

Dell Command | PowerShell Provider Version 1.0 User's Guide



Notes, cautions, and warnings

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

 **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

Dell Command | PowerShell Provider is a PowerShell module that provides BIOS configuration capability to Dell client platforms using the Windows PowerShell Interface. Dell Command | PowerShell Provider can be installed as plug-in software registered within a Windows PowerShell environment.

Dell Command | PowerShell Provider works for local and remote systems, and even in Windows pre-installation environment. This module, with its native configuration capability, makes BIOS configuration easily manageable.

Document scope and intended audience

This document describes the prerequisites, installation, and use of Dell Command | PowerShell Provider for Dell enterprise client systems. This document is designed for IT professionals, system administrators who are familiar with Windows PowerShell environment, and who want to simplify task automation and configuration management within powerful scripting environment using Dell Command | PowerShell Provider.

Other documents you may need

In addition to this guide, and the integrated help available within the module, you can access other available Dell Command | PowerShell Provider documents at dell.com/dellclientcommandssuitemanuals. To access other documents,

1. Go to dell.com/dellclientcommandssuitemanuals.
2. Click **Dell Command | PowerShell Provider**.
3. Click **Dell Command | PowerShell Provider 1.0** link in the Product Support section.
4. Click the **Manuals** drop-down icon in the **Product Support** page.
5. To download the document, click the document's PDF link.

System requirements and prerequisites

This chapter describes the supported software and prerequisites for using Dell Command | PowerShell Provider.


Supported Dell platforms

For information on supported Dell platforms refer Dell Command | PowerShell Provider Release Notes available at dell.com/dellclientcommandsuite manuals.

Prerequisites


Before installing Dell Command | PowerShell Provider, ensure that you have the following system configuration:

Table 1. Supported software

Supported software	Supported versions	Additional information
Operating systems	Windows 7, Windows 8, Windows 8.1, and Windows 10	Windows 7 natively includes PowerShell 2.0. This can be upgraded to 3.0 to meet the software requirements for using Dell command PowerShell Provider.
Windows Management Framework (WMF)	WMF 3.0, 4.0, and 5.0	
Windows PowerShell	3.0 and later	See Installing Windows PowerShell , and Configuring Windows PowerShell
SMBIOS	2.3 and later	The target system is a Dell manufactured system with System Management Basic Input Output System (SMBIOS) version 2.3 or later.
		 NOTE: To identify the SMBIOS version of the system, click Start > Run , and run the msinfo32.exe file. Check for the SMBIOS version in System Summary page.
Microsoft Visual C++ redistributable	2010, 2012	Both 2010, and 2012 should be available

Installing Windows PowerShell

Windows PowerShell is natively included with Windows 7 and later operating systems.

 **NOTE:** Windows 7 natively includes PowerShell 2.0. This can be upgraded to 3.0 to meet the software requirements for using Dell command | PowerShell Provider.

Configuring Windows PowerShell

- Ensure that you have Administrative privileges on the Dell business client system.
- By default Windows PowerShell has its ExecutionPolicy set to Restricted. To run the Dell Command | PowerShell Provider cmdlets and functions, ExecutionPolicy must be changed to RemoteSigned at a minimum. To apply the ExecutionPolicy, run Windows PowerShell with Administrator privileges, and run the following command within the PowerShell console:

```
Set-ExecutionPolicy RemoteSigned -force
```

 **NOTE:**

- If there are more restrictive security requirements, set the ExecutionPolicy to AllSigned. Run the following command within the PowerShell console: `Set-ExecutionPolicy AllSigned -Force`
- If using an ExecutionPolicy based process, run Set-ExecutionPolicy each time a Windows PowerShell console is opened.
- To run Dell Command | PowerShell Provider remotely, you must enable PS remoting on the remote system. To initiate remote commands, check system requirements and configuration requirements by running the following command:

```
PS C:> Get-Help About_Remote_Requirements
```

Download and installation

This chapter describes how to download, install, uninstall, and upgrade Dell Command | PowerShell Provider.

Downloading Dell Command | PowerShell Provider

The Dell Command | PowerShell Provider module is available at the Dell support site and at Microsoft Gallery.

- [Downloading Dell Command | PowerShell Provider module from the Dell support site](#)
- [Downloading Dell Command | PowerShell Provider module from Microsoft Gallery](#)

Downloading the Dell Command | PowerShell Provider module from the Dell support site

The Dell Command | PowerShell Provider module is available as a zip file at www.dell.com/support. To download the zip file,

1. Go to **www.dell.com/support**.
2. Click the **Support** tab, and under **Support by Product** option click **Drivers & Downloads**.
3. Enter the **Service Tag** or **Express Service Code** and click **Submit**.
4. If you do not know the service tag, then click **Detect My Product** and follow the instructions on the screen.
The **Product Support** page for your system type is displayed.
5. Click **Drivers & downloads**.
6. Expand the **Systems Management** category, and click the **Download** option for **DellCommandPowerShellProvider1.0_<build number>.zip** file.
7. Click **Save** to complete the download.

Downloading the Dell Command | PowerShell Provider module from Microsoft Gallery

The Dell Command | PowerShell Provider module is available at Microsoft Gallery.

Prerequisites:

- Supported PowerShell version: 5.0 and later
 - PowerShell get package manager **nuget-anycpu.exe**.
1. Open Windows PowerShell with administrator privileges.
 2. To find the **Dell Command | PowerShell Provider** module, run the following command: `Find-Module DellBIOSProvider`.
 3. To install the module, run the following command based on the OS:

- For 32 bit operating system, `Install-Module DellBIOSProviderX86`.
 - For 64 bit operating system, `Install-Module DellBIOSProvider`.
4. To download the **nuget-anycpu.exe** file, enter **Y**.

Installing Dell Command | PowerShell Provider

To install Dell Command | PowerShell Provider, perform the following steps:

Prerequisite:

Delete any previously installed version of Dell Command | PowerShell Provider before installing the Dell Command | PowerShell Provider 1.0. See, [Uninstalling Dell Command | PowerShell Provider](#).

