SUU Supporting the DUP Dependency

Server Update Utility (SUU) is a tool for updating Dell servers, which is now enhanced to identify and apply the dependencies during the updates. Dell Update Packages (DUP)s support dependencies. Any DUP can now state what its dependencies would be.

Sujata Golwelkar
Amit Pratap Singh
Sriraj V.H
Rathish Das
Padmini Srirangan

January 2014
Revisions

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2014</td>
<td>Initial release 1.0</td>
</tr>
</tbody>
</table>

THIS WHITE PAPER IS FOR INFORMATIONAL PURPOSES ONLY, AND MAY CONTAIN TYPOGRAPHICAL ERRORS AND TECHNICAL INACCURACIES. THE CONTENT IS PROVIDED AS IS, WITHOUT EXPRESS OR IMPLIED WARRANTIES OF ANY KIND.

© 2013 Dell Inc. All rights reserved. Reproduction of this material in any manner whatsoever without the express written permission of Dell Inc. is strictly forbidden. For more information, contact Dell.

Dell™, the Dell logo, Dell Boomi™, Dell Precision™, OptiPlex™, Latitude™, PowerEdge™, PowerVault™, PowerConnect™, OpenManage™, EqualLogic™, Compellent™, KACE™, FlexAddress™, Force10™ and Vostro™ are trademarks of Dell Inc. Other Dell trademarks may be used in this document. Cisco Nexus®, Cisco MDS®, Cisco NX-OS®, and other Cisco Catalyst® are registered trademarks of Cisco System Inc. EMC VNX®, and EMC Unisphere® are registered trademarks of EMC Corporation. Intel®, Pentium®, Xeon®, Core® and Celeron® are registered trademarks of Intel Corporation in the U.S. and other countries. AMD® is a registered trademark and AMD Opteron™, AMD Phenom™ and AMD Sempron™ are trademarks of Advanced Micro Devices, Inc. Microsoft®, Windows®, Windows Server®, Internet Explorer®, MS-DOS®, Windows Vista® and Active Directory® are either trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries. Red Hat® and Red Hat® Enterprise Linux® are registered trademarks of Red Hat, Inc. in the United States and/or other countries. Novell® and SUSE® are registered trademarks of Novell Inc. in the United States and other countries. Oracle® is a registered trademark of Oracle Corporation and/or its affiliates. Citrix®, Xen®, XenServer® and XenMotion® are either registered trademarks or trademarks of Citrix Systems, Inc. in the United States and/or other countries. VMware®, Virtual SMP®, vMotion®, vCenter® and vSphere® are registered trademarks or trademarks of VMware, Inc. in the United States or other countries. IBM® is a registered trademark of International Business Machines Corporation. Broadcom® and NetXtreme® are registered trademarks of Broadcom Corporation. Qlogic is a registered trademark of QLogic Corporation. Other trademarks and trade names may be used in this document to refer to either the entities claiming the marks and/or names or their products and are the property of their respective owners. Dell disclaims proprietary interest in the marks and names of others.
# Table of contents

