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

Version 3.1
Release Date: June 2009

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 or may not apply to your environment.

##
COMPATIBILITY/MINIMUM REQUIREMENTS
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The Deployment Toolkit version 3.1 supports the following Dell PowerEdge(TM) systems:

SC1435, 800, 830, 840, 850, 860, 1800, 1850, 1855, 2800, 2850, 6800, 6850, 1900, 1950, 1955, 2900, 2970, 6950, 2950, R200, R900, R805, M600, M605, T605, R300, T300, R805, R905, M805, M905, R610, R710, T610, M610, M710, R410, T410 and T710

NOTE: Other systems may be supported with this release. See the Dell Support website at "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 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)
- SUSE(R) Linux Enterprise Server version 11 (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 3.1 include:

* Support for Dell PowerEdge system T710

  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.

##########
RELEASE HIGHLIGHTS - FIXES
##########

N/A

##########
INSTALLATION
##########

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 3.x environment separately from your previous version of DTK. This step is necessary because the environments and requirements for DTK version 3.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.

* In the previous releases, you could use a system profile generated on a specific Dell system to deploy only that same system model. Beginning this release, you can use a system BIOS configuration profile generated for all systems belonging to the same generation.
  For example, "syscfg_x8xx.ini" for x8xx systems, "syscfg_x9xx.ini" for x9xx systems, and so on.

* 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.

- You may need to reboot your system for certain options to be enabled. Dell recommends you use the "reboot" command on shell prompt or press the "Ctrl+Alt+Del" keys.

- If you perform operations that changes the "--redmem" option, reboot your system immediately. This is applicable to both command line and "--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.

- 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.

- The maximum reliably supported baud rates (--solbitrate) are:
  - 19200 for PowerEdge x8xx systems.
  - 57600 for PowerEdge x9xx systems without Dell Remote Access Controller 5 (DRAC 5).
  - 115200 for PowerEdge x9xx systems with DRAC 5.

  If you enter an unsupported baud rate, you may receive an error, "Parameter out of range."

* 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
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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.

* Due to a kernel issue, you need to reboot your PowerEdge 1855
system after creating a virtual disk on it, in order to use the
virtual disk that you created. This affects PERC 4/IM controllers.
(116779)

* You can assign a maximum of 10 Global Hotspares using Raidcfg. Use
The Dell(TM) OpenManage(TM) Server Administrator Storage Management
for assigning more then 10 Global hot spares.

SYSCFG Issues:

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

* The option 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.

* 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 baud rate for PowerEdge x8xx systems.

* On PowerEdge 1950, 2950 systems with internal USB, BIOS
setting configuration for internal USB Port is possible
only if User Accessible/external (UA) USB ports are set to
"All Ports On." If UA USB ports are not set to "All Ports On"
and you try to configure the BIOS setting for the internal USB port
using SYSCFG, the configuration will appear to be successful
but the changes will not take effect after the next reboot. If
UA USB ports settings are changed from "All Ports On" to
"All Ports Off" or "Only Back Ports On," the USB port will
be automatically Set to "Off" during the next reboot.

* The "--formfactor" option on x9xx and xx1x systems display junk data.

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.

* Suseinst.sh is configured to primarily support SLES 10 operating
  systems. However, you can use it to support SLES 11, by following
  these instructions:

  The variable “DT_OS_IMG_PATH” to set the loop mounted directory
  of the first DVD.iso is not the actual name of the ISO file itself.

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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