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# Updating Dell Servers by Integrating SUU/DUP with Microsoft Windows Server 2012 Cluster Aware Update

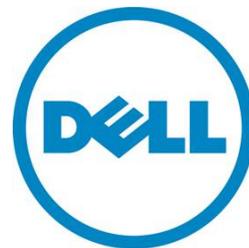
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*This white paper is a guide for integrating Dell firmware and driver updates using the Dell Server Update Utility (SUU)/Dell Update Package (DUP) for Microsoft Windows Server 2012 based cluster without affecting the availability of cluster in conjunction with Microsoft Hotfix Plug-in.*

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## Executive Summary

This white paper describes the process of updating the Microsoft Windows Server 2012 clustered Dell servers using Dell Server Update Utility (SUU)/Dell Update Package (DUP) by integrating with Microsoft Hotfix Plug-in.

This document explains the process to update Dell Server firmware and driver in a cluster without affecting the availability of cluster. Using Cluster Aware Update (CAU), the IT administrator can keep the Dell servers up to date with Dell Server Update or individual Dell Update Package.

## Introduction

IT Administrators face many challenges today updating the cluster. It requires multiple manual steps with associated planned failover and failback of clustered Roles, all during a short maintenance window of time. This process is highly error-prone and increases the risk of unplanned service outages.

Cluster Aware Update (CAU) is a feature in Microsoft Windows Server 2012 that coordinates software updates on all servers in a failover cluster in a way that does not impact the service availability. This white paper explains how an IT Administrator can update Dell Server firmware and driver using Dell Server Update Utility (SUU)/Dell Update Package (DUP) by integrating with Microsoft Hotfix plug-in.

## Prerequisites

To take advantage of Cluster Aware Update, the following pre-requisites must be met:

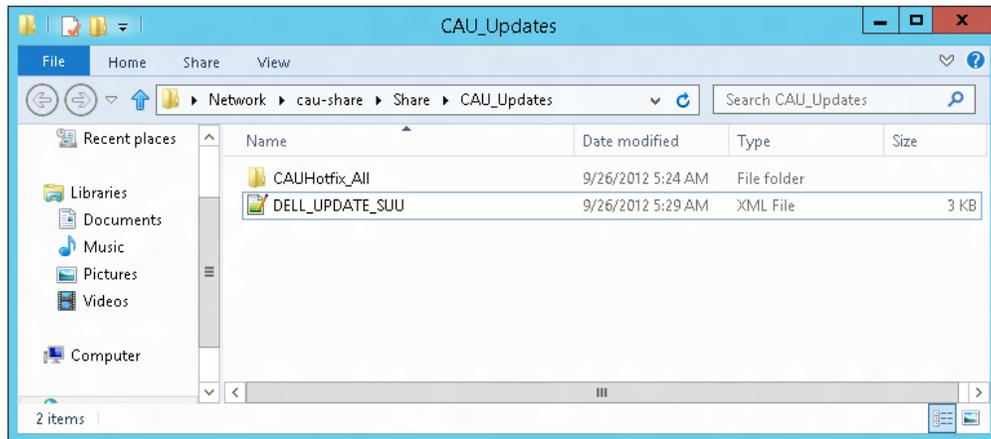
- Cluster with Microsoft Windows Server 2012 available.
- Failover Clustering feature must be enabled on all nodes.
- All servers in the cluster must be in the same Active Directory domain.
- Latest Dell Server Update Utility (SUU) DVD must be downloaded from Dell Support Site.
- XML Configuration files for SUU and DUP. The XML files are available on the Dell Support Site.

## Configuring CAU to update Dell servers using Dell Server Update Utility (SUU)

To update the cluster nodes using SUU:

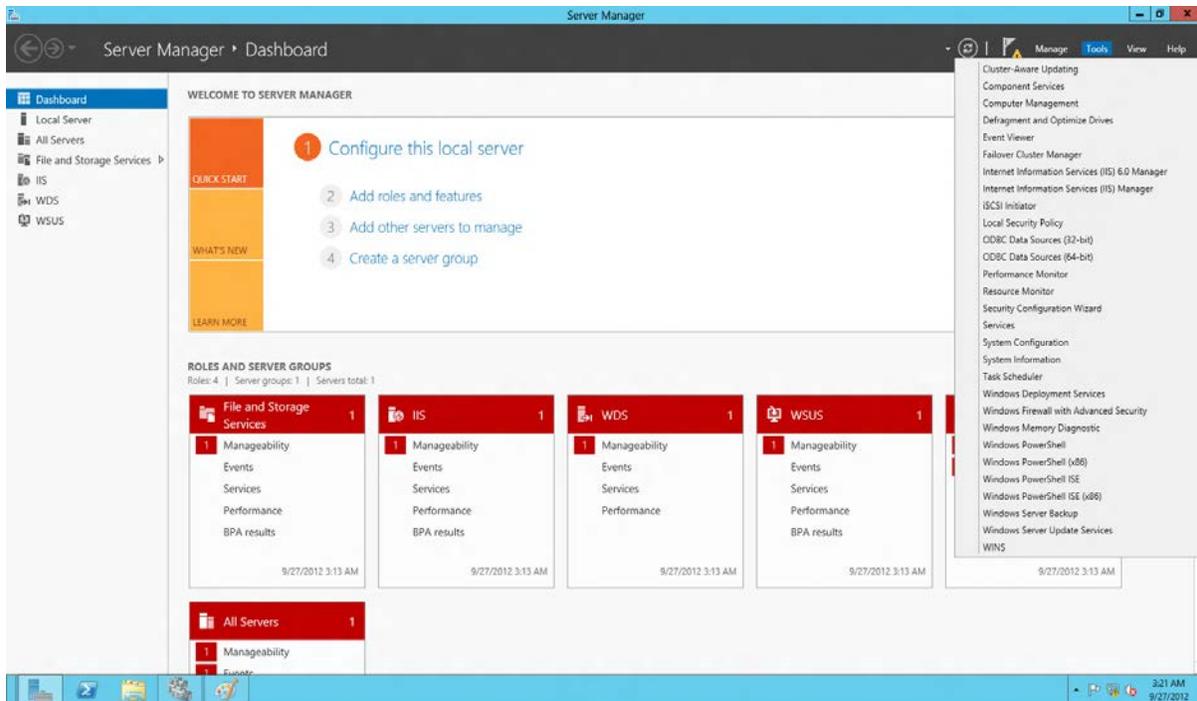
1. Create a shared folder outside the cluster that is accessible to all nodes in the cluster. For example, `\\cau-share\Share\CAU_Updates`
2. Copy the SUU XML configuration file `DELL_UPDATE_SUU.xml` in the shared folder `\\cau-share\Share\CAU_Updates`
3. Create a `CAUHotFix_All` folder under the shared folder. Extract SUU DVD and copy the contents into this folder.

