Dell EMC OpenManage Deployment Toolkit 6.2 for Embedded Linux Release Notes

Topics:

This document describes the new features, enhancements, and fixed issues in Dell Openmanage Deployment Toolkit 6.2 for Embedded Linux

Release Type and Definition

Deployment ToolKit

The Dell OpenManage Deployment Toolkit (DTK) includes a set of utilities, scripts, and sample configuration files that to deploy and your Dell system. You can use DTK to build script-based and RPM-based installation for deploying large number of systems on a pre-operating system environment in a reliable way, without changing their current deployment processes.

In addition to the command line utilities used to configure various system features, DTK also provides sample scripts and configuration files to perform common deployment tasks and documentation.

Version

6.2

Release Date

November 2018

Previous Version

6.1

DTK Deprecation Message

The OpenManage Deployment Toolkit (DTK) along with the associated tools and capabilities will be deprecated for version 6.1 and later:

- Redundant Array of Independent Disks Configuration (RAIDCFG) Utility

- System Configuration (SYSCFG) Utility
- ELI tool
- Utility Partition (UPINIT)

It is recommended to use the RACADM Command Line (CLI) as a replacement for the RAIDCFG and SYSCFG utilities. For more information on downloading RACADM, see www.dell.com/Support/Home.

NOTE: DTK will continue to support any new hardware or operating system for the 14th generation of PowerEdge servers. However, support for later generations of PowerEdge servers will be deprecated. For more information about features supported by DTK, see the latest User's Guide available at www.dell.com/OpenManageManuals .

Importance

RECOMMENDED: Dell recommends applying this update during your next scheduled update cycle. The update contains feature enhancements or changes that will help keep your system software current and compatible with other system modules (firmware, BIOS, drivers and software).

Platforms Affected

For a complete list of supported Dell PowerEdge systems and supported Operating systems, see the *Dell Systems Software Support Matrix* available in the required version of OpenManage Software at **dell.com/openmanagemanuals**.

What Is Supported

Hardware and Software Requirements

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 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) provided by DTK to ensure a successful build:
  - dtk-scripts
  - raidcfg
  - syscfg
  - racadm
- If you have the DTK CD mounted under "/mnt/cdrom," you can extract the DTK RPMs to build your customized ISO image under the "RPMs" folder at the root of the CD.

Operating Systems Requirements

Using DTK utilities you can deploy the following Linux operating systems:

- SUSE Linux Enterprise Server 15 (64–bit).
- Red Hat Enterprise Linux 7.5 (64–bit).
- Red Hat Enterprise Linux 6.10 (64–bit).

What's New

The new features for this release include:

- Support for the following network cards:
  - QLogic 10GE 4P QL41164HxRJ-DE Adapter.
  - QLogic 10GE 4P QL41164HxRJ-DE Adapter.
  - QL41262HMKR-DE 25 Gigabit Ethernet.
  - QLogic FastLinQ 41262 Dual Port 25GbE SFP28 rNDC.

- QLogic 2x25GE QL41262HMCU CAN.
- Intel(R) Ethernet 25G 2P XXV710 Adapter.
- Intel(R) Ethernet 10G 2P X550-t Adapter.
- Intel(R) Gigabit 4P I350-t Adapter.
- Intel(R) 10GbE 4P X710-t Adapter.
- Intel(R) 4P X550 rNDC.
- ConnectX-5 Dual Port 100 GbE QSFP Network Adapter.
- ConnectX-4 Dual Port 100 GbE QSFP Network Adapter.
- ConnectX-5 Single Port VPI EDR QSFP28 Adapter.

- Support for installation and deployment of the following operating systems in BIOS and UEFI mode:
  - Red Hat Enterprise Linux 7.5 (64–bit)
  - Red Hat Enterprise Linux 6.10 (64–bit)
  - SUSE Linux Enterprise Server 15 (64–bit)
- Added support for the following Dell PowerEdge servers:
  - PowerEdge R240
  - PowerEdge R340
  - PowerEdge T140
  - PowerEdge T340
  - PowerEdge R740xd2

NOTE: For the list of supported operating systems and Dell servers, see the *Dell Systems Software Support Matrix* at dell.com/openmanagemanuals.

Important Notes

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/).

Use both DTK and the Server Administrator from the same release version to get complete supported features of Server Administrator.

DTK operating system deployment limitation:

DTK does not support operating system deployment, when multiple boot VDs exist on a single controller or when the server has multiple boot controllers. If multiple boot controllers exist on the server, the boot VD must be created on any one of the controllers, and the boot VD must be set as first boot device in system BIOS.