1. Unblock the downloaded **DellCommandPowerShellProvider1.0_<build number>.zip** file. See, [Unblocking the DellCommandPowerShellProvider1.0_<build number>.zip](#).
2. Extract the zip file.
3. Create a module folder at **\$(env:ProgramFiles)\WindowsPowerShell\Modules**. Alternatively, to create a module folder, execute the following command in a Windows PowerShell console.

```
New-Item -Type Container -Force -path <folder path>
```
4. Copy the folders and files from the downloaded zip file to Dell Command | PowerShell Provider module folder.
 - For 32-bit systems; copy the files from DellBIOSProviderX86 folder to **\$(env:ProgramFiles)\WindowsPowerShell\Modules**
 - For 64-bit systems; copy the files from DellBIOSProvider folder to **\$(env:ProgramFiles)\WindowsPowerShell\Modules**
5. After install, run the `Get-Module -ListAvailable` command to verify that the module is available along with the available exported commands.

Unblocking the DellCommandPowerShellProvider1.0_<build number>.zip

If the **DellCommandPowerShellProvider1.0_<build number>.zip** file downloaded from the Dell support site is blocked on your system, unblock the zip file. To unblock the zip file,

1. Select the zip file, right-click, and then click **Properties**.
2. Click the **General** tab, and then select the **Unblock** option.
3. Click **Apply**.

Alternatively, run the following command within a Windows PowerShell console:

```
Unblock-File .\DellCommandPowerShellProvider1.0_<build number>.zip
```

Uninstalling Dell Command | PowerShell Provider

You can uninstall Dell Command | PowerShell Provider by manually deleting the **DellBIOSProvider** module folder and files from your system.

Upgrading Dell Command | PowerShell Provider

Being the first version of Dell Command | PowerShell Provider, upgrade is not applicable as of now. If you have previously installed a beta version of this software, remove the Dell Command | PowerShell Provider folders and files before installing Dell Command PowerShell | Provider 1.0.

To uninstall the previous version, see [Uninstalling Dell Command | PowerShell Provider](#).

Getting started with Dell Command | PowerShell Provider

This chapter describes importing the module, general navigation, supported cmdlets, and custom functions of Dell Command | PowerShell Provider.

Importing Dell Command | PowerShell Provider

Import Dell Command | PowerShell Provider before you start using its functions. To Import the module,

1. Open the Windows PowerShell console with administrator privileges.
2. Run the following command:

For 32-bit systems; `Import-Module DellBIOSProviderX86 -Verbose`


For 64-bit systems; `Import-Module DellBIOSProvider -Verbose`

```
PS C:\Users\Administrator> Import-Module DellBIOSProvider -Verbose
VERBOSE: Loading module from path 'C:\Program Files\WindowsPowerShell\Modules\DellBIOSProvider\DellBIOSProvider.psd1'.
VERBOSE: Loading module from path 'C:\Program Files\WindowsPowerShell\Modules\DellBIOSProvider\DellBIOSProvider.psm1'.
VERBOSE: Exporting function 'Set-1stBootdevice'.
VERBOSE: Exporting function 'Get-DellBiosSettings'.
VERBOSE: Exporting function 'Clear-DellAdminPassword'.
VERBOSE: Exporting function 'Set-DellAutoOnForSelectDays'.
VERBOSE: Exporting function 'Get-DellBIOSPasswordPath'.
VERBOSE: Exporting function 'Write-DellBIOSPassword'.
VERBOSE: Exporting function 'Read-DellBIOSPassword'.
VERBOSE: Importing function 'Clear-DellAdminPassword'.
VERBOSE: Importing function 'Get-DellBIOSPasswordPath'.
VERBOSE: Importing function 'Get-DellBiosSettings'.
VERBOSE: Importing function 'Read-DellBIOSPassword'.
VERBOSE: Importing function 'Set-1stBootdevice'.
VERBOSE: Importing function 'Set-DellAutoOnForSelectDays'.
VERBOSE: Importing function 'Write-DellBIOSPassword'.
VERBOSE: Loading module from path 'C:\Program Files\WindowsPowerShell\Modules\DellBIOSProvider\DellBIOSProvider.dll'.
VERBOSE: Starting Ps provider DellSmbiosProv
VERBOSE: .NET Version: 4.0.30319.33440
VERBOSE: Performing InitializeDefaultDrives operation on the 'DellSmbiosProv' provider.
VERBOSE: Performing operation New-PSDrive for the provider DellSmbiosProv.
VERBOSE: Category 'stealthModeControl' does not contain any supported attributes.
VERBOSE: Category 'Maintenance' does not contain any supported attributes.
VERBOSE: Category 'SystemLogs' does not contain any supported attributes.
VERBOSE: Category 'AdvancedConfigurations' does not contain any supported attributes.
To get more help about the Dell Command PowerShell provider, type Get-Help DellBIOSProvider.
```

Figure 1. Importing module along with custom functions

To verify the import, run the following cmdlet within PowerShell console, and look for DellSMBIOS.

```
Get-PSDrive
```

 **NOTE:** To remove Dell Command | PowerShell Provider from the console, run the following command within the Windows PowerShell console:

For 32-bit systems; `Remove-Module DellBiosProviderX86 -Verbose`

For 64-bit systems; `Remove-Module DellBIOSProvider -Verbose`

Navigating using the Windows PowerShell console

After importing the module, navigate to DellSMBIOS drive. Run `Get-ChildItem` cmdlet to view the list of available categories.

```
PS C:\Users\Administrator> cd dellsmbios:
PS DellSmbios:\> dir

Category                                     Desc
-----
SystemInformation                          Displays non-editable information that uniquely identifi...
MemoryInformation                          Displays non-editable information about memory.
ProcessorInformation                        Displays non-editable information about processor(s).
BatteryInformation                          Displays each battery with the percent charged, charging...
BootSequence                                Displays the attributes to configure the system boot sett...
AdvancedBootOptions                         Displays the attributes to configure advanced boot setti...
SystemConfiguration                         Displays the attributes to configure devices that are in...
StealthModeControl                          Displays the attributes to configure stealth mode settings.
Video                                        Displays the attributes to configure video settings.
Security                                     Displays the attributes to configure the security featur...
SecureBoot                                  Displays the attributes to configure secure boot settings...
Performance                                 Displays the attributes to configure performance related...
PowerManagement                             Displays the attributes to configure power management se...
POSTBehavior                                Displays the attributes to configure system's behavior a...
VirtualizationSupport                       Displays the attributes to configure virtualization sett...
Wireless                                    Displays the attributes to configure wireless devices.
Maintenance                                 Displays the attributes to configure maintenance related...
SystemLogs                                  Displays the attributes to configure system logs settings...
TPMSecurity                                 Displays the attributes to configure TPM device settings...
MiscellaneousDevices                       Displays the attributes to configure various miscellaneo...
USBConfiguration                            Displays the attributes to configure USB settings. NOTE:...
AdvancedConfigurations                     Displays the attributes to configure various advanced se...

PS DellSmbios:\> cd .\Performance
PS DellSmbios:\Performance> dir

Attribute                                     CurrentValue
-----
RapidStartTimer                               10
IntelSpeedStep                               Automatic
CStates                                       Enabled
IntelTurboBoost                               Enabled
HyperThreadControl                            Disabled

PS DellSmbios:\Performance> cd _
```

Figure 2. Accessing categories and attributes

To access the attributes in each category, set location to the desired category and then run `Get-Childitem` cmdlet.

Supported cmdlets in Dell Command | PowerShell Provider

The following are the supported cmdlets in Dell Command | PowerShell Provider:


 **NOTE:** Press **Tab** To complete the Dell Command | PowerShell Provider cmdlet in the Windows PowerShell console.

Table 2. Supported cmdlets

Cmdlet	Alias	Description
Get-Location	pwd	Displays the current path/location within the DellSMBIOS drive.
Set-Location	cd	Sets the working location to a specified path/location within the DellSMBIOS drive.
Get-Item	gi	Displays the item at the specified location within the DellSMBIOS drive.

Cmdlet	Alias	Description
Get-ChildItem	dir	Displays the child items at the specified location within the DellSMBIOS drive.
Set-Item	si	Sets the value of the item.
Find-Module	fimo	Finds available modules from the online PowerShell Gallery.
Get-Module	gmo	Gets the list modules that have been imported or that can be imported into the current session.
Install-Module	inmo	Installs the specified module from the PowerShell Gallery.
Import-Module	ipmo	Adds or imports the module to the current session.
Remove-Module	rmo	Removes the imported module from the PowerShell console.
Remove-PSDrive	rdr	Removes the Windows PowerShell drive.

Custom functions in Dell Command | PowerShell Provider

Dell Command | PowerShell Provider offers the following custom functions:

Table 3. Custom functions

Cmdlets	Description
Clear-DellAdminPassword	Erases the Admin password in BIOS.
Get-DellBiosSettings	Retrieves all BIOS settings that are applicable to the system.
Get-DellBIOSPasswordPath	Retrieves the Dell BIOS password path.
Load-DellBIOSProvider	Loads the Dell BIOS provider in a current session.
Read-DellBIOSPassword	Reads the Dell BIOS password from secure string storage.
Set-Dell1stBootdevice	Sets a desired boot device first in the boot sequence. The substring name, instead of the name of the boot device can also be specified.
Set-DellAutoOnForSelectDays	Sets the Auto-on to select days, and enables or disables the individual days to automatically power at the system on a specified time.
Write-DellBIOSPassword	Writes the Dell BIOS password to the system from secure string storage.

Parameters supported in Dell Command | PowerShell Provider

Table 4. Parameters

Parameters	Description	Applicable For
Password	Provides the password that is set in the plain text.	All configurable attributes
PasswordSecure	Provides the password that is set in a secure text.	All configurable attributes
StartTime	Specifies the time when system starts consuming battery power.	PeakShiftDayConfiguration
Endtime	Specifies the time when the system stops consuming battery power and starts consuming AC power, if available.	PeakShiftDayConfiguration
ChargeStartTime	Specifies the time when the system starts charging battery while consuming AC power, if available.	PeakShiftDayConfiguration
BeginningOfDay	Configures the AdvanceBatteryCharge start time in 24 hours format.	AdvanceBatteryChargeConfiguration
WorkPeriod	Configures the duration of charging.	AdvanceBatteryChargeConfiguration
AdminPassword	Specifies that admin password must be provided while setting HDD password if administrator has restricted the changes to HDD password.	HDDPassword
ATAMaximumSecurityMode	Specifies the ATA Maximum Security Mode.	HDDPassword

Configuring attributes using Dell Command | PowerShell Provider

To configure system BIOS settings using Dell Command PowerShell Provider attributes:

1. Set-location to DellSMBIOS: drive. See [Dell Command | PowerShell Provider drive](#).
2. Verify the current state of the attribute by running the following command: `Get-Item -Path <path to the attribute>`. See [Format of the path](#).
The command displays the **Current Value**, **Possible Values** and **Description** of the attribute you want to configure.
3. To set the attribute, run the following command: `Set-Item -Path <path to the attribute> <possible value> -Password <password>`. See [Password parameters](#).


Example: To enable the Numlock attribute when password is set, run the following command:

```
Set-Item -Path .\POSTBehavior\Numlock Enabled -Password <password>
```

Dell Command | PowerShell Provider drive

A Windows PowerShell drive is a repository location that you can access like a file system drive in Windows PowerShell. Dell Command | PowerShell Provider has only one drive that is DellSMBIOS:. The DellBIOSProvider module exposes the BIOS attributes in the DellSMBIOS: drive. The DellSMBIOS: drive has the following two levels:

- Categories — These are high-level containers that group the attributes of BIOS.
- Attributes — These are part of the categories. Each attribute represents a BIOS setting.