Figure 1. SUU Shared folder location



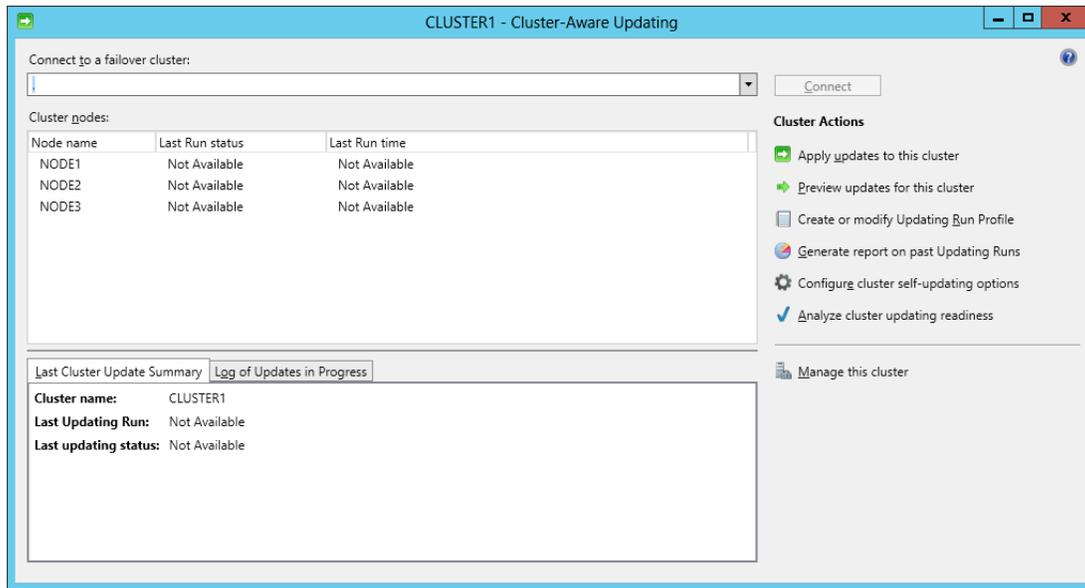
4. Launch CAU through Server Manager and click Cluster-Aware Updating in Tools.

Figure 2. Server Manager



5. In the Cluster-Aware Updating window, enter the cluster name or "." (Dot) for current cluster and then click connect. All the nodes connected to this cluster will be shown.

Figure 3. Cluster Aware Updating



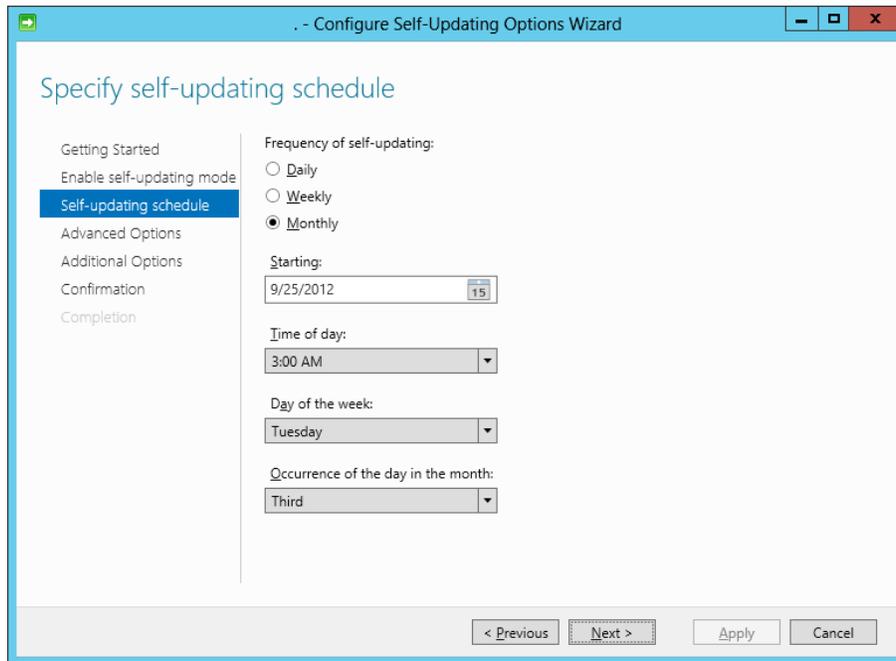
6. Click on **Configure Cluster self-updating Options** under Cluster Actions.
7. Enable the *Self-updating mode* and select the frequency of Self-updating.