Revisions ................................................................................................................................................................................................ 2
Executive summary .............................................................................................................................................................................. 5
Terminology .......................................................................................................................................................................................... 6
1. How to get the SUU image. ....................................................................................................................................................... 6
1.1. Dowloading the SUU Image ...................................................................................................................................................... 6
2. Contents of SUU image and how to launch. .......................................................................................................................... 7
2.1. SUU Image contents ................................................................................................................................................................... 7
2.2. SUU Launch .................................................................................................................................................................................. 8
3. Selecting and updating dependencies using SUU GUI... ................................................................................................. 8
3.1. Description on the inventory, updates and browsing functions of SUU. ................................................................. 8
3.2. Addition of new columns Pre-requisites and Co-requisites................................................................................................ 8
3.3. Showing multiple dependencies in GUI ......................................................................................................................... 10
3.4. New Icons added to represent the dependencies ........................................................................................................... 11
3.5. Addition of new Checkbox: ‘Apply Corequisites’ on the comparison report panel .................................................... 12
3.6. Update confirmation includes the dependency information ............................................................................................ 13
3.7. Progress updates of the components shown on the progress panel ........................................................................ 14
3.8. Result updates of the dependent components on the comparison panel ................................................................. 15
3.9. Relaunching of SUU shows the completion of all the updates along with their dependencies ................................. 16
4. Existing checkbox and how they impact dependencies .................................................................................................... 16
4.1. Export function of SUU ............................................................................................................................................................. 17
5. How to run SUU in CLI ............................................................................................................................................................. 18
5.1. Invoking the application to run the inventory and updates. .............................................................................................. 18
6. Updating dependencies using SUU CLI ................................................................................................................................. 19
6.1. Dependencies displayed from the command line interface............................................................................................. 19
6.2. Multiple dependencies displayed from the console has values separated by a comma. ............................................. 22
6.3. New command introduced to filter the co-requisites (suu –nc) ................................................................................. 22
6.4. How dependencies are applied from CLI ............................................................................................................................. 22
6.5. How dependency updates are processed from CLI ........................................................................................................... 23
7. Creation of custom SUU using Dell Repository Manager .................................................................................................. 24
7.1. Why and how to create small foot prints of SUU ........................................................................................................... 24
7.2. Provide the source catalog as the primary step.................................................................24
7.3. Configure the platforms and operating systems..............................................................24
7.4. Export the configured settings..........................................................................................25
7.5. Choose the configurations as a SUU directory or SUU ISO.............................................26
7.6. Choose the configurations as a SUU directory or SUU ISO.............................................26
7.7. Configure the final destination location of SUU..............................................................27
7.8. SUU creation is in progress..............................................................................................27
7.9. Status can be viewed from the Job Queue........................................................................28
Executive summary

This technical paper describes the types of DUP dependencies and how they are executed using SUU. There are two kinds of dependencies: pre-requisites and co-requisites.

Pre-requisites are the mandatory requirements while co-requisites are the requirements that must be completed for enabling certain optional features of the device being updated. For example, the pre-requisite dependency of BIOS DUP 5.0 is BIOS DUP 4.0. Here, SUU must apply BIOS DUP 4.0 first and then apply DUP 5.0. DUP 5.0 has co-requisite dependency on iDRAC 2.0. Here, you can choose to apply iDRAC 2.0 if necessary.

- Selecting and applying dependencies using the SUU GUI
- Selecting and applying dependencies using the SUU CLI
Terminology

The below table describes the terms used in this white paper.

<table>
<thead>
<tr>
<th>SUU</th>
<th>Server Update Utility</th>
</tr>
</thead>
<tbody>
<tr>
<td>DUP</td>
<td>Dell Update Package</td>
</tr>
<tr>
<td>Prerequisites</td>
<td>Mandatory Dell Update Packages.</td>
</tr>
<tr>
<td>Corequisites</td>
<td>Optional Dell Update Packages.</td>
</tr>
<tr>
<td>Current Version</td>
<td>Version of the inventoried components.</td>
</tr>
<tr>
<td>Column ( SUU GUI)</td>
<td></td>
</tr>
<tr>
<td>Latest Version</td>
<td>Version of the applicable DUPS carried in SUU.</td>
</tr>
<tr>
<td>Column ( SUU GUI)</td>
<td></td>
</tr>
<tr>
<td>Prerequisites Column</td>
<td>Lists all the versions of the pre-requisite DUPS.</td>
</tr>
<tr>
<td>( SUU GUI)</td>
<td></td>
</tr>
<tr>
<td>Corequisites Column</td>
<td>Lists all the versions of the co-requisite DUPS.</td>
</tr>
<tr>
<td>( SUU GUI)</td>
<td></td>
</tr>
<tr>
<td>Status Column</td>
<td>Denotes whether the inventoried component requires an upgrade or downgrade or is at the same version with appropriate icons.</td>
</tr>
<tr>
<td>( SUU GUI)</td>
<td></td>
</tr>
<tr>
<td>DRM</td>
<td>Dell Repository Manager</td>
</tr>
</tbody>
</table>

1. How to get the SUU image.

1.1. Dowloading the SUU Image

- Go to support.dell.com.
- In the search box, type Server Update Utility or you can include the version if known as Server Update Utility v(7.3.1) .
- Scroll and see the link.
- SUU image in the search results as displayed in the following figure.
- Click the link and save the image to the desired location.
2. Contents of SUU image and how to launch.

