

# **Dell EMC OpenManage Deployment Toolkit**

## **Version 6.3**

Installation Guide

## 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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# Introduction

The OpenManage Deployment Toolkit (DTK) includes a set of utilities, sample scripts, and sample configuration files that you can use to deploy and configure the Dell systems. 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. Using DTK you can install operating systems on Dell systems in BIOS or Unified Extensible Firmware Interface (UEFI) mode.

Topics:

- [DTK Deprecation Message](#)
- [Documents you may need](#)
- [Accessing documents from the Dell EMC support site](#)
- [Prerequisites](#)
- [Deployment overview](#)

## DTK Deprecation Message

This release, of Deployment Toolkit (DTK) 6.3, is the final release for OpenManage Deployment Toolkit along with the associated tools and capabilities. However the releases prior to this will continue to be available for web download on legacy supported PowerEdge servers.

- 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 about downloading RACADM, see the latest Integrated Dell Remote Access Controller Command Line Interface Reference Guide at [iDRAC Manuals](#).

**NOTE:** No DTK support for upcoming generations of PowerEdge servers. Also no new operating systems will be supported by DTK beyond DTK 6.3 on supported PowerEdge servers. For more information about features supported by DTK, see the latest User's Guide available at [www.dell.com/OpenManageManuals](http://www.dell.com/OpenManageManuals).

## Documents you may need

For a complete list of supported operating systems, BIOS firmware, and hardware, see the *Dell Systems Software Support Matrix* available at [dell.com/openmanagemanuals](http://dell.com/openmanagemanuals).

- *Dell EMC OpenManage Deployment Toolkit Command Line Interface Reference Guide*
- *Dell EMC OpenManage Deployment Toolkit User's Guide*
- Operating system documentation

## Accessing documents from the Dell EMC support site

You can access the required documents using the following links:

- For Dell EMC Enterprise Systems Management documents — [www.dell.com/esmmanuals](http://www.dell.com/esmmanuals)
- For Dell EMC OpenManage documents — [www.dell.com/openmanagemanuals](http://www.dell.com/openmanagemanuals)

- For Dell EMC Remote Enterprise Systems Management documents — [www.dell.com/esmmanuals](http://www.dell.com/esmmanuals)
- For iDRAC and Dell Lifecycle Controller documents — [www.dell.com/idracmanuals](http://www.dell.com/idracmanuals)
- For Dell EMC OpenManage Connections Enterprise Systems Management documents — [www.dell.com/esmmanuals](http://www.dell.com/esmmanuals)
- For Dell EMC Serviceability Tools documents — [www.dell.com/serviceabilitytools](http://www.dell.com/serviceabilitytools)
- a Go to [www.dell.com/support](http://www.dell.com/support).
- b Click **Browse all products**.
- c From **All products** page, click **Software**, and then click the required link from the following:
  - **Analytics**
  - **Client Systems Management**
  - **Enterprise Applications**
  - **Enterprise Systems Management**
  - **Public Sector Solutions**
  - **Utilities**
  - **Mainframe**
  - **Serviceability Tools**
  - **Virtualization Solutions**
  - **Operating Systems**
  - **Support**
- d To view a document, click the required product and then click the required version.
- Using search engines:
  - Type the name and version of the document in the search box.

## Prerequisites

Before using DTK to deploy Microsoft Windows Pre-installation Environment (PE) or Linux environment (Red Hat Enterprise Linux or SUSE Linux Enterprise Server), ensure you have the following prerequisites:

**Table 1. Prerequisites for Installation**

Windows PE Environment	Linux Environment
The DTK self-extracting zip file (DTKX.X-WINPE-XX.exe) available at <a href="http://dell.com/support">dell.com/support</a> .	The DTK ISO image available at <a href="http://dell.com/support">dell.com/support</a> .
A Windows workstation that has at least 512 MB of RAM.	A workstation that has at least 512 MB of RAM.

## Deployment overview

DTK offers a complete set of utilities, sample scripts, and RPM packages that can be used to automate the deployment of Dell systems.