**Note:** When scheduling an update, make sure the latest SUU build is available before the scheduled time of update. You can download the SUU build from support.dell.com or you can build a custom SUU using Dell Repository Manager.

For more information on building a custom SUU build using Dell Repository Manager, go to:

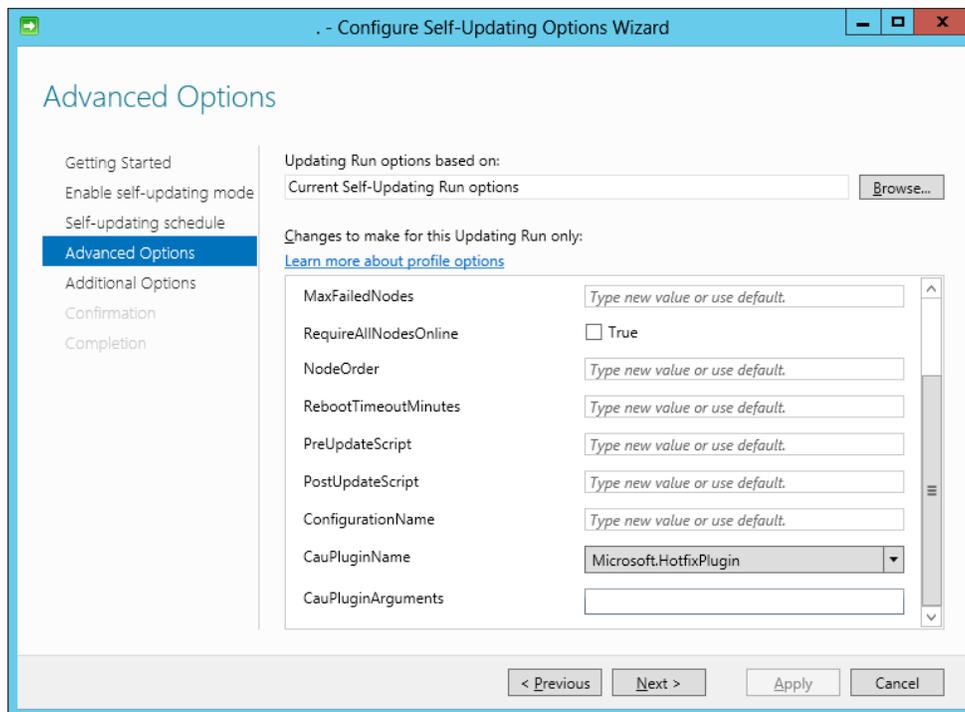
<http://en.community.dell.com/techcenter/m/videos/20117547.aspx>

Figure 4. Self-updating schedule



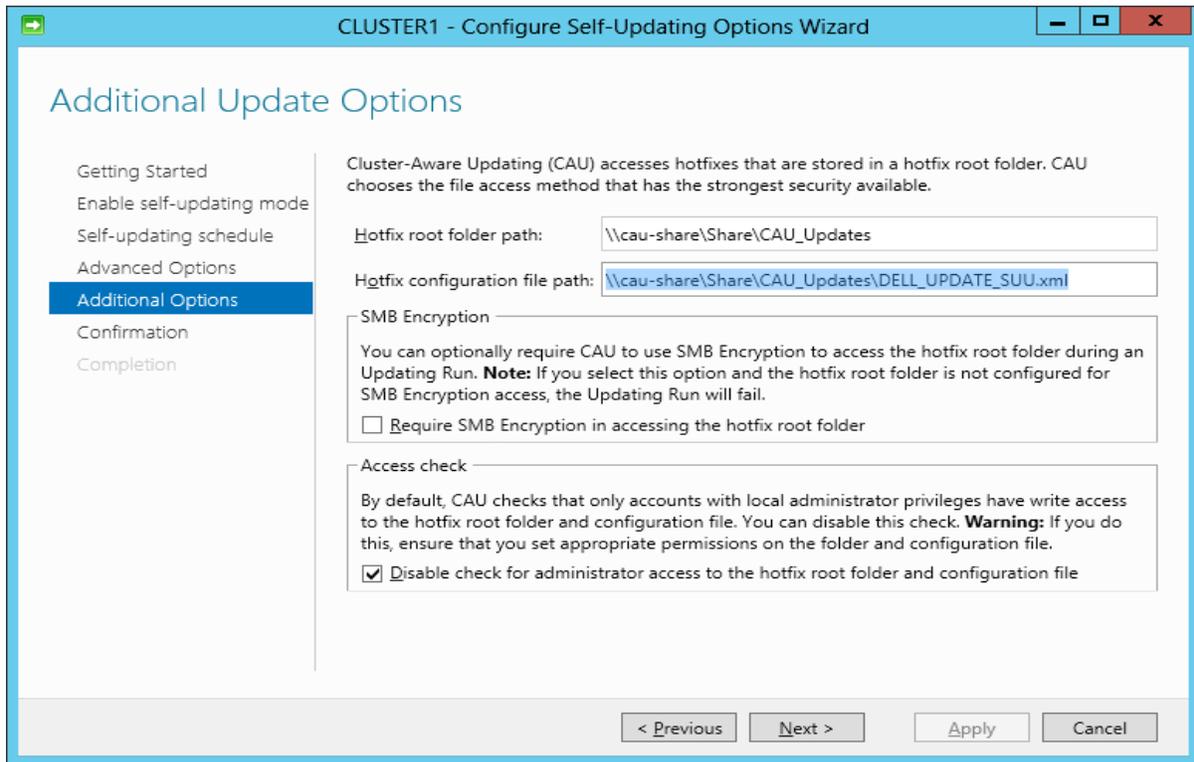
8. In the Advanced Options, select *Microsoft.hotfixplugin* for CauPluginName. Specify other options as required.