2.1. SUU Image contents

The SUU has 2 parts: SUU engine and SUU content.

- **Engine**: Server Update Utility is an application which carries its own Java run time, inventory collector to inventory the system and the bundle applicator, which is used for updating the DUPS as per the selection. Engine constitutes mainly these files that are required to launch the application, perform inventory and updates the results. There is no dependency on any Java installations since the run time is self-contained and the complete application runs in the context of the run time.

- **Content**: Content includes everything that is present in the repository of SUU. It has all the DUPS for Windows and Linux systems and the catalog.xml. The pre-requisites and co-requisites which are the dependency DUPS, reside in the Repository directory along with other DUPS.
2.2. SUU Launch

You can launch SUU in one of the following ways:

- Double click the suulauncher.exe to launch the application.
- Go to the console containing SUU and then run the command suu.cmd –g to start the GUI or suu –c or suu –u to run the inventory and updates from CLI.
- Perform a suu.cmd –help to see all the available commands.

3. Selecting and updating dependencies using SUU GUI

3.1. Description on the inventory, updates and browsing functions of SUU.

- When SUU is run on a server, it inventories the server components and compares with the Dell Update Package versions carried in its repository and presents the user a comparison report. The report displays a table of all the inventoried component versions and its applicable Dell Update Packages and dependencies if any. The icons also illustrate if any component requires an update or already up to date. From this report panel, you can choose the components for updates.
- SUU also provides an option to browse the repository. This browsing is for the Left hand side tree. You can expand the Repository node and see all the supported platforms as tree sub nodes. Clicking any platform displays its supported packages in a table on the right hand side.

3.2. Addition of new columns Pre-requisites and Co-requisites.

- The following screen displays the comparison report of the system. You can select the checkboxes and then update the required components.
- The Select, Criticality, PackageName, Component, Type, Current Version and Latest Version are all pre-existing columns in SUU. The additional columns are Pre-requisites and Co-requisites.
- Click the Upgrade button after the selections to proceed with the updates.
- The Pre-requisites and Co-Requisites columns in the Comparison Report panel represent the dependencies.
  - No dependency means either there are no dependencies or the dependencies are met for the component selected.
  - If there are pre-requisites listed, then the updates must be applied. Applying the co-requisites is optional.
The following screenshot displays the browsing repository usage. The supported packages of the PER710 system is displayed.

Figure 2. Comparison Report

Figure 3. Repository Usage screen shot
3.3. Showing multiple dependencies in GUI

![Comparison Report](image)

**Figure 4. SUU Comparison Report showing multiple dependencies.**

The pre-requisites and co-requisites for any component can be more than one. In such cases, SUU displays the values separated by a comma as shown in the image.
3.4. New Icons added to represent the dependencies

Figure 5. Comparison Report with new icons

The status column distinguishes the dependency with specific icons in the below fashion:

- The icon blue colored arrow on the green circle displays that the component has only co-requisites.
- The yellow colored arrow on the green circle icon displays that the component has both pre-requisites and the co-requisites.
- The dark red colored arrow on the green circle icon displays if the component has only pre-requisites.

Note 1: The components that do not have dependencies will have the white colored arrows on the green circles.
Note 2: For upgrade, the arrows would point upwards and for downgrade, the arrows will point downwards. This convention is applicable for both type of components with or without the dependencies.
3.5. Addition of new Checkbox: ‘Apply Corequisites’ on the comparison report panel.

![Comparison Report showing Applying Corequisites](image)

The checkbox for “Apply Corequisites” enables or filters the application of the co-requisites. By default, this checkbox is enabled which means any co-requisites would be applied when you select the dependent components for update.

- If this checkbox is selected, all the co-requisite DUPs of the selected dependent components are applied.
- If this checkbox is cleared, the co-requisite DUPS are filtered.
- By default, this checkbox is selected.
3.6. Update confirmation includes the dependency information

Figure 7. SUU GUI showing the Update confirmation

The update confirmation dialog will list the dependencies.

- In this example, BIOS is selected for the update. Since it had co-requisite dependency, the confirmation displays the dependency also.
3.7. Progress updates of the components shown on the progress panel.