Before running the deployment, ensure that you create specific deployment media to facilitate the deployment method you choose. For more information, see the *Dell EMC OpenManage Deployment Toolkit User's Guide* available at [dell.com/openmanagemanuals](http://dell.com/openmanagemanuals).

## Deployment prerequisites for Windows PE

Before beginning the deployment process for Windows PE, ensure that you have the following tools, software, and information:

**NOTE:** For Microsoft WinPE and OS deployment support limitations refer to <http://technet.microsoft.com/en-us/library/hh824993.aspx>.

- Windows ADK for Windows Server 2012 R2 to build Windows PE 5.1
- Windows ADK for Windows Server 2016 to build Windows PE 10.0
- Windows ADK for Windows Server 2019 to build Windows PE 10.0
- Working knowledge of Microsoft Remote Installation Services (RIS) and Automated Deployment Services (ADS) (including setting up of RIS and ADS environments) or any other third party deployment system or tool for Windows PE.
- Working knowledge of Windows Deployment Services (WDS) or any other third party deployment system or tool for Windows PE.
- A workstation with the following capabilities:
  - Writable media drive
  - Network access
- A target system with a media drive, if performing a local deployment.
- A target system with a media drive and network access, if performing a network deployment.
- All DTK utilities, sample scripts, and sample configuration files.
- *Dell EMC OpenManage Systems Management Tools and Documentation DVD*.
- Your operating system software and documentation.
- An optimally configured source system with network access.

 **NOTE:** You can download the latest drivers from [www.dell.com/support](http://www.dell.com/support).

## Preparing Windows PE environment for deployment

If you are using the Windows PE environment:

- 1 Copy or extract DTK utilities, sample scripts, sample configuration files, and drivers provided (in the zip file) to the Windows PE image.
- 2 Organize DTK utilities, script files, configuration files, the operating system installation files, and the required system files and drivers on a network share or local media.
- 3 Set up a *Source System* using the *Dell EMC OpenManage Systems Management Tools and Documentation DVD* (to install the operating system) and the **Systems Service and Diagnostics Tools** (to load drivers). The *Source System* acts as a master server that is used to replicate settings to the *Target Servers*.

 **NOTE:** Download the latest drivers from [support.dell.com](http://support.dell.com).

- 4 Generate a system BIOS, BMC, RAID, and/or RAC/iDRAC configuration profile from the *Source System*. Copy the generated configuration files to a read/write share on the workstation or server.


 **NOTE:** You can obtain the system BIOS, BMC, RAID, and/or RAC/iDRAC configuration files by booting from DTK Windows PE image and running the SYSCAP.BAT, RAIDCAP.BAT, and RACCAP.BAT scripts.

- 5 Create an operating system answer file that contains unattended operating system software installation information.
- 6 To set up the system BIOS, BMC, RAID, and RAC/iDRAC and then, install an operating system on a *Target Server*, edit DTK sample script files that access the system configuration files.

## Installing Windows server Operating System using DTK

To install Windows Server operating system using DTK:

- 1 On the source system, create an operating system-specific folder. For example, **WinServer\_deploy**.
- 2 Make **WinServer\_deploy** folder shareable.
- 3 In the folder **WinServer\_deploy**, create two folders **sources** and platform name (for example, **PER740**).

 **NOTE:** The platform name must be a DTK standard name. To know the platform name, run **TKENVSET .BAT** located in the **x:\Dell\Toolkit\Template\Scripts** directory, and then run the **SET** command. In the **Details** section, see the **DT\_PLATFORM** name.

- 4 Copy the contents of the operating system media to the **sources** folder.

- 5 In the folder **PER740**, create a folder **Out-of-Box Drivers**.
- 6 Boot the target system with DTK Windows PE image.
- 7 Check the RAID controllers on the target system using the command `raidcfg -ctrl`.
- 8 Create a virtual disk using the command `raidcfg -ctrl -ac=cvd -c=<Controller_ID> -ad=<Array_Disks>`.
- 9 From **support.dell.com**, download the driver for the server.
- 10 Copy the extracted driver file to **Out-of-Box Drivers** folder on the source system.
- 11 On the target system, to map the shared folder **WinServer\_deploy** on to the target system, run the following command: `net use z: \\<IP address of the source system>\WinServer_deploy /USER:<user name> Password:<password>`
- 12 Navigate to `\Toolkit\Template\Configs`.
- 13 From `\Toolkit\Template\Configs`, copy **Unattend.xml** to `z:\PER740`.