Figure 5. Configuring Self-updating Advanced Options



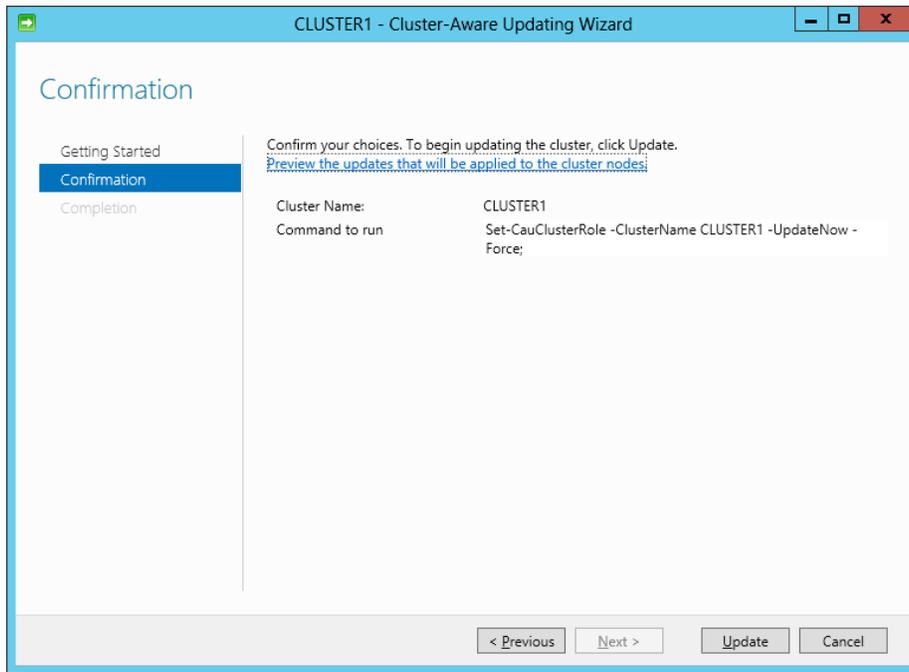
9. In the Advanced Options, indicate the Hotfix root folder path created in Step 1 and DELL\_UPDATE\_SUU.xml Hotfix configuration file path.

Figure 6. Configuring SUU Self-updating Additional Options



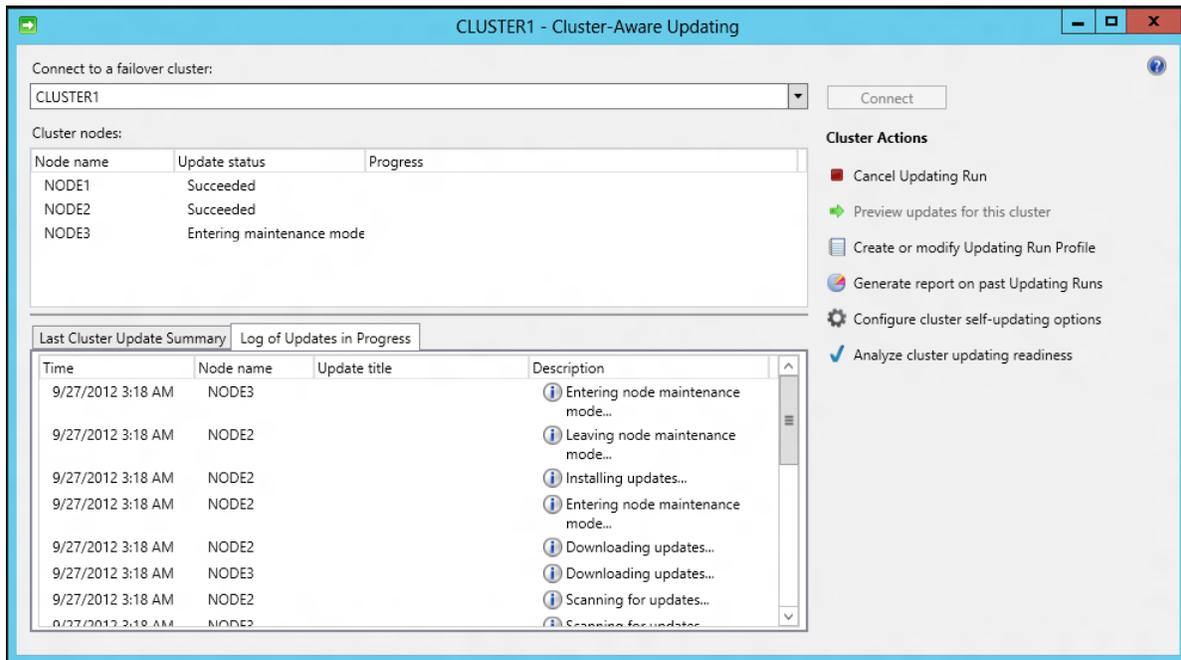
10. Click **Apply** in the confirmation option and then close the window.
11. Click on **Apply update to this cluster** under *Cluster Actions*.
12. In the *Cluster-Aware Updating Wizard*, go to the Confirmation wizard, click **Update** and then close the Cluster-Aware Updating Wizard.