![SUU GUI showing the progress](image)

**Figure 8. SUU GUI showing the progress**

The progress panel will include the dependencies and you can view the DUP execution results by clicking the view button.
3.8. Result updates of the dependent components on the comparison panel.

![SUU GUI showing the updated status of the icon](image)

**Figure 9.** SUU GUI showing the updated status of the icon

The results are shown on the comparison panel as shown.

- **Note 1:** In case of dependencies, the combined status is displayed. In the figure above, BIOS is selected for the update. Since it had co-requisite dependency, the confirmation displays the dependency also.
### 3.9. Relaunching of SUU shows the completion of all the updates along with their dependencies

The below screenshot displays the system up to date.

![SUU GUI showing the system up to date](image)

#### Figure 10. SUU GUI showing the system up to date

### 4. Existing checkbox and how they impact dependencies.

The existing checkboxes are

- **Enable Downgrade**: You can select this option to downgrade any of the components to the Dell repository versions. If the dependencies are present for such components, they will be applied as explained in the above situations.

- **Enable System Set Update**: You can select this option to get all the system components to the Dell repository versions irrespective of upgrade or downgrades, expect the dependencies are applied as explained.
• Stop on Update Failures: You can select this option if you would like to stop continuing with updates whenever a failure is encountered. This option behaves the same way even with dependencies.

4.1. Export function of SUU

![Figure 11. Exporting from SUU GUI](image)

The Export function of SUU includes the dependencies information.

- Export Report: Saves the state of the system by exporting the comparison report before and after updates. Save the result either in CSV, HTML or XML format. The dependencies are included in this report.
5. How to run SUU in CLI

5.1. Invoking the application to run the inventory and updates.

- **SUU Help:** Refer the following image to view all the supported commands.

![SUU CLI help](image)

- **SUU Comparison:** Use the command `suu --c` to perform the comparison in CLI.
6. Updating dependencies using SUU CLI

6.1. Dependencies displayed from the command line interface.

The Pre-requisites and Co-requisites information is displayed along with the comparison report results in the Applicability field. The information about the dependent packages is displayed. The below image shows the pre-requisites, co-requisites and pre-requisite and co-requisite wherever applicable.

Figure 13. SUU CLI command showing the comparision report

- SUU Update: use the command suu –u to perform the comparison in CLI.
C:\test-dep\Q4-SUU-BUILD>suu -c

SUU Application is running from Local Drive.

Welcome to the Dell OpenManageServer Update Utility.
Copyright (c) 2003-2013 Dell Inc. All Rights Reserved.
SUU Version: 7.4.0.195

======== Comparison Results ========
component: BIOS
component type: BIOS
current version: 1.3.5 < repository version: 2.0.21
Package name: RS20_BIOS_N5F9K WN32_2.0.21.EXE
Applicability: Package can be applied

component: 12G iDRAC7 BASE V1.00
component type: Firmware
current version: 1.35.35 < repository version: 1.37.39
Package name: ESM_Firmware_IN4DM_WN32_1.37.35_A00.EXE
Applicability: Package has pre-requisites and will be applied forcefully.

component: PERC H610 Adapter Driver
component type: Driver
current version: 6.801.5.0 < repository version: 6.801.5.0
Package name: SAS-RAID_Driver_4RSKT WN32_6.801.5.0_A03.EXE
Applicability: Package cannot be applied

component: PERC H310 Mini Controller 0 Firmware
component type: Firmware
current version: 20.12.1-0002 < repository version: 20.12.1-0002

Figure 14. SUU CLI prompt showing the pre-requisites
Figure 15. SUU CLI prompt showing the co-requisites