 **NOTE:** Creation of a new drive is not supported for DellBIOSProvider.

Format of the path

Path is a complete location of a file. In Dell Command | PowerShell Provider, the path can be mentioned in the following format: **DellSMBIOS:\<Category>\<Attribute>**.

Example:

```
DellSMBIOS:\POSTBehavior\Numlock
```

 **NOTE:** A path can be a path to a category or a path to an attribute.

Password parameters

Dell Command | PowerShell Provider allows you to provide a password either in plain text or in secure text.

-Password: Provide the password that is set in the plain text.

Format:

```
Set-Item -Path <path to the attribute> <possible value> -Password <password>
```

Example:

```
Set-Item -Path DellSMBIOS:\POSTBehavior\Numlock "Enabled" -Password <Plain text password>
```

-PasswordSecure: Provide the password that is set in a secure text.

Format:

```
Set-Item -Path <path to the attribute> <possible value> -PasswordSecure <password>
```

Example:


```
Set-Item -Path DellSMBIOS:\POSTBehavior\Numlock "Enabled" -PasswordSecure <Secure text password>
```

Features supported in Dell Command | PowerShell Provider

This section describes the usage of various attributes/features in Dell Command | PowerShell Provider.

Using the AutoOn feature

This feature allows you to configure the days when the system has to turn on automatically from hibernate or power off state at the time specified in **AutoOnHour** and **AutoOnMinute**.

 **NOTE:** AutoOn capabilities work only for a system running on AC power. This feature does not work if the system is running on battery power.

Select one of the following options:

- **Disabled** – To disable the AutoOn capabilities.
- **Every Day** – To enable the AutoOn capabilities for every day.
- **WeekDays** – To enable the AutoOn capabilities on weekdays (Monday to Friday).
- **Select Days** – To enable or disable the AutoOn capabilities on selected days. If you select this option, the following attributes are available in the PowerManagement category:
 - **AutoOnMonday** – To enable or disable the AutoOn capabilities on Mondays.
 - **AutoOnTuesday** – To enable or disable the AutoOn capabilities on Tuesdays.
 - **AutoOnWednesday** – To enable or disable the AutoOn capabilities on Wednesdays.
 - **AutoOnThursday** – To enable or disable the AutoOn capabilities on Thursdays.
 - **AutoOnFriday** – To enable or disable the AutoOn capabilities on Fridays.
 - **AutoOnSaturday** – To enable or disable the AutoOn capabilities on Saturdays.
 - **AutoOnSunday** – To enable or disable the AutoOn capabilities on Sundays.

You can enable or disable individual days by setting AutoOnSunday -enable, and AutoOnMonday -disable, etc.

Configure **AutoOnHour** and **AutoOnMinute** attributes in order to set the time for the AutoOn function.

- **AutoOnHour** – To set the hour at which you want the system to turn on automatically, provide the value ranging from 0-23. To set the time 11:59 p.m., provide the value as 23.
- **AutoOnMinute** – To set the minute at which you want the system to turn on automatically, provide the value ranging from 0-59. To set the time 11:59 p.m., provide the value as 59.

Example: To turn on the system automatically on weekdays.

```
Command: Set-Item -Path DellSmbios:\PowerManagement\AutoOn "WeekDays"
```

Example: To turn on the system automatically on Fridays.


```
Command: Set-Item -Path DellSmbios:\PowerManagement\AutoOnFriday "Enabled"
```

Example: To turn on the system automatically on Sundays at 11:59 p.m..

```
Command: Set-Item -Path DellSmbios:\PowerManagement\AutoOnSunday "Enabled"  
Set-Item -Path DellSmbios:\PowerManagement\AutoOnHour "23"  
Set-Item -Path DellSmbios:\PowerManagement\AutoOnMinute "59"
```

Using the AdvanceBatteryChargeConfiguration feature

This feature allows you to configure AdvancedBatteryChargingMode and AdvancedBatteryChargeConfiguration options in the PowerManagement category. Advanced Battery charge mode uses a standard charging algorithm and other methods during nonworking hours to maximize battery health. During working hours, ExpressCharge is used to charge the batteries faster. You can configure the days and the Work Period during which you want the battery to charge.

 **NOTE:** The configuration applies to all batteries: Primary, Slice, and Module Bay.


You can enable or disable Advanced Battery charge mode:

- **Enabled** — Enables AdvancedBatteryChargingMode.
- **Disabled** — Disables AdvancedBatteryChargingMode. If disabled, battery charging mode is based on Primary Battery Charge Configuration, Battery Slice Charge Configuration, Primary Battery Custom Charge Start, and Primary Battery Custom Charge End.

To configure the AdvanceBatteryCharge time period, provide the following values:

- **BeginningOfDay** — Configures the AdvanceBatteryCharge start time in 24 hours format. The value of hour must be in the range 0–23 and minute must be 0, 15, 30, or 45.
- **WorkPeriod** — Configures the duration of charging.

For example, to set AdvancedBatteryChargeConfiguration from 7:15 a.m. to 2:30 p.m., set **BeginningOfDay** as 7:15 and set **WorkPeriod** as 7:15.