Figure 7. Figure 7 Update Confirmation



The progress of the updates can be checked from any node in a cluster.

Figure 8. Preview Updates



## Dell Server Update Utility (SUU) XML Configuration

You can edit the DELL\_UPDATE\_SUU.xml configuration file and change the CLI parameters as required. By default, the following command with -e parameter is used.

```
<Extension name="cmd">
```

```
<Template path="%systemroot%\system32\cmd.exe" parameters="/c $update$ -e"/>
```

The above command searches for .cmd extension file. The suu.cmd with -e parameter will be executed. The \$update\$ is the suu.cmd full path name.

Advanced users can execute suu.cmd with different parameters as required. If you want to write logs on to a single location for all nodes, change the parameter as below.

```
<Template path="%systemroot%\system32\cmd.exe" parameters="/c $update$ -e -d
```

```
\\SERVERNAME\dirname\ "/>
```

The following table lists SUU CLI commands:

| CLI Command Syntax  | Command Description   |
|---------------------|---|
| -u   -update        | Upgrades/downgrades the system component.<br><br><b>NOTE:</b> The -u command performs an upgrade and downgrade of the components in your system. Components in your system that are of a higher version than the components in the repository are downgraded without prompting you for confirmation. This is not always recommended. To perform explicit upgrades or downgrades, use the -upgradeonly or -downgradeonly commands. |
| -e   -upgradeonly   | Upgrades all components whose repository versions are newer than the current versions installed on the system. You cannot upgrade individual components through the CLI. To do this, use the GUI.   |
| -n   -downgradeonly | Downgrades all the system components newer than repository components to the repository versions. SUU does not allow you to downgrade individual components.  |
| -d   -directory     | Directs the event logs to a different directory than the default location.  |

## Dell Server Update Utility (SUU) Exit Codes

The following table lists the exit codes.

| Value | Message Name            | Description  |
|-------|-------------------------|--|
| 0     | SUCCESS                 | The update was successful.   |
| -1    | FAILURE                 | The update was unsuccessful. An error occurred during the update process or admin right is required. |
| 1     | REBOOT_REQUIRED         | You must restart the system to apply the updates.  |
| 2     | OTHER_INSTANCE          | Another instance of SUU is running.  |
| 3     | RUN_AFTER_REBOOT        | First Reboot and run SUU again.  |
| 5     | UPDATE_NOT_ALLOWED      | Update is not allowed or License required.   |
| 7     | CONTINUE_ON_FAILURE     | Some DUPs successes and some DUPs failed.  |
| 8     | FAILURE_REQUIRES_REBOOT | DUPs update failed and reboot is required; first reboot system and start SUU update again.           |

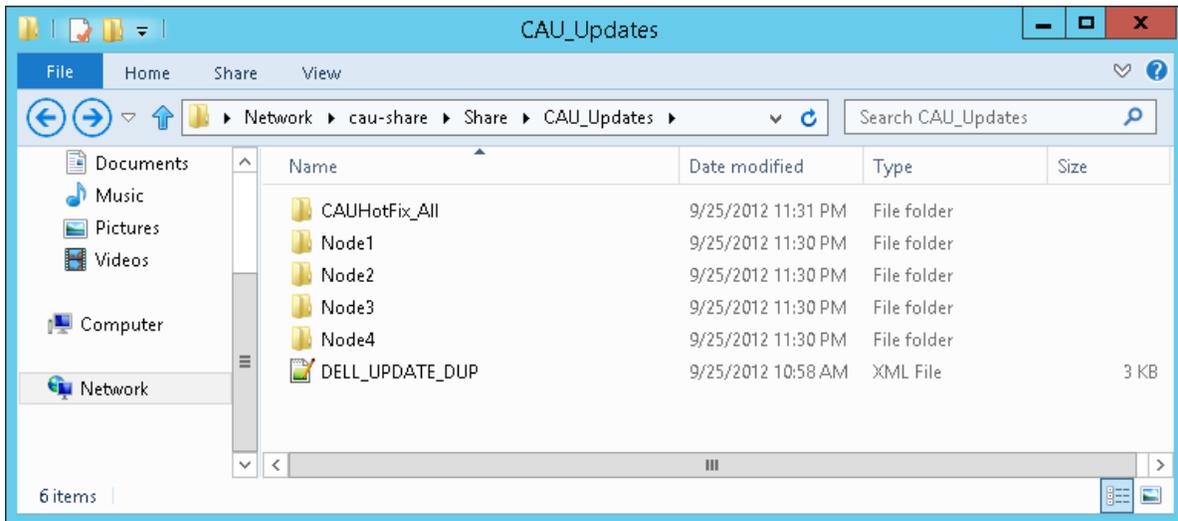
## Configure CAU to update Dell Server nodes using Dell Update Package (DUP)