**NOTE:** The `unattendw2k12.xml` is for Windows Server 2012 R2 (64 bit) in BIOS mode, `unattendw2k12_uefi.xml` is for Windows Server 2012 R2 (64 bit) in UEFI mode, `unattendw2k16.xml` is for Windows Server 2016 (64 bit) in BIOS mode, and `unattendw2k16_uefi.xml` is for Windows Server 2016 (64-bit) in UEFI mode, `unattendw2k19.xml` is for Windows Server 2019 (64 bit) in BIOS mode, and `unattendw2k19_uefi.xml` is for Windows Server 2019 (64-bit) in UEFI mode.

- 14 On the source system, navigate to **PER740**.
- 15 In **Unattend.xml**, check the value of **DiskId** in the tags **ImageInstall** and **DiskConfiguration**. The value should be zero. If the value is not zero, set it to zero.
- 16 On the target system, navigate to `\Toolkit\template\scripts` and run **TKENVSET.BAT** to set the DTK paths and options.
- 17 Set the environment variable **DT\_DRIVE=Z:**.
- 18 Run the script **W2K12INST.BAT** or **W2K16INST.BAT** or **W2K19INST.BAT** to install the required version of the Windows Server operating system. Alternative command while running the script **W2K12INST.BAT** `w2012r2_64` for Windows Server 2012 R2 or **W2K16INST.BAT** `w2016_64` for Windows Server 2016 or **W2K19INST.BAT** `w2019_64` for Windows Server 2019.

**NOTE:** Post OS necessary drivers are installed from LC maser partition using this command. Latest LC driver pack should be installed while running this command.

- 19 Select the required operating system. The operating system installation starts and goes on unattended. After the operating system is installed, the **Set Up Windows** screen is displayed.

## Converting to RACADM and installing Windows server Operating System using RACADM scripts

To convert from DTK to RACADM deployment and to install Windows Server operating system using RACADM scripts:

**NOTE:** Using RACADM scripts is an alternative method to install Windows server operating system. This feature is supported on Dell's 12th generation of PowerEdge Servers and later systems. For information see, *Dell EMC OpenManage Deployment Toolkit User's Guide* or *Dell EMC OpenManage Deployment Toolkit Command Line Interface Reference Guide* available at [dell.com/openmanagemanuals](http://dell.com/openmanagemanuals).

- 1 Follow the steps 1 to 15 from the section **Installation of Windows server operating system using DTK**.
- 2 On the target system, navigate to `\Toolkit\Tools\CONVERTER` and run `dtktoracadm.exe` or `dtktoracadm.exe windows_scripts.lst`, where `windows_scripts.lst` is the input file which contains the list of script files to be converted to equivalent RACADM scripts.
- 3 The converted RACADM scripts are available in `\Toolkit\Tools\CONVERTER\racscripts`.
- 4 Navigate to `\Toolkit\Tools\CONVERTER\racscripts`, run the converted **TKENVSET.BAT**, to set the DTK paths and options.
- 5 Set the environment variable **DT\_DRIVE=Z:**.
- 6 Run the script ( **W2K12INST.BAT** or **W2K16INST.BAT** or **W2K19INST.BAT** ), to install the required version of Windows Server operating system. Alternative command while running the script **W2K12INST.BAT** `w2012r2_64` for Windows Server 2012 R2 or **W2K16INST.BAT** `w2016_64` for Windows Server 2016 or **W2K19INST.BAT** `w2019_64` for Windows Server 2019.

**NOTE:** Post OS necessary drivers are installed from LC maser partition using this command. Latest LC driver pack should be installed while running this command.

- 7 Select the required operating system. The operating system installation starts and goes on unattended.  
After the operating system is installed, the **Set Up Windows** screen is displayed.