On debranded or rebranded servers, Deployment toolkit is not supported.

DTK does not support Linux operating system deployment in Non RAID (Volume) and SWRAID mode on s140 controllers.

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.
- To enable certain options, to reboot your system. Dell recommends you use the "reboot" command on shell prompt or press the **Ctrl +Alt+Del** keys.
- It is required to perform a warm reboot after applying the SYSCFG settings changes on Dell's 12th generation of PowerEdge systems.
- If you perform operations that change the **--redmem** option, reboot your system immediately. It 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 "<," ">," "|," "=" 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, Serial Over Lan (SOL) access for the corresponding user will be enabled by default. You can disable SOL access for a user using `syscfg solaction --userid=--action=disable` command.

- The legacy attribute values enable and disable are also supported for 12G systems for backward compatibility. In future releases these arguments might be deprecated. Try to use the values displayed in help message for BIOS options for 12G server.

RAIDCFG

- When creating virtual disks, the chunk (stripe) size is always in KBs. Do not specify any units of measure 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, data loss may occur. Back up any data you require before changing the modes.
- RAIDCFG operations can not be performed on HBA330 and AHCI non-raid mode.
- On Software RAID Controller, NVMe PCIe-SSD add-on card is not supported.
- Lockdown Mode enabled will not impact with Raidcfg functionality.

Table 1. Support Matrix for controller cards

Controller type	OSD support with PowerEdge MX740c and PowerEdge MX840c	OSD support with MX5016s	Virtual disk, Physical disk support with Compute backplanes	Virtual disk, Physical disk support using MX5016s HDDs
H745P MX	YES	NO	YES	YES
H730P MX	YES	N/A	YES	N/A
HBA330 MX	YES	N/A	PD = YES ; VD = NO	N/A
S140 (SATA)	YES	YES	N/A	YES
HBA330 MMZ	NO	NO	PD = YES ; VD = NO	PD = YES ; VD = NO
S140 + NVMe disks	NO	N/A	YES	N/A

Known Issues

Network limitation:

Pre-Boot Environment is not supported while booting DTK on TFTP boot method as this protocol is not supported for stage-2 booting process. Supported Methods of Installation:

Table 2. Methods for protocol

Boot Method	Direct ISO Boot Method	Initrd Method
NFS	Yes	Yes
HTTP	Yes	Yes

On some 12th and 13th generation system servers, booting DTK using internal DVD drive in the UEFI mode may not boot as the drivers are not carried.

On spanning tree-enabled network, SUSE Linux Enterprise Server 12 / Red Hat Enterprise Linux 7.x operating system installation on Dell Power Edge systems might not be successful due to DHCP client time-out.

Workaround: Add `netwait=90` in the boot loader option of the `suseinst.sh`/ `lininst7.sh`script.

For example, `suseinst.sh`, kernel`/linux/linux autoyast=$DT_SUSE_AUTOINST install=$DT_OS_IMG_PATH netwait=90`

`lininst7.sh`, kernel `/linux/vmlinuz ks=hd:sda$(($GRUB_PART_NO + 1)):/linux/ks.cfg inst.repo=nfs:${DT_OS_NFS_LOC} netwait=90`

On Debranded/Rebrand servers, Deployment toolkit is not supported.

On PowerEdge servers MX840C and MX740C shared Ethernet port is used in iDRAC management, installing Red Hat Enterprise 7.5 operating system using primary Ethernet port will fail to mount the NFS server, due to limitation in rh_installer.

Workaround: User has to modify the installer script (lininst7.sh) to add correct interface name displayed (i.e. "ip=pXpY:dhcp" where X,Y = port number) or modify the grub boot parameter option.

For example:

```
lininst7.sh script, linux /linux/vmlinuz ks=hd:UUID=${DEV_UUID}:/linux/ks.cfg inst.repo=nfs:${DT_OS_NFS_LOC} ip=<interface name>:dhcp
```

On PowerEdge servers MX840C and MX740C shared Ethernet port is used in iDRAC management, installing Red Hat Enterprise 6.9 operating system using primary Ethernet port will fail to mount the NFS server, due to limitation in rh_installer.The Red Hat Enterprise 6.9 does not carry inbox driver on MX840C and MX740C PCI Network adopter cards.

Workaround: User has to modify the installer script (lininst.sh) to add correct interface name displayed (i.e. "ip=pXpY:dhcp" where X,Y = port number) or modify the grub boot parameter option.

Also user should use driver disk option and pass kernel boot parameter “linux dd” on MX840C and MX740C to get the IP for PCI Network adopter.