To update the cluster nodes using DUP:

1. Create a shared folder outside the cluster that is accessible to all nodes in the cluster. For example, \\cau-share\Share\CAU\_Updates
2. Copy the DUP XML configuration file *DELL\_UPDATE\_DUP.xml* in the shared folder \\cau-share\Share\CAU\_Updates.
3. Create a *CAUHotfix\_All* folder in the shared folder \\cau-share\Share\CAU\_Updates.
4. Under the *CAU\_Updates* shared folder, create folders for all the nodes in the cluster and name the folder the same way as the cluster nodes. For example, Node1, Node2 and Node3 are the cluster node names.
5. Create an additional sub folder for each of the folders created with the cluster node names and the CAUHotfix\_All folder. The name of the subfolder should be *Dell-Dups-Rule1*. For example, the folder structure should be *Node1\Dell-Dups-Rule1, CAUHotfix\_All\Dell-DUPS-Rule1*.

**Note:** The name of the subfolder should be the same as the name in the configuration XML file. The name given in the configuration XML file is *Dell-DUPS-Rule1*.

Figure 9. DUP Shared folder location



6. For the DUPs that are common for all the nodes in a cluster, copy them in *CAUHotfix\_All\Dell-DUPS-Rule1*. For DUPs specific to the nodes in a cluster, copy it to the specific node. For example, copy *Dups specific to Node 1*, to *Node1\Dell-DUPS-Rule1*.

Figure 10. Common DUP location

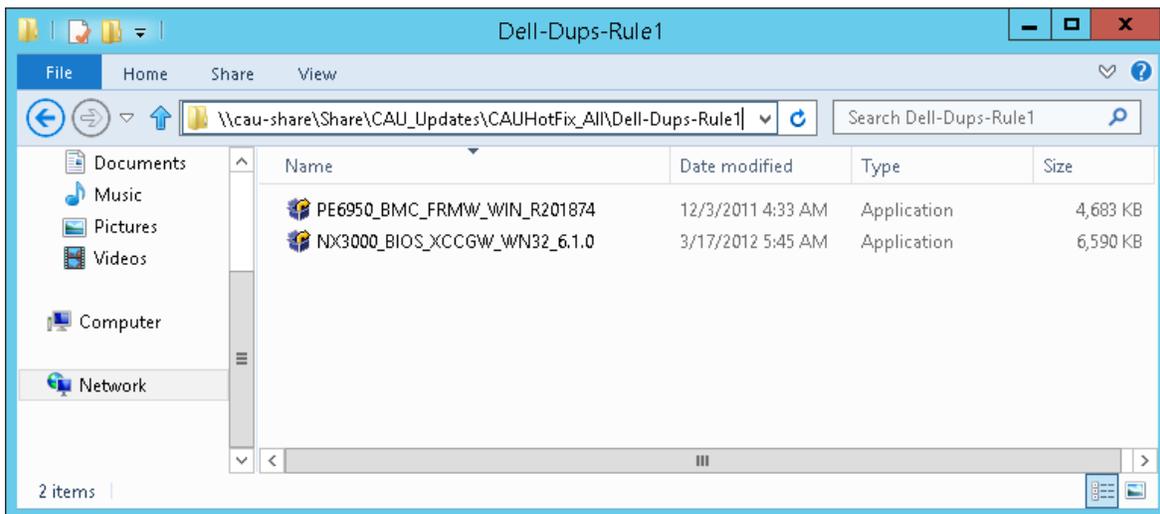
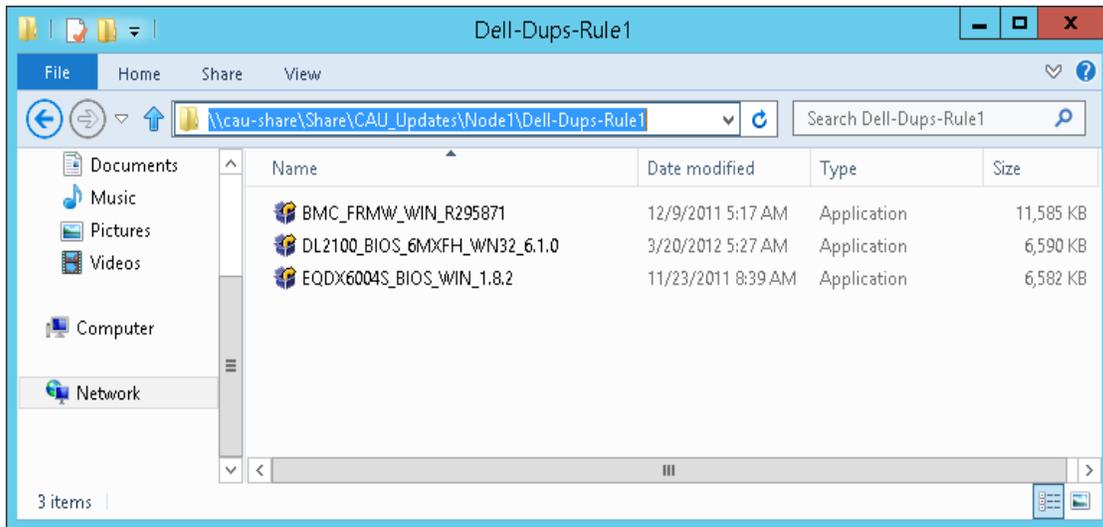