## Installing Windows client operating system using DTK

To install Windows client operating system using DTK:

**NOTE:** This feature is not supported on Dell PowerEdge MX platforms.

- 1 On the source system, create an operating system-specific folder.  
For example, **WinClient\_deploy**.
- 2 Make **WinClient\_deploy** folder shareable.
- 3 In the folder **WinClient\_deploy**, create two folders **sources** and platform name (for example, PR7920).  
**NOTE:** The platform name must be a DTK standard name. To know the platform name, run **TKENVSET.BAT** located in the **x:\Dell\Toolkit\Template\Scripts** directory, and then run the **SET** command. In the Details section, see the **DT\_PLATFORM** name.
- 4 Copy the contents of the operating system media to the **sources** folder.
- 5 In the folder **PR7920**, create a folder **Out-of-Box Driver**.
- 6 Boot the target system with DTK Windows PE image.
- 7 Check the RAID controllers on the target system using the command `raidcfg -ctrl`.
- 8 Create a virtual disk using the command `raidcfg -ctrl -ac=cvd -c=<Controller_ID> -ad=<Array_Disks>`
- 9 From [support.dell.com](http://support.dell.com), download the driver for the server.
- 10 Copy the extracted driver file to **Out-of-Box Drivers** folder on the source system.
- 11 On the target system, to connect the target system to the shared folder **WinClient\_deploy**, run the following command: `net use z: \\<IP address of the source system>\WinClient_deploy /USER:<user name> Password:<password>`
- 12 Navigate to **\Toolkit\Template\Configs**.
- 13 From **\Toolkit\Template\Configs**, copy **UnattendClient.xml** to **z:\PR7920**.  
**NOTE:** The **unattendClient.xml** file is for Windows client operating system (64-bit) in BIOS mode and **unattendClient\_uefi.xml** is for Windows client operating system (64-bit) in UEFI mode.
- 14 On the source system, navigate to **PR7920**.
- 15 In **unattendClient.xml**, check the value of **DiskId** in the tags **ImageInstall** and **DiskConfiguration**. The value should be zero. If the value is not zero, set it to zero.
- 16 On the target system, navigate to **\Toolkit\template\scripts** and run **TKENVSET.BAT** to set the DTK paths and options.
- 17 Set the environment variable **DT\_DRIVE=Z:**.
- 18 Run the **WINCLIENTINST.BAT** script to install the required version of Windows client operating system.
- 19 Select the required operating system. The operating system installation starts and goes on unattended.  
After the operating system is installed, the **Set Up Windows** screen is displayed.

## Deployment prerequisites for embedded Linux

For Linux, ensure that you have the following tools, software, and information:

- Advanced knowledge of Linux and Linux scripting (bash), Linux networking, installing and working with RPM Package Managers (RPMs), and creating and modifying loop file systems.
- Any third party deployment system or tool, such as Yum.
- A workstation with the following capabilities:
  - A writable media drive
  - Network access



- A target system with a media drive, if performing a local deployment.
- A target system with a media drive and network access, if performing a network deployment.
- All DTK utilities, sample scripts, sample configuration files, and RPM packages.
- All operating system RPM packages that DTK RPMs require.

**NOTE:** Tools such as Yellowdog Updater Modified (YUM), Yet Another Setup Tool (YAST), and Advanced Packaging Tool (APT) can be used to manage RPM dependency issues.

- All other utilities and files necessary to perform the deployment, including all required Linux drivers, operating system drivers, and the Dell utility partition file.
- *Systems Management Tools and Documentation* DVD.
- Your operating system software and documentation.
- An optimally configured source system with network access.

**NOTE:** You can download the latest drivers from [support.dell.com](http://support.dell.com).

**NOTE:** When the inbox drivers for PERC controllers and NIC cards are not available, provide the required drivers using driver disk method.

## Preparing embedded Linux environment for deployment

If you are using the embedded Linux environment:

- 1 Obtain the DTK Linux ISO image, which is a self-contained bootable ISO image.
- 2 Use and customize the sample scripts as per your requirements.
- 3 Set up a *Source System* by using the the *Dell Systems Management Tools and Documentation* DVD (to install your operating system) and the **Systems Service and Diagnostics Tools** (to load drivers).

