##
DELL(TM) OPENMANAGE(TM) DEPLOYMENT TOOLKIT README FOR EMBEDDED LINUX
##

Version 2.3
Release Date: April 2007

This file contains updated information for your "Dell OpenManage Deployment Toolkit User's Guide" and any other technical documentation included with the Deployment Toolkit (DTK).

The DTK documentation includes the "Command Line Interface Reference Guide" and the "User's Guide." See the Dell Support website at "support.dell.com" for the most current information.

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##
CRITICALITY
##

3 - Optional

Dell recommends that you review the specifics about the update to determine if it applies to your system. The update contains changes that may impact only certain configurations, or provides new features that may/may not apply to your environment.

##
COMPATIBILITY/MINIMUM REQUIREMENTS
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The Deployment Toolkit version 2.3 supports the following Dell PowerEdge(TM) systems:

650, 1600SC, 1650, 1655MC, 2600, 2650, 4600, 6600, 6650, 700, 750, 1750, 800, 830, 840, 850, 860, 1800, 1850, 1855, 2800, 2850, 6800, 6850, 1900, 1950, 1955, 2900, 2970, 6950, and SC1435.

NOTE: x8xx series systems with dual-core processors are supported.

NOTE: Other systems may be supported with this release. Check
"support.dell.com" to verify the supported systems and to
download the latest version of the toolkit.

The sample scripts included with DTK have been tested with the
deployment of the following operating systems:

- Red Hat(R) Enterprise Linux(R) Server version 3
  (32- and 64-bit)
- Red Hat Enterprise Linux Server version 4 (32- and 64-bit)
- Red Hat Enterprise Linux Server version 5 (32- and 64-bit)
- SUSE(R) Linux Enterprise Server version 10 (64-bit)

==========
Installation Prerequisites
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Before installing the DTK components for embedded Linux, ensure
that you have:

* The DTK ISO image, which contains the utilities, sample scripts,
  sample configuration files, and documentation you need to deploy
  your Dell system

* A Linux workstation that has at least 200 MB of free hard-drive
  space

When building customized Linux ISOs, you might need to incorporate
the following Red Hat Package Managers (RPMs) and scripts provided
by DTK to ensure a successful build:

* Dell.tar.gz - Dell Deployment Toolkit which contains the DTK tools
  and sample scripts.

* Omreg.cfg - Configuration file for instrumentation software. Edit
  this file, if required, to point to where the DTK tools are placed.
  The modified file should be under the location "/etc."

* Start-hapi.sh - Startup script to load and configure the HAPI
  drivers. You need to run this script to load the OpenIPMI Modules
  and to create files required by HAPI.

* Start-raid.sh - Contains basic setup for RAID to work. You need to
  run this script to create device nodes required by RAIDCFG and
  files required by HAPI.

* Start-stage3.sh - A sample DTK startup script that loads all
  the modules and drivers required for the ISO to work. You will
  have to replicate this setup in your customized Linux ISO.

* Srvadmin-hapi RPM - Contains a set of libraries and drivers used
  by DTK tools to interact with the hardware.

* Srvadmin-omilcore RPM - Contains a set of libraries and drivers
  used by DTK tools to interact with the hardware

If you have the DTK CD mounted under "/mnt/cdrom," you can extract
the DTK tools, scripts, and other essentials to build your customized
ISO image under the "tools" folder at the root of the CD.

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Deployment Prerequisites
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Before installing DTK components, ensure that you have:

* Advanced knowledge of Linux and Linux scripting (BASH), Linux
  networking, installing and working with RPMs, and creating and
  modifying loop file systems.

* Any third party deployment system or tool.

* A workstation that has
    -At least 500 MB of free hard-drive space
    -A writable CD drive and CD-writing software (optional)
    -Network access

* A minimum BIOS version is recommended on some of the platforms for
  all the DTK options to work correctly. In general, it is good
  practice to use the latest ("n") version of BIOS firmware or
  the "n-1" version that is available on "support.dell.com."

##########
RELEASE HIGHLIGHTS - FEATURES
##########

The new features for DTK version 2.3 include:

* Support for Dell PowerEdge 2970 systems.

  NOTE: Other systems may be supported with this release. Check
    "support.dell.com" to verify the supported systems and to
    download the latest version of the toolkit.

* Support for installing Red Hat Enterprise Linux Server
  version 5 (32- and 64-bit)

* Support for updating firmware using Dell Update Packages in a
  pre-operating system embedded Linux environment.

* Support for RAID replication feature that enables you to capture
  and replicate RAID settings on PowerEdge systems with similar
  configuration.

* A new utility partition image that can be installed on all supported

PowerEdge systems has been included with the DTK tools. The utility partition image carries hardware diagnostics for PowerEdge systems and can be installed on a partition of the hard disk.

##
RELEASE HIGHLIGHTS - FIXES
##

N/A

##
INSTALLATION
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For complete installation instructions, see the "Dell OpenManage Deployment Toolkit User's Guide."

##
UPGRADING
##

When upgrading from a previous release (1.x) of the DTK, ensure that you create the new DTK version 2.x environment separately from your previous version of DTK. This step is necessary because the environments and requirements for DTK version 2.x are completely different.

##
USER NOTES
##

This section provides information that can help enhance your experience with the DTK.