Figure 11. DUPs specific to Node location

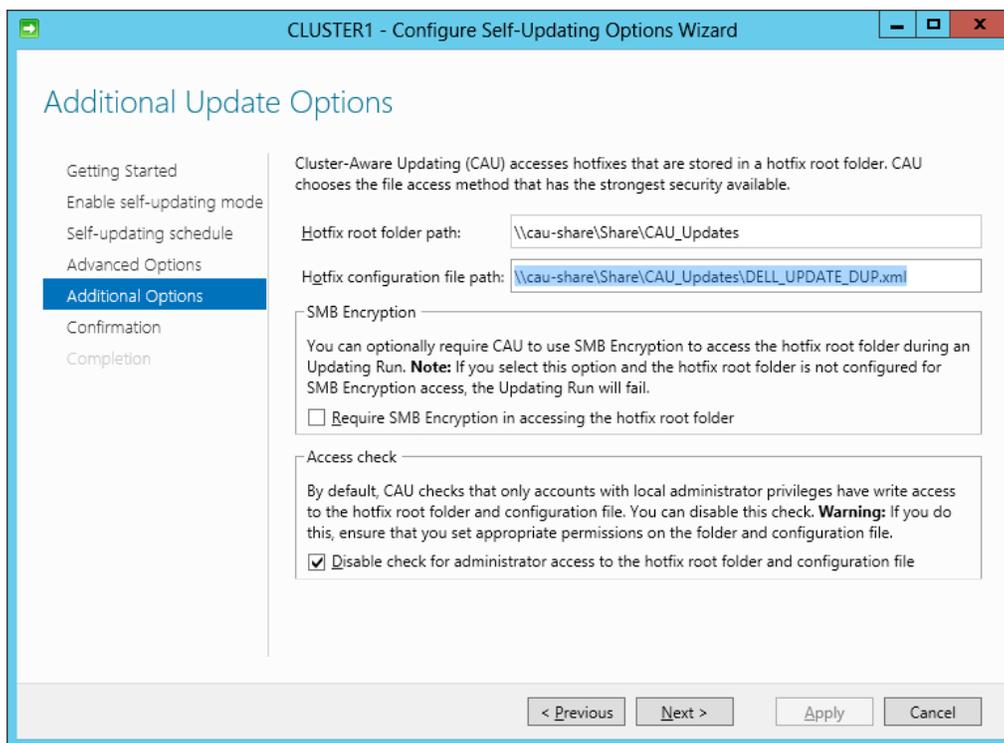


7. Launch CAU through Server Manager and click **Cluster-Aware Updating** in Tools. Refer to Figure 2 Server Manager.
8. In the *Cluster-Aware Updating* window, enter the cluster name or "." (Dot) for current cluster and click **connect**. All the nodes connected to this cluster will be shown. Refer to Figure 3 Cluster-Aware Updating.
9. Click on **Configure Cluster self-updating Options** under *Cluster Actions*.
10. Enable the self-updating mode and select the frequency of Self-updating. Refer to Figure 4 Self-updating schedule.

**Note:** When scheduling an update, make sure the latest DUP is available before the scheduled time of update. You can download the DUP from support.dell.com

11. In the Advanced Options, select *Microsoft.hotfixplugin* for CauPluginName. You can select other options as required. See Figure 5, Configuring Self-updating Advanced Options.
12. In the Additional Options, indicate the Hotfix root folder path created in Step 1 and the *DELL\_UPDATE\_DUP.xml* hotfix configuration file path.

Figure 12. Configuring DUP Self-updating Additional Options



13. Click **Apply** in the confirmation option wizard and close the window.
14. Click on **Apply update to this cluster** under *Cluster Actions*.
15. In the *Cluster-Aware Updating Wizard*, go to Confirmation wizard, click **Update** and close the Cluster-Aware Updating Wizard. Refer to Figure 9, Update Confirmation.
16. The progress of the updates can be checked from any node in a cluster. Refer to Figure 8 Preview updates.

## Dell Update Package (DUP) XML Configuration

You can edit the DELL\_UPDATE\_DUP.xml configuration file and change the CLI parameters as required. By default, the following command with /s parameter is used.

```
<Folder name="Dell-Dups-Rule1" alwaysReboot="false">
```

```
<Template path="$update$" parameters="/s "/>
```

The folder name given by default in XML configuration file is *Dell-Dups-Rule1*. The same name has to be given for the subfolders created under CAUHotfix\_All and folder with Node names. Refer to Step 5.