**NOTE:** You can also download the latest drivers from the Dell Support website at [support.dell.com](http://support.dell.com).

- 4 Generate a system BIOS, BMC, RAID, and/or RAC/iDRAC configuration profile from the optimally configured source system. Copy the generated configuration files to a read/write share onto the workstation or server.

**NOTE:** You can obtain the system BIOS, BMC, RAID, and/or RAC/iDRAC configuration files by booting from DTK Linux ISO image and running the `syscap.sh`, `raidcap.sh`, and `raccap.sh` scripts.

- 5 Create an operating system answer file that contains unattended operating system software installation information.
- 6 Install an operating system on a *Target Server*.

## Installing Red Hat Enterprise Linux Server Operating System using DTK

**CAUTION:** Do not change the bootmode before executing installation scripts using `syscfg`. If you do, reboot the system and start executing installation scripts.

**NOTE:** See your operating system documentation for instructions on modifying the options in the `ks.cfg/ks-rhelx.cfg/ks_rhelx_uefi.cfg` file to customize the scripted installation of your operating system, where *x* indicates the version of the operating system.

To install Red Hat Enterprise Linux using the `lininst.sh/lininst7.sh` script:

- 1 On the source system, navigate to the location of the required Red Hat Enterprise Linux operating system image.
- 2 Create a NFS share using the following command: `vi /etc/exports`.
- 3 Share `/home/rhelshare`.

**NOTE:** If the folder you want to share is `/home`, then the `/etc/exports` file must contain the `"/home *(rw)"` line.

- 4 Restart the NFS service.
- 5 Copy the operating system image to the NFS share.
- 6 Copy **initrd.img** for Red Hat Enterprise Linux to NFS share.
- 7 Copy **vmlinux** from Red Hat Enterprise Linux operating system image to NFS share.
- 8 Boot DTK on the target machine.
- 9 Create the virtual disk using the **raidcfg** command.
- 10 Create a directory under **/tmp**. For example, **os\_src**.
- 11 Mount the NFS Share to **/tmp/os\_src**.
- 12 Copy **ks.cfg/ks-rhelx.cfg** (in BIOS mode) or **ks\_uefi.cfg/ks\_rhelx\_uefi.cfg** (in UEFI mode) from **/opt/dell/toolkit/template/configs** to NFS share on the source machine.  
Here, x indicates the version of the operating system. In BIOS mode, rename the **ks\_rhelx.cfg** to **ks.cfg**. In UEFI mode, rename the **ks\_rhelx\_uefi.cfg** to **ks\_uefi.cfg**.
- 13 Edit **ks.cfg** (in BIOS mode) or **ks\_rhelx\_uefi.cfg** (in UEFI mode) on the source system, where x indicates the version of the operating system. Set the NFS IP address (where Red Hat Enterprise Linux images are available) and the NFS share path.
- 14 Export the environment variables as follows:
  - a Run **export DT\_OS\_DISK=/dev/sda** on the disk device on which the Dell utility partition was created.
  - b Run **export DT\_OS\_SRC=/tmp/os\_src** where **vmlinux**, **initrd.img**, and **kickstart file** are available.
  - c Run **export DT\_HD=/dev/sda**.
  - d For Red Hat Enterprise Linux 7, run **export DT\_OS\_NFS\_LOC=<IP address of NFS>:/<path to os source>**.
- 15 Run the **partcfg.sh** (at **/opt/dell/toolkit/template/scripts/**) script to create the Dell utility partition and OS partition in BIOS or UEFI mode.  
Ensure that the correct device is set to **DT\_HD** and **DT\_OS\_DISK**.
- 16 From **/opt/dell/toolkit/template/scripts**, run **/lininst.sh** (for 6.x) or **/lininst7.sh** (for 7.x) script.  
The server reboots to the **grub** prompt. The Red Hat Enterprise Linux operating system unattended installation is initiated.