* The sample scripts are provided as examples for customers that want to develop their own deployment process. Some customers may find that the scripts work well in their environment, while some customers may need to develop their own scripts entirely from scratch. Customers deploying multiple systems need to provide unique information for each server when appropriate. For example, system host names, IP addresses, and BIOS asset tags need to be unique for each system. The batch scripts and configuration files need to be modified to reflect the unique information for each system being deployed. Many options are available to optimize this process.

* A system profile generated on a specific Dell PowerEdge system can be used to deploy only similar system models. For example, a system BIOS configuration profile generated for an optimally configured PowerEdge 1850 system can be used to deploy only similarly configured PowerEdge 1850 systems.

* The "sshd" port is left open on the server after the DTK CD is

booted. You can log in as "root" without a password. This is done so that scripts can be debugged easily. However, it could be a security issue to leave the CD booted on a system.

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TOOL NOTES
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* SYSCFG:

- Some options may not be present on all systems, which may be due to the BIOS version or hardware feature set. The usage information generated by running SYSCFG without arguments shows only those options that are valid for your system.

- The "--devseq" option is present only if you have an available, bootable hard-disk partition. If this option is present in the configuration file, but not present on your system, you will receive a usage error.

- If you perform operations that change the "--redmem" option, reboot the system immediately. This is applicable to command line usage as well as "--infile" usage.

  NOTE: Additionally, the "--redmem" option should not be issued with any other command and should be immediately followed by a system reboot. This is important when you develop scripts that can alter the "--redmem" setting.

- For options that use text strings such as username, password, hostname, and community string, using characters such as <space>, "<," ">," "|," "=" on the command line can be misinterpreted by the command line parser and may cause errors. To avoid such errors, use only alphanumeric characters.

- An option for Demand-based power management has been added.

- A "--solaction" option has been added for PowerEdge x9xx systems. This option enables or disables Serial Over LAN (SOL) access for a particular user.

Suboptions	Valid Arguments
--userid	Userid(2-16)
--action	enable,disable

- A "--memintleave" option has been added which can enable or disable memory interleave mode. Valid arguments are <enable,disable>.

- If you set the username using syscfg username option, SOL access for the corresponding user will be enabled by default. You can disable SOL access for a user using "syscfg solaction --userid=<userid> --action=disable" command.

- Three additional filters have been added for PEFCFGPARAMS (PCP) for PowerEdge x9xx series systems. These filters are for battery warning ("batterywarn"), battery failure ("batteryfail"), and a filter for the presence of the power supply in the system ("powerabsent").

* RAIDCFG:

- When creating virtual disks, the chunk (stripe) size is always in KB. Do not specify any units for the chunk size.

- When providing multiple physical disks for the "create virtual disk" command, do not separate the disks with spaces. For example, "-ad=1:4, 1:5" causes an error. The correct way to input multiple physical disks is "-ad=1:4,1:5,1:6" or "-ad=1:4:0,1:5:0,1:6:0".

- If you change the controller mode from SCSI to RAID mode, expect data loss to occur. Back up any data you want to save before changing the modes.

KNOWN ISSUES

RAIDCFG Issues:

* You cannot delete a virtual disk on CERC SATA 2S when RAID 1 is created. The virtual disk can be cleared from the controller BIOS.

* Because of an issue in the kernel, for PowerEdge 1855 systems, you must reboot your system after you create a virtual disk, to use the created virtual disk. This only affects PERC 4/IM controllers.
(116779)

SYSCFG Issues:

* Demand based power management (DBPM) option does not work on PowerEdge 1855 with BIOS firmware versions earlier than A05.

* The suboption for "powerctl," "softshutdown," causes your system to reboot. If you use a customized kernel with Advanced Configuration and Power Interface (ACPI) support, this option will work as designed.

* Using the "solcfgparams" option may produce an error message saying "Hardware subsystem error" when an invalid value is used. This does

not indicate a problem with the hardware. Check the option value and try again.

* On PowerEdge 700 systems, the console redirection option in the BIOS has the arguments" off," "serial port 1," and "RAC;" the equivalent arguments in DTK are "off," "serial port 1," and "serial port 2."

  When the argument is set to "serial port 2" in DTK, the option corresponds to "RAC" in the BIOS setup.

* The "--solbitrate" option in "solcfgparams" and the "--msgcommbitrate" option in "serialcfgparams" accept a baud rate of 57600, but tools such as "ipmish" and "solproxy" do not function at this baudrate for PowerEdge x8xx systems.

RACADM Issues:

* The "racadm gettracelog" option may cause the system to hang. You may need to restart the system.

Operating system installation issues:

* Installation of legacy Red Hat Enterprise Linux operating systems may fail due to lack of support for new hardware. You should modify the '%post' section of "ks.cfg" to update to a newer version of the kernel or install the drivers from this section.

* The default root password for Linux installation is "root123." This could be changed to be encrypted in the template "ks.cfg" provided.

* The Red Hat Enterprise Linux operating system installation may fail on systems equipped with multiple RAID and/or SCSI controllers, whether installed on the system board or in PCI slots. This failure may occur when using Server Setup or performing a manual installation. When two or more RAID or SCSI controllers are present, install Red Hat Enterprise Linux with only one configured RAID or SCSI controller. Configure the other controllers after you install the Red Hat Enterprise Linux operating system.

Instrumentation issues:

* The "/opt/dell/srvadmin" directory in the DTK ISO image should be writable. This enables the instrumentation services to work properly.

* The file "omreg.cfg" should be present in the "/etc/" directory for the tools to function properly. This is applicable if DTK is being customized to fit in an embedded Linux environment other than the Dell-provided embedded Linux.

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