 **NOTE:** To set 12 a.m., provide the hour value as 00.

Example: To enable AdvancedBatteryChargingMode.

```
Command: Set-Item AdvancedBatteryChargingMode "Enabled"
```

Example: To set the charge time from 11 a.m. to 2 p.m. on Saturdays.

```
Command: Set-Item AdvancedBatteryChargeConfiguration -value Saturday -Beginningofday "11:00" -Workperiod "3:00"
```


Example: To set BeginningOfDay value only. Workperiod value for Monday remains unchanged.

```
Set-Item AdvancedBatteryChargeConfiguration -value Monday -Beginningofday "09:00"
```

Using the PrimaryBatteryChargeConfiguration feature

This feature allows you to configure the primary battery charging option in the PowerManagement category. The selected charging mode applies to all batteries installed in the system. Select one of the following modes:

- **Adaptive** — Battery settings are adaptively optimized based on your typical battery usage pattern.
- **Standard** — Charges the battery at a standard rate.
- **Express Charge** — Charges the battery faster using the express charging algorithm, Dell's fast charging technology.
- **Primarily AC Use** — Charges the battery while plugged-in, preferred for the users who operate their system while plugged in to an external power source.
- **Custom** — The battery charging starts and stops based on the settings specified in Primary Battery Custom Charge Start and Primary Battery Custom Charge End.
 - **PrimaryBatteryCustomChargeStart** — Sets the percent value ranging from 50 to 95 at which the custom battery charging should start.
 - **PrimaryBatteryCustomChargeEnd** — Sets the percent value ranging from 55 to 100 at which the custom battery charging should stop.

 **NOTE:** PrimaryBatteryCustomChargeStart percent must be less than PrimaryBatteryCustomChargeEnd percent, and the minimum difference between the two can be no less than 5 percent.

Example: To retrieve the current mode of the PrimaryBatteryChargeConfiguration attribute.

```
Get-ChildItem -Path DellSmbios:\PowerManagement
\PrimaryBatteryChargeConfiguration
```

If the status retrieved as **Custom**, then to know the percent when charging starts and ends, retrieve PrimaryBatteryCustomChargeStart and PrimaryBatteryCustomChargeEnd attributes.

Example: To set the battery charging mode as standard.

```
Set-Item -Path DellSmbios:\PowerManagement\PrimaryBatteryChargeConfiguration
"Standard"
```

Example: To set the battery charge mode as custom and then to specify the start time and duration when the battery should be charged.

```
Set-Item -Path DellSmbios:\PowerManagement\PrimaryBatteryChargeConfiguration
"Custom"
```

- Sets the PrimaryBatteryChargeConfiguration attribute to charge battery based on user settings specified in PrimaryBatteryCustomChargeStart and PrimaryBatteryCustomChargeEnd attributes. If the value 'Custom' is chosen,
 - Charging starts based on the battery percent defined in PrimaryBatteryCustomChargeStart.
 - Charging ends based on the battery percent defined in PrimaryBatteryCustomChargeEnd.
- Set-Item -Path DellSmbios:\PowerManagement\PrimaryBatteryCustomChargeStart "65" command can be used to start battery charging at 65%.
- Set-Item -Path DellSmbios:\PowerManagement\PrimaryBatteryCustomChargeStart "95" command can be used to stop battery charging at 95%.
- Possible values for the PrimaryBatteryCustomChargeStart attribute ranges from 50 to 95 percent and for the PrimaryBatteryCustomChargeEnd percent ranges from 55 to 100 percent.


Using the PeakShiftDayConfiguration feature

This feature allows you to configure the Peak Shift battery charging mode using the PeakShiftDayConfiguration option in the PowerManagement category. Peak Shift configuration minimizes AC power consumption during the peak power usage period of the day. During the Peak Shift period, AC power will not be consumed, and the system runs on battery if the battery charge is more than the set battery threshold value. After the Peak Shift period, the system runs on AC power, if available, without charging the battery. The system functions normally using AC power, and recharges the battery after the specified Charge Start Time.


PeakShift – Enables or disables the peak shift configuration.

- **Enabled** – Enables the peak shift configuration on specific days for a specific period specified using Peak Shift Start Time, Peak Shift End Time, and Peak Shift Charge Start Time.
- **Disabled** – Disables the peak shift configuration feature.

If enabled, configure the following:

 **NOTE:** The configuration applies to all batteries: Primary, Slice, and Module Bay.

- **StartTime** – Specifies the time when system starts consuming battery power. The system continues consuming the battery power until either the peakshift battery threshold is reached, or peakshift end time is reached.
- **EndTime** – Specifies the time when system stops consuming battery power and starts consuming AC power, if available. However, the system does not charge battery.
- **ChargeStartTime** – Specifies the time when the system starts charging the battery while consuming AC power, if available.

 **NOTE:** Peak Shift Start Time must be less than or equal to Peak Shift End Time, and Peak Shift End Time must be less than or equal to Peak Shift Charge Start Time.

Example: To retrieve the PeakShiftDayConfiguration current settings. The StartTime, EndTime, and ChargeStartTime are displayed for all days.

```
Get-Item -Path DellSmbios:\PowerManagement\PeakShiftDayConfiguration
```

Example: To set the PeakShift StartTime, EndTime, and ChargeStartTime for Sunday.

```
Set-Item -Path DellSmbios:\PowerManagement\PeakShiftDayConfiguration Sunday -  
StartTime "12:45" -EndTime "14:30" -ChargeStartTime "16:15"
```

Example: To change StartTime value for Monday. EndTime and ChargeStartTime values remain unchanged for Monday.

```
Set-Item -Path DellSmbios:\PowerManagement\PeakShiftDayConfiguration Monday -  
StartTime "09:00"
```

Using the Keyboard Backlight Color feature

This feature allows you to configure the supported colors for the keyboard backlight on rugged systems. There are six available colors: four predefined colors (white, red, green, blue), and two user configurable colors (custom1 and custom2). You can configure custom1 and custom2 colors using **KeyboardBacklightCustom1Color** and **KeyboardBacklightCustom2Color** attributes.

KeyboardBacklightEnabledColors

Possible values: White, Red, Green, Blue, Custom1, Custom2, and NoColor.

Displays or enables the supported colors for the keyboard backlight in the rugged systems. Multiple colors out of the six colors can be set as enabled colors. After enabling colors, you can switch among the enabled colors by pressing Fn+C keys. Enabled color can be set as NoColor which means no color is selected.

