

# Dell EMC OpenManage Deployment Toolkit 6.1 for Embedded Linux Release Notes

## Topics:

- [Release Type and Definition](#)
- [DTK Deprecation Message](#)
- [Importance](#)
- [Platforms Affected](#)
- [What Is Supported](#)
- [What's New](#)
- [Important Notes](#)
- [Known Issues](#)
- [Installation Prerequisites](#)
- [Upgrading From Previous Versions](#)
- [Contacting Dell](#)

This document describes the new features, enhancements, and fixed issues in Dell Openmanage Deployment Toolkit 6.1 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

6.1

## Release Date

December 2017

## Previous Version

5.5

## DTK Deprecation Message

The OpenManage Deployment Toolkit (DTK) along with the associated tools and capabilities will be deprecated for version 6.0.1 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 [support.dell.com](https://support.dell.com).

**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 [dell.com/openmanagemanuals](https://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](https://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:

- Red Hat Enterprise Linux 7.4(64-bit)
- Red Hat Enterprise Linux 6.9(64-bit)
- SUSE Linux Enterprise Server 12 SP3 (64-bit)

## What's New

The new features for this release include:

- Support for installation and deployment of the following operating systems in BIOS and UEFI mode:
  - Red Hat Enterprise Linux 7.4 (64-bit)
  - SUSE Linux Enterprise Server 12 SP3 (64-bit)
- Support for the following network cards:

- Intel Ethernet Network Adptr XXV710-DA2
- NetXtreme BCM5719/5720 1Gbps devices
- NetXtreme-E BCM574xx 10Gbps/25Gbps devices
- Mellanox ConnectX-4 Dual Port 100 GbE QSFP Network Adapter
- Intel X550 rNDC
- Intel 10GbE 4P X710
- Added support for the following Dell PowerEdge servers:
  - PowerEdge R740
  - PowerEdge R740XD
  - PowerEdge R640
  - PowerEdge R940
  - PowerEdge C6320P
  - PowerEdge C4140
  - PowerEdge C6420
  - PowerEdge R7920
  - PowerEdge R7425
  - PowerEdge R7415
  - PowerEdge R6415
  - PowerEdge R540
  - PowerEdge R440
  - PowerEdge T440
  - PowerEdge M640
  - PowerEdge FC640
  - PowerEdge T640
  - PowerEdge C6400

**NOTE:** For the list of supported operating systems and Dell servers, see the *Dell Systems Software Support Matrix* at [dell.com/openmanagemanuals](http://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 VD's 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.

## Known Issues

### Network limitation:

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.

```
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.

## 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 `unk.emb.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.
- DTK 5.5.0 does not boot on Dell PowerEdge T100. PowerEdge T100 has a BIOS version that is incompatible with the current HAPI drivers.
- 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.

## 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.
- DTK supports till 144HDD only while performing the RAIDCFG commands, if the HDD count exceeds 144 the command fails.
- 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.

### Unsupported configuration:

Server having GPU add on card on PCI bus hangs during boot time. As a workaround remove the GPU card and reboot.

## 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](http://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](http://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](http://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](http://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.

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