For example:

```
lininst.sh script, linux /linux/vmlinuz linux dd ks=hd:UUID=${DEV_UUID}:/linux/ks.cfg ksdevice=<interface name>:dhcp
```

On Debranded/Rebrand servers, Deployment toolkit is not supported.

JIT-103685: If Server Administrator is installed on the web server and you install DTK services, the Data Manager services stops.

Workaround: Restart the Data Manager services.

SYSCFG Issues

- In DRAC , the **--virtualmedia** and **--vflash** options do not work if there is an active virtual media session. Disconnect the virtual media using the DRAC GUI. Log into DRAC. **Click Media** > **Virtual Media** > **Disconnect**.
- The syscfg --bootseq command detects CD-ROM with SAS/SATA controllers as unknown.unknown.n-1.
- On R815, syscfg power --profile option allows to set apc. Though apc is not supported on R815, syscfg does not throw an error message.
- The legacy attribute values enable and disable are also supported for 12G systems for backward compatibility. In future releases, these arguments might be deprecated. Try to use the values shown in help message for BIOS options for 12G server.
- 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 result in an error message saying **Hardware subsystem error** when an invalid value is used. It does not indicate a problem with the hardware. Check the option value and try again.
- The **--solbitrate**option in **solcfgparams** and the **--mgscommbitrate** option in **serialcfgparams** accept a baud rate of 57600, but tools such as **ipmish**and **solproxy** do not function at that baud rate for PowerEdge systems.
- **JIT-70261**: The syscfg `--slot` command will not detect the slot in which the server is inserted in the chassis.

RAIDCFG Issues

- If both the software and hardware RAID is enabled, raidcfg will show the same controller ID for both the controllers. Disable either software raid or insert the hardware raid other than PCIe slot 0 in the server.
- You can assign up to 10 Global hot spares using Raidcfg. Use the Dell OpenManage Server Administrator Storage Management for assigning more than 10 Global hot spares.
- USB keys should not be mounted to the /tmp directory. Inside the /tmp directory, create a new directory and mount the USB to this.
- On Dell PERC H740 controllers, conversion of a RAID Capable Disk to Non-RAID disk and vice versa is not supported using RAIDCFG.

Operating System Installation Issues

- Installation of legacy Red Hat Enterprise Linux operating systems may fail due to lack of support for new hardware. Modify the **%post** section of `ks.cfg` to update to a newer version of the kernel or use driver disk to install drivers.
- 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.
- The virtual media should be disabled for SLES 12 OS installation on Dell’s 11th generation of PowerEdge servers.

- When deploying SUSE Linux Enterprise Server version 11 on PowerEdge M915 using DTK automated script (autoinst.xml), do the following:

  1. In device map section,

     ```
     <device_map_entry>
     <firmware>hd0</firmware>
     <linux>/dev/sdc</linux>
     </device_map_entry>
     ```

     Change hd0 to `/dev/sdc`
  2. In grub config section, change `/dev/sda5` to `/dev/sda6`
  3. If installer reports any missing packages, delete the packages from `autoinst.xml`.

Secure Boot limitation on UEFI mode:

On installation of the operating system in UEFI mode when secure boot BIOS option is enabled, DTK ELI is not supported. This is due to the CentOS 7.2 core operating system limitation.

Instrumentation Issues

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

DTK tools installation limitation:

DTK tools installation is not supported on CentOS operating system.

RPM installation issue:

During the rpm installation , it displays following error "installing package xxx needs x MB on the / filesystem".

As a workaround , you can use "--ignoresize" option with rpm installation command.

Installation Prerequisites

Before extracting Deployment Toolkit components, ensure that you have:

- Download the DTK ISO from dell.com/support
- A workstation that has 512 MB RAM
- 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 properly. In general, it is a good practice to use the latest ("n") version of BIOS firmware or the "n-1" version that is available on "dell.com/support."

Installation Procedure

For complete installation and deployment instructions, see the *Dell OpenManage Deployment Toolkit User's Guide* and the *Dell OpenManage Deployment Toolkit Installation Guide* available at dell.com/openmanagemanuals.

Installation and Configuration Notes

- The sample scripts are provided as examples for customers who 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 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. Modify the shell scripts and configuration files to reflect the unique information for each system being deployed. Many options are available to optimize this process.
- Because of security reasons, the "ssh" and "scp" services are not available in DTK. The mount command is available in the DTK CD

Upgrading From Previous Versions

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

Contacting Dell

NOTE: If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

Go to **dell.com/contactdell**.

Notes, cautions, and warnings

NOTE: A NOTE indicates important information that helps you make better use of your product.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.