**NOTE:** For more information on installing, see [en.community.dell.com/techcenter/systems-management/w/wiki/1772.dell-openmanage-deployment-toolkit.aspx](https://en.community.dell.com/techcenter/systems-management/w/wiki/1772.dell-openmanage-deployment-toolkit.aspx).

## Converting to RACADM and installing Red Hat Enterprise Linux Server Operating System using RACADM scripts

**CAUTION:** Do not change the bootmode before running installation scripts using **syscfg**. If you do, reboot the system and start running installation scripts.

**NOTE:** See your operating system documentation for instructions on modifying the options in the **ks.cfg/ks-rhelx.cfg/ks\_rhelx\_uefi.cfg** file to customize the scripted installation of your operating system, where x indicates the version of the operating system.

**NOTE:** Using RACADM scripts is an alternative method to install Red Hat Enterprise Linux server operating system. This feature is supported on Dell's 12th generation of PowerEdge Servers and later systems. For information see, *Dell OpenManage Deployment Toolkit User's Guide* or *Dell OpenManage Deployment Toolkit Command Line Interface Reference Guide* available at [dell.com/openmanagemanuals](https://dell.com/openmanagemanuals).

To convert from DTK to RACADM deployment and to install Red Hat Enterprise Linux using the **lininst.sh / lininst7.sh** script:

- 1 On the source system, navigate to the location of the required Red Hat Enterprise Linux operating system image.
- 2 Perform the steps 2 to 14 from the section **Installing Red Hat Enterprise Linux Server Operating System using DTK**.
- 3 From **/opt/dell/toolkit/converter**, run the command **python dtktoracadm.py** or **python dtktoracadm.py linux\_scripts.lst**, where **linux\_scripts.lst** is the input file which contains the list of script files to be converted to equivalent RACADM scripts.  
The RACADM converted scripts are available in **/opt/dell/toolkit/converter/racscripts**.
- 4 From **/opt/dell/toolkit/converter/racscripts/**, run the **partcfg.sh** script to create the Dell utility partition and OS partition in BIOS or UEFI mode.

Ensure that the correct device is set to DT\_HD and DT\_OS\_DISK.

- 5 Run `/lininst.sh` (for 6.x) or `/lininst7.sh` (for 7.x) script.

The server reboots to the **grub** prompt. The Red Hat Enterprise Linux operating system unattended installation is initiated.

## Installing SUSE Linux server Operating System using DTK

**CAUTION:** It is recommended that you consult your SUSE Linux Enterprise Server operating system documentation and unattended deployment documentation to develop a thorough understanding of the unattended installation process before attempting to perform a full scripted deployment.

**NOTE:** While installing Linux, ensure that you install grub in the boot partition. Otherwise, you cannot boot to the utility partition by pressing the <F10> key during reboot.

To install SUSE Linux Enterprise Server using the `suseinst.sh` script:

- 1 On the source system, navigate to the location of the required SUSE Linux Enterprise Linux operating system image.
  - 2 Create two NFS shares at `/etc/exports`, `/osimage` and `/dtkosinstall`.
  - 3 Restart the NFS service.
  - 4 Copy the operating system image to `/osimage` share.
  - 5 Copy `initrd.img` and `linux` to `/dtkosinstall` share.
  - 6 Boot DTK on the target machine.
  - 7 Create the virtual disk using the `raidcfg` command.
  - 8 Create a directory under `/tmp`. For example, `os_src`.
  - 9 Mount the NFS share (`/dtkosinstall`) to `/tmp/os_src`.
  - 10 Copy `Sles-autoinst.xml` (in BIOS mode) or `Sles-autoinst_uefi.xml` (in UEFI mode) from `/opt/dell/toolkit/template/configs` to NFS share (`/dtkosinstall`) on the source machine. In BIOS mode, rename the `Sles-autoinst.xml` to `autoinst.xml`. In UEFI mode, rename the `Sles-autoinst_uefi.xml` to `autoinst_uefi.xml`.
  - 11 Export the environment variables as follows:
    - a Run `export DT_OS_DISK=/dev/sda` on the disk device on which the Dell utility partition was created.
    - b Run `export DT_OS_SRC=/tmp/os_src` where `linux`, `initrd.img`, and `autoinst.xml/ autoinst.xml_uefi` are available.
    - c Run `export DT_OS_PART=/dev/sda`.
    - d Run `export DT_OS_IMG_PATH=nfs://<IP Address>/osimage`.
    - e Run `export DT_SUSE_AUTOINST= nfs://<IP Address>/dtkosinstall/autoinst.xml`.
    - f Run `export DT_HD=/dev/sda`.
  - 12 Run `partcfg.sh` at (`/opt/dell/toolkit/template/scripts/`) to create the Dell utility partition and OS partition in BIOS or UEFI mode.