 **NOTE:**

- If value "NoColor" is provided, keyboard backlight color switching by pressing Fn+C keys is not possible.
- The value "NoColor" cannot be combined with any other color.

Example: To set the list of enabled colors as red, green, custom1, and custom2 for KeyboardBacklightEnabledColors attribute.

```
Set-Item -Path DellSmbios:\SystemConfiguration\KeyboardBacklightEnabledColors  
"Red,Green,Custom1,Custom2" -PasswordSecure <Secure Text Password>
```

Provide the secure password, if set, using the secure password parameter.

Example: To set the enabled colors as NoColor for KeyboardBacklightEnabledColors attribute.

```
Set-Item -Path DellSmbios:\SystemConfiguration\KeyboardBacklightEnabledColors  
"NoColor"
```

Provide the secure password, if set, using the secure password parameter.

KeyboardBacklightActiveColor

Possible values: White, Red, Green, Blue, Custom1, and Custom2

Displays or sets an active color for the keyboard backlight in the rugged systems. Any one out of the six colors can be chosen as an active color at a time.

Example: To set the Custom2 color as an active color for KeyboardBacklightActiveColor attribute.

```
Set-Item -Path DellSmbios:\SystemConfiguration\KeyboardBacklightActiveColor  
"Custom2" -PasswordSecure <Secure Text Password>
```

Provide the secure password, if set, using the secure password parameter.

KeyboardBacklightCustom1Color

Configures the custom1color by specifying the Red, Green, and Blue (R:G:B) values. The color can be selected using RGB components by mentioning it in 'R:G:B' format. Each color component value ranges from 0 to 255.

Example: Retrieves the RGB value in R:G:B format of Custom1 color for keyboard backlight.

```
Get-ChildItem -Path DellSmbios:\SystemConfiguration  
\KeyboardBacklightCustom1Color
```

KeyboardBacklightCustom2Color

Configures the custom2color by specifying the Red, Green, and Blue (R:G:B) values. The color can be selected using RGB components by mentioning it in 'R:G:B' format. Each color component value ranges from 0 to 255.

Example: To set the red as 234, green as 35 and blue as 56 for Custom1 color using KeyboardBacklightCustom1Color attribute. Provide the secure password, if set, using the secure password parameter.

```
Set-Item -Path DellSmbios:\SystemConfiguration\KeyboardBacklightCustom2Color  
"234:35:56" -PasswordSecure <Secure Text Password>
```

Provide the secure password, if set, using the secure password parameter.

Using the BootSequence feature

This feature allows you to configure the order of the devices from which the system tries to start up using the BootSequence option in the BootSequence category.

BootListOption — determines the boot mode of the system. Select one of the following:

- **UEFI** — To enable booting to Unified Extensible Firmware Interface (UEFI) capable operating systems.
- **Legacy** (the default) — To ensure compatibility with OSes that do not support UEFI.



NOTE: Legacy boot mode is not allowed when secure boot is enabled or legacy option ROM is disabled.


BootSequence — Specifies the order in which a system searches for devices when trying to find an operating system to boot. The Boot Sequence option allows users to customize the boot order and boot ability of boot devices. The UEFI BIOS allows the selection of UEFI boot paths or Legacy boot devices.

To configure the sequence of the boot devices, verify the current status of the boot order with name and device number. Then, provide the sequence to change the boot order. Example:

Table 5. Example of the current sequence of the boot devices

DeviceName	Device Number	IsActive
Diskette	1	Active
Internal HDD	2	Active
USB Storage Device	3	Active
CD/DVD/CD-RW Drive	6	Active
Onboard NIC	5	Active

Then, to set the Internal HDD as first, USB Storage Device as second, and Onboard NIC as third; provide BootSequence as 2, 3, 5.

 **NOTE:** The device numbers that are not mentioned will be moved down the order.

Example: To see the current boot order with name, device number, and status.

```
Get-ChildItem -Path DellSmbios:\BootSequence | Select -expand CurrentValue
```

Example: To change the boot sequence.

```
Set-Item -Path DellSmbios:\BootSequence "2,3,4"
```

Example: To change the current boot mode to UEFI.

```
Set-Item -Path DellSmbios:\BootSequence BootListOption "Uefi"
```

Using the BIOS password feature

This feature allows you to set, change, or clear Admin password and System password.

Verifying the status of Admin or System passwords

To verify the status whether the Admin or System passwords are set on the system, use the following attributes:

- IsAdminPasswordSet — Displays if admin password is set on the system.
- IsSystemPasswordSet — Displays if system password is set on the system.

Setting Admin or System passwords

To set the password, run the command in the following format:

Example: To set the Admin password:

```
Set-Item -Path DellSmbios:\Security\AdminPassword <new Admin password>
```

Example: To set the System password:

```
Set-Item -Path DellSmbios:\Security\SystemPassword <new System password>
```

Changing Admin or System passwords


To change the existing password, run the command in the following format:

Example: To change the Admin password:

```
Set-Item -Path DellSmbios:\Security\AdminPassword <new Admin password> -  
Password <existing Admin password>
```

Example: To change the System password:

```
Set-Item -Path DellSmbios:\Security\SystemPassword <new Admin password> -  
Password <existing System password>
```

 **NOTE:** If both Admin and System passwords exist, then to change the system password, provide either Admin or System password.

Clearing Admin and System passwords

To clear the Admin or System passwords, run the command in the following format:

Example: To clear the Admin password:

```
Set-Item -Path DellSmbios:\Security\AdminPassword "" -Password <existing Admin  
password>
```

Example: To clear the System password:

```
Set-Item -Path DellSmbios:\Security\SystemPassword "" -Password <existing  
System password>
```

 **NOTE:**

- To clear the system password where both Admin and System passwords exist, you must provide either the Admin or System password.
- If the System password and/or HDD password are set, the Admin password cannot be set.
- If the Admin password is set in the system, and you want to configure BIOS tokens/features, you need to provide the Admin password.
- If the Admin and system passwords are set in the system, and you want to configure BIOS tokens/features, you need to provide the Admin password.
- If the Admin and system passwords are set in the system, and if you want to configure BIOS tokens/features as well as change system password, you need to provide either the System or the Admin password.