If the folder name is changed, the same name has to be indicated in the XML configuration file.

The *\$update\$* is DUPs full path name available in the folder *Dell-Dups-Rule1*. The DUPs are executed with the /s parameter.

Advanced users can execute different parameters as required. If you want to write logs on to a single location for all nodes, use the following command:

```
<Template path="$update$" parameters="/s
/l=\\ServerName\sharedFolder\uniqueFileName" />
```

The following table lists the DUP CLI commands:

| CLI Option                  | CLI Task Description   | Command Syntax   |
|-----------------------------|--|--|
| /e=<path><br>Extract option | <p>Extracts all files contained in the Update Package to the path you specify. If the directory specified in the path does not exist, it is created.</p> <p>If the path contains spaces, use quotation marks around the &lt;path&gt; value.</p> <p>The /s option is required with this option.</p> <p>Options /f, /c, and /r are not valid with this option.</p>                                 | <p>packagename.exe /s /e=c:\update</p> <p>packagename.exe /s /e="c:\update files"</p>        |
| /f<br>Force option          | <p>Allows reinstallation or downgrade of the software to a previous (older) version.</p> <p>The /s option is required with this option.</p> <p>Options /e and /c are not valid with this option.</p>   | <p>packagename.exe /s /f /l=c:\pkg.log</p>   |
| /l=<filename><br>Log option | <p>Appends logged messages to a specified ASCII file; creates a new file if one does not exist. If the file name contains spaces, use quotation marks around the &lt;filename&gt; value.</p> <p>The /s option is required with this option.</p>  | <p>packagename.exe /s /l=c:\pkg.log</p> <p>packagename.exe /s /l="c:\Update Log\pkg.log"</p> |
| /r<br>Reboot option         | <p>Reboots the system, if required, after performing the update. The reboot does not occur:</p> <ul style="list-style-type: none"> <li>• If the Update Package fails or is not applicable to the target system</li> <li>• If the Update Package does not require a reboot</li> </ul> <p>The /s option is required with this option.</p> <p>Options /e and /c are not valid with this option.</p> | <p>packagename.exe /s /r /l=c:\pkg.log</p>   |
| /s<br>Silent option         | <p>Executes the update silently without user intervention. When /s is not specified, the Update Package is launched in GUI (interactive) mode.</p> <p>The /s option is required when using the /e, /f, /c, /l, and /u</p>  | <p>packagename.exe /s /l=c:\pkg.log</p>  |

|                                     |   |  |
|-------------------------------------|---|--|
|                                     | options.  |  |
| /u=<filename><br>Unicode Log option | <p>Appends logged messages to a specified unicode file; creates a new file if one does not exist. If the file name contains spaces, use quotation marks around the &lt;filename&gt; value.</p> <p>The /s option is required with this option.</p> | <p>packagename.exe /s /u=c:\pkg.log</p> <p>packagename.exe /s /u="c:\Update Log\pkg.log"</p> |

## Dell Update Package (DUP) Exit Codes

The following table lists the exit codes.

| Value | Message Name     | Description   |
|-------|------------------|---|
| 0     | SUCCESS          | The update was successful.  |
| 1     | UNSUCCESSFUL     | The update was unsuccessful. An error occurred during the update process.   |
| 2     | REBOOT_REQUIRED  | You must restart the system to apply the updates.   |
| 3     | DEP_SOFT_ERROR   | <p>Possible explanations include:</p> <ul style="list-style-type: none"> <li>You attempted to update to the same version of the software.</li> <li>You tried to downgrade to a previous version of the software.</li> </ul>   |
| 4     | DEP_HARD_ERROR   | The required prerequisite software was not found on your system.  |
| 5     | QUAL_HARD_ERROR  | <p>The Update Package is not applicable. Possible explanations include:</p> <ul style="list-style-type: none"> <li>The operating system is not supported by the Update Package.</li> <li>The system is not supported by the Update Package.</li> <li>The Update Package is not compatible with the devices found in your system.</li> </ul> |
| 6     | REBOOTING_SYSTEM | The system is being rebooted.   |

## Conclusion

IT administrators need to keep nodes in the Microsoft Windows 2012 cluster up to date in the datacenter by downloading the Dell Server Update Utility (SUU)/Dell Update Package (DUP) plug-in and then integrating with the Cluster Aware Updating feature.

## More Information (References)

*XML for Update system Through SUU*

[www.dell.com](http://www.dell.com) <TBD>

*XML for Update system Through DUP*

[www.dell.com](http://www.dell.com) <TBD>

*Video for updating system through CAU*

[www.dell.com](http://www.dell.com) <TBD>

*CAU Scenario Overview:*

<http://technet.microsoft.com/en-us/library/hh831694.aspx>

*CAU Windows PowerShell cmdlets*

<http://go.microsoft.com/fwlink/p/?LinkId=237675>

*Cluster Aware Updating: Frequently Asked Questions*

<http://technet.microsoft.com/en-us/library/hh831367.aspx>

*Starting with Cluster Aware Updating: Self-Updating*

<http://blogs.technet.com/b/filecab/archive/2012/05/17/starting-with-cluster-aware-updating-self-updating.aspx>

*Requirements and Best Practices for Cluster-Aware Updating*

<http://technet.microsoft.com/en-us/library/jj134234.aspx>