Figure 16. SUU CLI prompt showing the pre-requisites and co-requisites
6.2. Multiple dependencies displayed from the console has values separated by a comma.

```
C:\test-dep\Q4-SUU-BUILD>suu -c
SUU Application is running from Local Drive.

Welcome to the Dell OpenManage Server Update Utility.
Copyright (c) 2003-2013 Dell Inc. All Rights Reserved.
SUU Version: 7.4.0.195

-------- Comparison Results --------
component: BIOS
  component type: BIOS
  current version: 1.3.5 < repository version: 2.0.21
  Package name: RS20_BIOS_MS9X_W0032_2.0.21.EXE
  Applicability: Package can be applied

component: iDRAC7 BASE U1.00
  component type: Firmware
  current version: 1.35.35 < repository version: 1.37.39
  Package name: DSM_Firmware_IMADM_W0032_1.37.39_000.EXE
  Applicability: Package has pre-requisites: [BIOS 1.4-6, APAC 7.2.1.61]
  Package has pre-requisites and will be applied forcefully.

component: PERC H310 Adapter Driver
  component type: Driver
  current version: 6.801.5.0 = repository version: 6.801.5.0
  Package name: SAS-RAID_Driver_ARSWT_WM32_6.801.5.0_A03.EXE
  Applicability: Package cannot be applied

component: PERC H310 Mini Driver
  component type: Driver
  current version: 6.801.5.0 = repository version: 6.801.5.0
  Package name: SAS-RAID_Driver_ARSWT_WM32_6.801.5.0_A03.EXE
  Applicability: Package cannot be applied
```

Figure 17. SUU CLI prompt showing the Multiple pre-requisites

- The dependencies are listed with corresponding components. Multiple dependencies present for single component are separated by a comma.

6.3. New command introduced to filter the co-requisites (suu -nc)

The new command ‘suu -nc’ is featured to update system components without Co-requisites dependencies. The command collects the inventory and updates all Pre-requisites and other system components whereas Co-requisites is not updated.

6.4. How dependencies are applied from CLI.

- The usual command suu -u updates all components with their dependencies included.
The new command suu –nc updates all components except the co-requisite dependencies.

6.5. How dependency updates are processed from CLI.

- If the dependencies require a reboot, in the first attempt the dependenc care applied and in the next execution the actual package is applied. In such cases, it takes two command executions to get the components up-to-date.
If dependencies do not require reboot then the main component and its dependencies would be applied in a single execution. After every execution, you run the command suu –c to check the comparison.

7. Creation of custom SUU using Dell Repository Manager

7.1. Why and how to create small foot prints of SUU

- The complete SUU size is close to 8 GB as it carries updates for all the supported Platforms for a quarter. Certain enterprise segment would have specific platforms in their environment and hence the need of customization arises. DRM facilitates this with user friendly wizards to create an SUU that suits his requirements. Please check the details of customization below.

7.2. Provide the source catalog as the primary step.

- First provide the catalog.xml as the source repository. Then, point to the latest FTP catalog available online or any locally available catalog. Catalog.xml represents the supported platforms and the supported Dell Update packages and their metadata.

![Figure 20. DRM using catalog.xml](image)

7.3. Configure the platforms and operating systems.

- The choice of platforms can be made by selecting the check boxes as shown. You can also provide other customizations related to the operating system. The left hand side panel offers these capabilities.
7.4. Export the configured settings.

- Click ‘Export’ button to see the wizard as displayed in the following figure.
7.5. Choose the configurations as a SUU directory or SUU ISO.

- Select the last option as displayed to export the SUU contents to a folder.

![Figure 23. Shows the option to export to SUU directory](image)

7.6. Choose the configurations as a SUU directory or SUU ISO.

- Plugin is basically the SUU engine in the cab format.

![Figure 24. Configuration of the SUU Engine](image)
7.7. Configure the final destination location of SUU.

- Provide the destination location.

![Figure 25. Configuration of the SUU destination](image.png)

7.8. SUU creation is in progress.

- The custom SUU creation process is initiated and is in progress.
7.9. Status can be viewed from the Job Queue.

- The queue at the bottom of the screenshots displays all the jobs that are initiated using DRM.
- The custom SUU creation job called as "Export to SUU..." is listed.
- The structure of the created SUU is same as the original SUU downloaded from support site.
- As of now, all the functions of the SUU are available in the custom SUU created using DRM. In future when DRM starts supporting the dependencies, the experience of applying the dependencies would be same as SUU.
Summary

Administrators looking for updating the Dell servers using SUU will benefit from this white paper. This whitepaper details the product supporting DUP dependencies from GUI and CLI.

Additionally, the white paper also provides information about downloading SUU from support site. It also mentions about Dell Repository manager and how you can use DRM to create a customized server update utility.