**NOTE:** Ensure that the correct device is set to DT\_HD, DT\_OS\_DISK, and DT\_OS\_PART.
  - 13 From `/opt/dell/toolkit/template/scripts`, run `/suseinst.sh` script.
- The server reboots to the **grub** prompt. The SUSE Linux Enterprise Linux operating system unattended installation is initiated.

## Converting to RACADM and installing SUSE Linux server Operating System using RACADM scripts

**CAUTION:** It is recommended that you consult your SUSE Linux Enterprise Server operating system documentation and unattended deployment documentation to develop a thorough understanding of the unattended installation process before attempting to perform a full scripted deployment.

**NOTE:** While installing Linux, ensure that you install grub in the boot partition. Otherwise, you cannot boot to the utility partition by pressing the <F10> key during reboot.

- ① **NOTE:** Using RACADM scripts is an alternative method to install SUSE Linux server operating system. This feature is supported on Dell's 12th generation of PowerEdge Servers and later systems. For information see, *Dell OpenManage Deployment Toolkit User's Guide* or *Dell OpenManage Deployment Toolkit Command Line Interface Reference Guide* available at [dell.com/openmanagemanuals](http://dell.com/openmanagemanuals).

To convert from DTK to RACADM deployment and to install SUSE Linux Enterprise Server using the `suseinst.sh` script:

- 1 On the source system, navigate to the location of the required SUSE Linux Enterprise Linux operating system image.
- 2 Perform the steps 2 to 11 from the section **Installing SUSE Linux server Operating System using DTK**.
- 3 From `/opt/dell/toolkit/converter`, run the command `python dtktoracadm.py` or `python dtktoracadm.py linux_scripts.lst`, where `linux_scripts.lst` is the input file which contains the list of script files to be converted to equivalent RACADM scripts.  
The RACADM converted scripts are available in `/opt/dell/toolkit/converter/racscripts`.
- 4 From `/opt/dell/toolkit/converter/racscripts/`, run the `partcfg.sh` script to create the Dell utility partition and OS partition in BIOS or UEFI mode.

- ① **NOTE:** Ensure that the correct device is set to `DT_HD`, `DT_OS_DISK`, and `DT_OS_PART`.

- 5 Run `/suseinst.sh` script, from `/opt/dell/toolkit/converter/racscripts`.  
The server reboots to the `grub` prompt. The SUSE Linux Enterprise Linux operating system unattended installation is initiated.

## Installing CentOS Linux Server Operating System

- △ **CAUTION:** Do not change the bootmode before executing installation scripts using `syscfg`. If you do, reboot the system and start executing installation scripts.

- ① **NOTE:** See your operating system documentation for instructions on modifying the options in the `ks.cfg/ks-centosx.cfg/ks-centosx_uefi.cfg` file to customize the scripted installation of your operating system, where *x* indicates the version of the operating system.

