

# Dell EMC PowerEdge R6515

## BIOS and UEFI Reference 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.

<b>Chapter 1: Pre-operating system management applications.....</b>	<b>4</b>
System Setup.....	4
System BIOS.....	5
iDRAC Settings utility.....	22
Device Settings.....	22
Dell Lifecycle Controller.....	22
Embedded system management.....	22
Boot Manager.....	23
PXE boot.....	23

# Pre-operating system management applications

You can manage basic settings and features of a system without booting to the operating system by using the system firmware.

## Options to manage the pre-operating system applications

You can use any one of the following options to manage the pre-operating system applications:

- System Setup
- Dell Lifecycle Controller
- Boot Manager
- Preboot Execution Environment (PXE)

### Topics:

- [System Setup](#)
- [Dell Lifecycle Controller](#)
- [Boot Manager](#)
- [PXE boot](#)


## System Setup

Using the **System Setup** option, you can configure the BIOS settings, iDRAC settings, and device settings of the system.

You can access system setup by using any one of the following interfaces:

- Graphical User interface — To access go to iDRAC Dashboard, click **Configuration**, and click **BIOS Settings**.
- Text browser — The browser is enabled by using Console Redirection.

To view **System Setup**, power on the system, press F2, and click **System Setup Main Menu**.

 **NOTE:** If the operating system begins to load before you press F2, wait for the system to finish booting, and then restart the system and try again.

The **System Setup Main Menu** screen details are described as follows:


**Table 1. System Setup Main Menu**

Option	Description
<b>System BIOS</b>	Enables you to configure the BIOS settings.
<b>iDRAC Settings</b>	Enables you to configure the iDRAC settings. The iDRAC settings utility is an interface to set up and configure the iDRAC parameters by using UEFI (Unified Extensible Firmware Interface). You can enable or disable various iDRAC parameters by using the iDRAC settings utility. For more information about this utility, see <i>Integrated Dell Remote Access Controller User's Guide</i> at <a href="http://www.dell.com/poweredgemanuals">www.dell.com/poweredgemanuals</a> .
<b>Device Settings</b>	Enabled you to configure device settings for devices such as storage controllers or network cards.

# System BIOS

To view the **System BIOS** screen, power on the system, press F2, and click **System Setup Main Menu > System BIOS**.

**Table 2. System BIOS details**

Option	Description
<b>System Information</b>	Provides information about the system such as the system model name, BIOS version, and Service Tag.
<b>Memory Settings</b>	Specifies information and options related to the installed memory.
<b>Processor Settings</b>	Specifies information and options related to the processor such as speed and cache size.
<b>SATA Settings</b>	Specifies options to enable or disable the integrated SATA controller and ports.
<b>NVMe Settings</b>	Specifies options to change the NVMe settings. If the system contains the NVMe drives that you want to configure in a RAID array, you must set both this field and the <b>Embedded SATA</b> field on the <b>SATA Settings</b> menu to <b>RAID</b> mode. You might also need to change the <b>Boot Mode</b> setting to <b>UEFI</b> . Otherwise, you should set this field to <b>Non-RAID</b> mode.
<b>Boot Settings</b>	Specifies options to specify the Boot mode (BIOS or UEFI). Enables you to modify UEFI and BIOS boot settings.
<b>Network Settings</b>	Specifies options to manage the UEFI network settings and boot protocols.  Legacy network settings are managed from the <b>Device Settings</b> menu.   <b>NOTE:</b> Network Settings are not supported in BIOS boot mode.
<b>Integrated Devices</b>	Specifies options to manage integrated device controllers and ports, specifies related features, and options.
<b>Serial Communication</b>	Specifies options to manage the serial ports, its related features, and options.
<b>System Profile Settings</b>	Specifies options to change the processor power management settings, memory frequency.
<b>System Security</b>	Specifies options to configure the system security settings, such as system password, setup password, Trusted Platform Module (TPM) security, and UEFI secure boot. It also manages the power button on the system
<b>Redundant OS Control</b>	Sets the redundant OS information for redundant OS control.
<b>Miscellaneous Settings</b>	Specifies options to change the system date and time.

