

Unleashing the Power of vFlash

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January 2010

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Introduction

The Integrated Dell Remote Access Controller 6 (or iDRAC6) enables remote server management reducing the need for the administrator to physically visit the server. The iDRAC6 Express offers a rich remote management feature set including a web GUI, power control & monitoring, network access features, and directory service integration. It is a standard offering on tower and rack server series 600 and above. The iDRAC6 Enterprise extends this feature set with Virtual Console, Virtual Media, scripting, a dedicated network port, and a vFlash port. It is a standard offering on all blade servers. Requiring iDRAC6 Enterprise, the vFlash Media card is the second upgrade available to customers with an iDRAC6.

Dell vFlash Media is a Dell-branded 1GB SD card that inserts into iDRAC6 Enterprise daughter card on the back of the server. (Note: Blade servers must be removed from their chassis to access this port.) Customers can use the space on vFlash to create up to a 512MB persistent flash partition. This partition is managed remotely via the iDRAC6 web GUI and racadm command line. Users can expose the partition to the operating system much like a USB flash drive and can even physically move it to another supported Dell server. In addition, the partition is bootable making it an ideal candidate for a persistent diagnostic boot image or other bootable utility. This white paper explains just such a use case: how vFlash Media can be used for automating system configuration.

Application Scenario

In this scenario we are loading a custom WinPE that has the Dell Deployment Toolkit (DTK) enabled, with options for installing additional tools.

Below are the components required for creating a WinPE based DTK enabled bootable vFlash.

1. Windows Automated Installation Kit (AIK) from Microsoft (<http://www.microsoft.com/downloads/details.aspx?FamilyID=94BB6E34-D890-4932-81A5-5B50C657DE08&displaylang=en>)
2. Latest Dell Deployment Toolkit (DTK) (support.dell.com)
3. Any 3rd party files or utilities from your organization that you want to add
 - a. Scripts
 - b. Imaging Tools (Ghost)
 - c. Etc.

Below are the detailed steps to customize WinPE.

1. Install Windows AIK to the default installation directory since this is assumed by the DTK.
2. Extract the DTK to the default directory - C:\Dell.
3. To create custom WinPE with any third party tools or scripts, modify C:\Dell\Drivers\winpe2.x\VPE_driverinst.bat. It is recommended that you backup this file before modifying so you can always go back to the original.
 - a. Include the scripts and tools in section 6. The script in this section is copying data from the DTK path on your DTK installation into the WinPE image. For this example, we will use sbin (C:\Dell\sbin) where the imaging tool and a script to kickoff imaging over the network are saved.
 - b. Include the below customization in section 6 of VPE_driverinst.bat

```
xcopy %DTKPATH%\..\sbin\*. * %WINPEPATH%\mount\sbin /S /E /I /Y
```

Note: If you are using VB scripts, include the scripting package to WinPE by adding the following line in section 4.

```
%AIKTOOLS%\PETOOLS\peimg /install=WinPE-Scripting-Package
%WINPEPATH%\mount\Windows
```

- c. To finalize WinPE, include a line to copy the modified winpe.wim to create the boot.wim right after the line that uses imagex to unmount and commit the WinPE directory.

```
copy %WINPEPATH%\winpe.wim %WINPEPATH%\ISO\sources\boot.wim /Y
```

- d. Save VPE_driverinst.bat.
- e. To build custom WinPE, open a command prompt. (If running on Windows Vista, perform this with administrator rights).
 - i. In a command prompt, go to the location of VPE_driverinst.bat - C:\Dell\Drivers\winpe2.x.
 - ii. Execute VPE_Driverinst.bat with the two required arguments

```
VPE_driverinst.bat <WINPEPATH> <DTK PATH>
```

Where <WINPEPATH> is the destination path to create the directory structure for Windows PE2.0 and <DTKPATH> is the path to Dell drivers in the extracted DTK toolkit.

Example: **VPE_driverinst.bat C:\MYVFLASH C:\Dell\Drivers**

To prepare vFlash using scripts, we will use command line options. I will also assume that Open Manage Server Administrator is installed on the server.

1. In a command prompt on the server, go to C:\Program Files (x86)\Dell\SysMgt\idrac\
2. Run the command to reset the Virtual Key

```
Racadm vmkey reset
```

Note: This can take up to 5 minutes to initialize vFlash.

3. Run the command to enable vFlash

```
Racadm config -g cfgRacVirtual -o cfgVirMediaKeyEnable 1
```

4. To prepare and format the vFlash
 - a. Run diskpart

- b. Select disk X, where X is the number of the vFlash. You can use list disk within diskpart to determine what number of disk the vFlash is.
 - c. Clean – this command will clean the disk. MAKE SURE YOU SELECTED THE PROPER DISK in step B
 - d. Create Partition Primary – this will create a partition
 - e. Select Partition 1 – selecting the partition in diskpart
 - f. Active – making partition 1 an active partition
 - g. Format fs=fat32 – format the partition with fat32 partition
 - h. Assign letter x, where x is the drive letter you want the vFlash to be.
5. Copy custom WinPE to vFlash
 - a. Xcopy C:\MYVFLASH\iso *.* /s /e /f X:\ Where X is the driver letter of the vFlash

Now you can boot your system from vFlash by utilizing the boot manager. vFlash will show up under Hard Drive.

Conclusion

This is one of many use cases available for the Dell vFlash today. It provides a custom deployment environment that allows you to automate complete server configuration, scripts, and imaging. No more multiple boot media disks, now you have them embedded on vFlash. Dell is committed to continue to make improvements to the iDRAC6 that will continue leverage the power of vFlash.

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