To install CentOS Linux using the `centinst6.sh/centinst7.sh` script:

- 1 On the source system, navigate to the location of the required CentOS Linux operating system image.
- 2 Create a NFS share using the following command: `vi /etc/exports`.
- 3 Share `/home/centosshare`.  
① **NOTE:** If the folder you want to share is `/home`, then the `/etc/exports` file must contain the `"/home *(rw)"` line.
- 4 Restart the NFS service.
- 5 Copy the operating system image to the NFS share.
- 6 Copy `initrd.img` for CentOS Linux to NFS share.
- 7 Copy `vmlinux` from CentOS Linux operating system image to NFS share.
- 8 Boot DTK on the target machine.
- 9 Create the virtual disk using the `raidcfg` command.
- 10 Create a directory under `/tmp`. For example, `os_src`.
- 11 Mount the NFS Share to `/tmp/os_src`.
- 12 Copy `ks.cfg/ks-centosx.cfg` (in BIOS mode) or `ks_uefi.cfg/ks-centosx_uefi.cfg` (in UEFI mode) from `/opt/dell/toolkit/template/configs` to NFS share on the source machine.  
Here, *x* indicates the version of the operating system. In BIOS mode, rename the `ks-centosx.cfg` to `ks.cfg`. In UEFI mode, rename the `ks-centosx_uefi.cfg` to `ks.cfg`.
- 13 Edit `ks.cfg` (in BIOS mode) or `ks-centosx_uefi.cfg` (in UEFI mode) on the source system, where *x* indicates the version of the operating system. Set the NFS IP address (where CentOS Linux images are available) and the NFS share path.
- 14 Export the environment variables as follows:
  - a Run `export DT_OS_DISK=/dev/sda` on the disk device on which the Dell utility partition was created.
  - b Run `export DT_OS_SRC=/tmp/os_src` where `vmlinux`, `initrd.img`, and `kickstart file` are available.
  - c Run `export DT_HD=/dev/sda`.

d For CentOS 7.x, run `export DT_OS_NFS_LOC=<IP address of NFS>:/<path to os source>.`

- 15 Run the `partcfg.sh` (at `/opt/dell/toolkit/template/scripts/`) script to create the Dell utility partition and OS partition in BIOS or UEFI mode.

Ensure that the correct device is set to `DT_HD` and `DT_OS_DISK`.

- 16 From `/opt/dell/toolkit/template/scripts`, run `/centinst6.sh` or `/centinst7.sh`.

The server reboots to the `grub` prompt. The CentOS Linux operating system unattended installation is initiated.

 **NOTE:** For more information on installing, see [en.community.dell.com/techcenter/systems-management/w/wiki/1772.dell-openmanage-deployment-toolkit.aspx](https://en.community.dell.com/techcenter/systems-management/w/wiki/1772.dell-openmanage-deployment-toolkit.aspx).

# Downloading Seamless package

The DTK seamless package is a single installer package which carries Linux DTK RPMs (RHEL, SLES) and its dependency. Seamless package auto recognizes the OS type and its respective dependency during the installation and installs SYSCFG, RAIDCFG and RACADM tools on Linux post operating system. The size of the DTK tools seamless package is less (60MB) compared to that of the complete OM DVD contents size.

DTK seamless package is posted independently on [www.dell.com/support](http://www.dell.com/support) in conjunction with OM releases.

The seamless package supports both interactive and non-interactive mode of DTK tool installation.

Interactive mode options to install are:

## Deployment Tools Install Utility

### Available install options:

- [ ] 1. Command line BIOS configuration utility (syscfg utility)
- [ ] 2. Command line RAID configuration utility (raidcfg utility)
- [ ] 3. DRAC command line configuration utility
- [ ] 4. All features

Enter the number to select/deselect (toggle selection) a component

Enter **i** to install the selected components.

Enter **q** to quit.

Once the DTK tools installation is complete, the same is displayed on the screen.

To uninstall, run the command

```
/opt/dell/toolkit/bin/dtktools-uninstall.sh -d
```

Non-interactive mode option:

Run the following command, to installs all the available tools. Any other option is ignored.

```
./DTKTOOLS_<release version>_Linux64_<build number>.Bin -f [-- force]
```

Provides the help option in the command line

```
./DTKTOOLS_<release version>_Linux64_<build number>.Bin -h [-- help]
```

Once the DTK tools installation is complete, the same is displayed on the screen.

To uninstall, run the command

```
./DTKTOOLS_<release version>_Linux64_<build number>.Bin -- delete [-d]
```

# Upgrading your DTK version

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