Using the HardDisk Drive password feature

This feature allows you to set, change, and clear the Hard Disk Drive (HDD) password. To configure BIOS attributes/features, provide the HDD password, if set.

HDDInfo

Displays the details of each HDD. The following information is displayed:

- **HDD Name** — The name of the HDD.
- **Present** — Whether the HDD is physically present.
- **PwdProtected** — Whether a password exists for the HDD.
- **PendingRestart** — Whether a reboot is pending to set the password.
- **AdminOnlyChange** — Whether the changes to the password can be made only by an administrator.
- **SecureEraseSupported** — Whether HDD Secure Erase is supported.
- **SecureEraseEnabled** — Whether HDD Secure Erase is enabled.

Configure the following:

- **AdminPassword** — Specify the Admin password while setting HDD password if administrator has restricted the changes to the HDD password.
- **ATAMaximumSecurityMode** — Provide the value as '0' if you want HDD to be configured in ATA High Security Mode, or '1' if you want the HDD to be configured in ATA maximum Security Mode (Secure Erase).

Setting the HDD password

To set the password, run the command in the following format:

Example: To set the HDD password in maximum security mode.

```
Set-Item -Path DellSmbios:\Security\HDDPassword <New password> -
ATAMaximumSecurityMode "1"
```

Changing the HDD password

To change the existing password, run the command in the following format:

Example: To change the HDD password:

```
Set-Item -Path DellSmbios:\Security\HDDPassword <new HDD password> -Password
<existing HDD password>
```

Example: To change the HDD password from the current value to a new value.


```
Set-Item -Path DellSmbios:\Security\HDDPassword <New HDD password> -Password
<Plain text password> -AdminPassword <Admin password>
```

Clearing the HDD password

To clear the password, run the command in the following format:

Example: To clear the HDD password.


```
Set-Item -Path DellSmbios:\Security\HDDPassword "" -PasswordSecure <Secure text
password>
```

 **NOTE:** Restart the system to apply the changes.

Using TPM Security feature


This feature allows you to control whether the Trusted Platform Module (TPM) in the system is enabled and visible to the operating system. The TPM Security setting is a master switch for all the rest of the TPM fields. System restart is required after changing the TPM Security setting.

- **Enabled** — BIOS turns on the TPM during POST, and the TPM can be used by the operating system.
- **Disabled** — BIOS does not turn on the TPM during POST, and the TPM will be nonfunctional and invisible to the operating system.

 **NOTE:** Disabling this option does not change any settings that you may have made to the TPM, nor does it delete or change any information or keys you may have stored there. It simply turns off the TPM so that it cannot be used. When you re-enable this option, TPM works exactly as it did before it was disabled.

TPMCommand: Activates and enables the TPM normal state for TPM use. TPM Command is a setting which is available when the **TPM Security** is enabled.

- **Activate** — Activates the TPM command.
- **Deactivate** — Displays the current activation state of TPM.

 **NOTE:** Deactivate is a read-only possible value. TPM can be deactivated only from the BIOS setup screen.


Example: To enable TPM security.

```
Set-Item -Path DellSmbios:\TPMSecurity\TPMSecurity "Enabled" -Password <Plain  
text password>
```

 **NOTE:** Restart is required after changing TPM Security setting.

Example: To activate TPM command. TPM command can be activated only if the TPM security is enabled.

```
Set-Item -Path DellSmbios:\TPMSecurity\TPMComamnd "Activate" -Password <Plain  
text password>
```

 **NOTE:** Admin password must be provided and TPM Security should have been enabled to activate the TPM Command.

Setting up Dell Command | PowerShell Provider in a Windows PreInstallation Environment

Windows Preinstallation Environment (WinPE) provides a standalone preinstallation environment that is used to prepare a system for Windows installation. For client systems that do not have an operating system installed, you can create a bootable image that contains Dell Command | PowerShell Provider to run the commands on WinPE.

1. From the Microsoft website, download and install Windows ADK on the client system.
 -  **NOTE:** While installing select only **Deployment Tools** and **Windows Preinstallation Environment**.
2. Create the WinPE Image, adding PowerShell support to WinPE. See <https://technet.microsoft.com/en-us/library/dn605289.aspx>.
3. Copy Dell Command | PowerShell Provider folders and files into your WinPE bootable device (CD/USB).
4. Copy **msvcp100.dll**, **msvcr100.dll** from **VC2010**; and **msvcp110.dll**, **msvcr110.dll**, **vccorlib110.dll** from **VC2012** inside the Dell Command | PowerShell Provider module.
5. Boot to WinPE and open the Windows PowerShell console.
6. Navigate to the directory where Dell Command | PowerShell Provider folders and files have been copied based on the client's WinPE architecture.
7. Import the module. See [Importing Dell Command | PowerShell Provider](#).

On a successful import, the following message is displayed: To get more help about the Dell Command PowerShell provider, run the following command based on the OS: For 64 bit – `Get-Help DellBIOSProvider` and For 32 bit – `Get-Help DellBIOSProviderX86`. Now, you can access DellSMBIOS drive to manage your Attributes.

Accessing help

Dell Command | PowerShell offers cmdlet-based integrated help. This section describes various cmdlets you can use to access various help topics.

Accessing integrated help within Windows PowerShell console

Dell Command | PowerShell Provider provides integrated help for its custom features. To access this integrated help within the Windows PowerShell console, use the following commands:

- `Get-Help Get-ChildItem -Path <path to attribute> Full`
Example: `Get-Help Get-ChildItem -Path DellSMBIOS: \PowerManagement\AutoOn -Full`

Displays information such as Name, Synopsis, Syntax, Description, Related links, Remarks, etc.

