **Submit** to create the job.

Reports

The Plug-in for Dell Change Automation is predefined with a total of six reports.

From the Dell Change Automation home page, select **Reports**.

Figure 4 Reports Tab

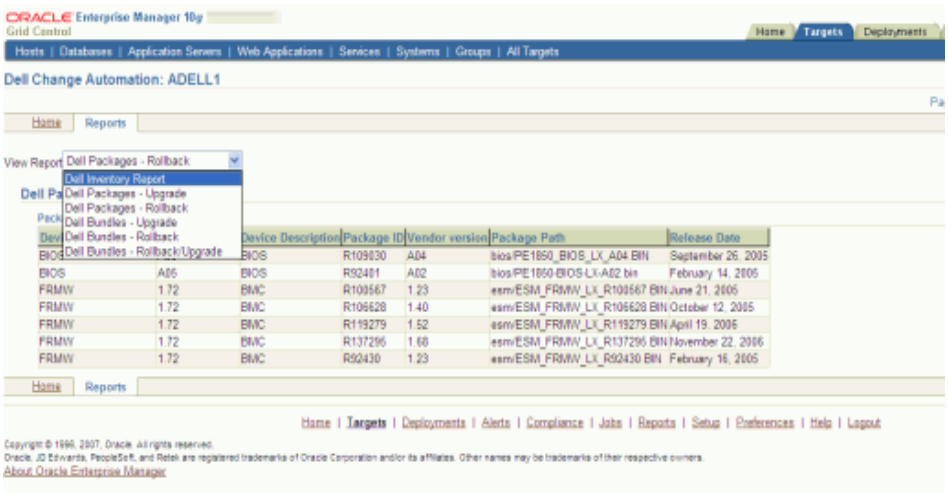


Table 2 lists the reports and their descriptions:

Table 2 Reports

Report	Description
Dell Inventory	Lists the current inventory for the system.
Dell Packages – Upgrade	Lists UPGRADE updates available from Dell which can be applied to the devices on your system.
Dell Packages – Rollback	Lists the ROLLBACK updates available from Dell which can be applied to the devices on your systems.

Table 2 (Cont.) Reports

Report	Description
Dell Bundles – Upgrade	Lists UPGRADE bundles from Dell that can be applied to the system. (The list will only contain the devices on your system that are eligible for upgrade as part of the bundle. The bundle may target other devices, but those updates will not be listed since you system does not contain that device.) (All Dell Updates in the bundle will cause an upgrade on the devices you currently have)
Dell Bundles – Rollback	Lists ROLLBACK bundles from Dell that can be applied to the system. (The list will only contain the devices on your system that are eligible for rollback as part of the bundle. The bundle may target other devices, but those updates will not be listed since you system does not contain that device.) (All Dell Updates in the bundle will cause a rollback on the devices you currently have)
Dell Bundles – Upgrade/Rollback	Lists bundles (containing UPGRADES and ROLLBACKS) from Dell that can be applied to the system. (The list will only contain the devices on your system that are eligible for upgrade/rollback as part of the bundle. The bundle may target other devices, but those updates will not be listed since you system does not contain that device.) (Some Dell Updates in the bundle will cause an upgrade on the devices you currently have and other Dell Updates in the bundle will cause a rollback on the devices you currently have)

Undeploying the Plug-in

Follow these steps to undeploy the plug-in from an Agent:

1. Log in to Enterprise Manager Grid Control as a Super Administrator.
2. Select the **Targets** tab, then the **All Targets** subtab. The All Targets page appears.
3. Select the Plug-in for Dell Change Automation target and click **Remove**. You must do this step for all targets of the plug-in.
4. Make sure that the preferred credentials are set on the Agents where the plug-in was deployed.
5. Click the **Setup** link in the upper right corner of the All Targets page, then click the **Management Plug-ins** link on the left side of the Setup page.

   The Management Plug-ins page appears.
6. Click the icon in the **Undeploy** column for the Plug-in for Dell Change Automation.

   The Undeploy Management Plug-in page appears.
7. Check all the Agents that are currently deployed with the Plug-in for Dell Change Automation and click **OK**.

   You must undeploy the plug-in from every Agent in the system to completely remove it from the enterprise.
8. Select the Plug-in for Dell Change Automation on the Management Plug-ins page and click **Delete**.

Troubleshooting Scenarios

To resolve various issues that you might encounter while using the plug-in, see the *Oracle Enterprise Manager System Monitoring Plug-in Troubleshooting Guide* available at the following URL:

http://www.oracle.com/technology/documentation/oem.html

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