- `Get-Help Set-Item -Path <path to attribute> Full`
Example: `Get-Help Set-Item -Path DellSMBIOS: \PowerManagement
\AdvanceBatteryChargeConfiguration -Full`

Displays information such as Name, Synopsis, Syntax, Description, Related links, Remarks, etc.

You can get more detailed information on the cmdlet and function and how to use it by using the **Full**, **Detailed**, and **Examples** parameters with Get-Help.

- `Get-Help About_DellBIOSProvider`

Displays a conceptual help about Dell Command | PowerShell Provider.

Frequently asked questions

What is PowerShell Gallery?

PowerShell Gallery is a public repository hosted by Microsoft. You can download and install Dell Command | PowerShell Provider from here. See [Downloading Dell Command | PowerShell Provider module from Microsoft Gallery](#)

How can I confirm if the Dell Command |PowerShell Provider module is installed in my system?

After downloading, run the following cmdlet within the Windows PowerShell console:

```
Get-Module -ListAvailable
```

If you find DellBIOSProvider, you have successfully installed Dell Command |PowerShell Provider module in your system. Then you can import the module get started. See [Importing Dell Command | PowerShell Provider](#).

What are the prerequisites for downloading the module from a PowerShell Gallery?

- Supported PowerShell version: 5.0 and later.
- PowerShell get package manager: **nuget-anycpu.exe**.

Can I import Dell Command | PowerShell Provider module from a shared location?

Yes, Dell Command | PowerShell Provider can be imported from a shared location by enabling this feature:

1. Go to **C:\Windows\System32\WindowsPowerShell\v1.0**.
2. Edit the **powershell_ise.exe.config** file as shown below:

```
<?xml version="1.0" encoding="utf-8" ?>
<configuration>
  <startup useLegacyV2RuntimeActivationPolicy="true">
    <supportedRuntime version="v4.0" />
  </startup>
  <runtime>
    <loadFromRemoteSources enabled="true"/>
  </runtime>
</configuration>
```

How can I get possible values for a particular attribute?

To get the possible values for a particular attribute, run the following command:

```
Get-Item -Path <path to attribute> | Select PossibleValues
```

What can I do using Dell Command | PowerShell Provider?

You can configure the BIOS settings of your system using Dell Command | PowerShell Provider. See [Introduction](#).

Can I use Dell Command | PowerShell Provider in non-Windows Dell client systems?

No, Dell Command | PowerShell Provider can be used only on systems running Windows PowerShell console, and therefore cannot be used on a non-Windows Dell client system.

How can I get the list of all supported attributes?

To get the list of all supported attributes, after you have imported the module, run the following command:

```
Get-DellBiosSettings
```

From where can I download Dell Command | PowerShell Provider?

You can download Dell Command | PowerShell Provider from the Dell support site or from Microsoft Gallery. See [Downloading Dell Command | PowerShell Provider](#).

How can I clear TPM?

The TPM feature can be cleared only from the BIOS setup screen. In the BIOS setup screen, click **Security**, and then click **TPMSecurity**. Select the **Clear** option and restart the system to apply the changes.

How can I disable the SecureBoot feature?

The SecureBoot feature can be disabled only from the BIOS setup screen. In the BIOS setup screen, click **Secure Boot**, and then click **Secure Boot Enable**. Select the **Disabled** option to disable the SecureBoot feature.

Troubleshooting

DellBIOSProvider cannot be loaded because running script is disabled on this system.

By default Windows PowerShell has its ExecutionPolicy set to Restricted. To execute the Dell Command | PowerShell Provider cmdlets and functions, PowerShell execution policy must be changed to RemoteSigned at a minimum. To apply the ExecutionPolicy, run the Windows PowerShell with Administrator privileges, and run the following command within the PowerShell console: `Set-ExecutionPolicy RemoteSigned -force`.

Unable to import DellBIOSProvider module.

- Verify if the downloaded package is saved along the PowerShell default module path that PowerShell supports.
- Verify if supported architecture that is X86/X64 is being used.
- Verify if Microsoft Visual C++ redistributable 2010, 2012 is installed on the system.

Set-Item cmdlets displays an error.

- Verify if the attribute is read-only.
- Verify if that particular attribute has any limitation or dependency in setting the value. For example, you cannot set PeakShiftDayConfiguration StartTime greater than EndTime or ChargeStartTime.

System password not accepted.

Verify if both Admin and System passwords are set. If yes, provide Administrator password to validate.

Unable to see current value for some custom BIOS attributes.

Some custom BIOS attributes such as PeakShiftDayConfiguration have many values or parameters. To view the entire current value use the following command:

```
Get-Item PeakShiftDayConfiguration | select -ExpandProperty Currentvalue
```

Accessing documents from Dell support site

You can access the required documents in one of the following ways:

- Using the following links:
 - For all Enterprise Systems Management documents – Dell.com/SoftwareSecurityManuals
 - For OpenManage documents – Dell.com/OpenManageManuals
 - For Remote Enterprise Systems Management documents – Dell.com/esmmanuals
 - For OpenManage Connections Enterprise Systems Management documents – Dell.com/OMConnectionsEnterpriseSystemsManagement
 - For Serviceability Tools documents – Dell.com/ServiceabilityTools
 - For OpenManage Connections Client Systems Management documents – Dell.com/DellClientCommandSuiteManuals
- From the Dell Support site:
 - a. Go to Dell.com/Support/Home.
 - b. Under **Select a product** section, click **Software & Security**.
 - c. In the **Software & Security** group box, click the required link from the following:
 - **Enterprise Systems Management**
 - **Remote Enterprise Systems Management**
 - **Serviceability Tools**
 - **Dell Client Command Suite**
 - **Connections Client Systems Management**
 - d. To view a document, click the required product version.
- Using search engines:
 - Type the name and version of the document in the search box.