## System Information

To view the **System Information** screen, power on the system, press F2, and click **System Setup Main Menu > System BIOS > System Information**.

**Table 3. System Information details**

Option	Description
<b>System Model Name</b>	Specifies the system model name.
<b>System BIOS Version</b>	Specifies the BIOS version installed on the system.
<b>System Service Tag</b>	Specifies the system Service Tag.
<b>System Manufacturer</b>	Specifies the name of the system manufacturer.
<b>System Manufacturer Contact Information</b>	Specifies the contact information of the system manufacturer.

**Table 3. System Information details (continued)**

Option	Description
<b>System CPLD Version</b>	Specifies the current version of the system complex programmable logic device (CPLD) firmware.
<b>UEFI Compliance Version</b>	Specifies the UEFI compliance level of the system firmware.
<b>AGESA Version</b>	Specifies the AGESA reference code version.
<b>SMU Version</b>	Specifies the SMU firmware version.
<b>DXIO Version</b>	Specifies the DXIO firmware version.

## Memory Settings

To view the **Memory Settings** screen, power on the system, press F2, and click **System Setup Main Menu > System BIOS > Memory Settings**.





**Table 4. Memory Settings details**

Option	Description
<b>System Memory Size</b>	Specifies the memory size in the system.
<b>System Memory Type</b>	Specifies the type of memory installed in the system.
<b>System Memory Speed</b>	Specifies the system memory speed.
<b>System Memory Voltage</b>	Specifies the system memory voltage.
<b>Video Memory</b>	Specifies the amount of video memory.
<b>System Memory Testing</b>	Specifies whether the system memory tests are run during system boot. The two options available are <b>Enabled</b> and <b>Disabled</b> . This option is set to <b>Disabled</b> by default.
<b>DRAM Refresh Delay</b>	By enabling the <b>CPU memory controller</b> to delay running the <b>REFRESH</b> commands, you can improve the performance for some workloads. By minimizing the delay time, it is ensured that the memory controller runs the <b>REFRESH</b> command at regular intervals. For Intel-based servers, this setting only affects systems configured with DIMMs which use 8 Gb density DRAMs. This option is set to <b>Minimum</b> by default.
<b>Memory Operating Mode</b>	Specifies the memory operating mode. The option is available and is set to <b>Optimizer Mode</b> , by default.
<b>Current State of Memory Operating Mode</b>	Specifies the mode selected in the memory operating mode.
<b>Memory Interleaving</b>	Enables or disables the memory interleaving option. The two options available are <b>Auto</b> and <b>Disabled</b> . This option is set to <b>Auto</b> by default.
<b>Correctable Error Logging</b>	Enables or disables correctable error logging. This option is set to <b>Enabled</b> by default.
<b>DIMM Self healing (Post Package Repair) on Uncorrectable Memory Error</b>	Enables or disables Post Package Repair (PPR) on Uncorrectable Memory Error. This option is set to <b>Enabled</b> by default.

## Processor Settings

To view the **Processor Settings** screen, power on the system, press F2, and click **System Setup Main Menu > System BIOS > Processor Settings**.

**Table 5. Processor Settings details**


Option	Description
<b>Logical Processor</b>	Each processor core supports up to two logical processors. If this option is set to <b>Enabled</b> , the BIOS displays all the logical processors. If this option is set to <b>Disabled</b> , the BIOS displays only one logical processor per core. This option is set to <b>Enabled</b> by default.
<b>Virtualization Technology</b>	Enables or disables the virtualization technology for the processor. This option is set to <b>Enabled</b> by default.
<b>IOMMU Support</b>	Enable or Disable IOMMU support. It is required to create IVRS ACPI table. This option is set to <b>Enabled</b> by default.
<b>Kernel DMA Protection</b>	When this option is set to Enabled, using IOMMU, BIOS, and the Operating System will enable direct memory access protection for DMA capable peripheral devices. Enable <b>IOMMU Support</b> to use this option. When this option is set to Enabled, using Virtualization Technology, BIOS, and the Operating System will enable direct memory access protection for DMA capable peripheral devices. Enable <b>Virtualization Technology</b> to use this option. This option is set to <b>Disabled</b> by default.
<b>L1 Stream HW Prefetcher</b>	Enables or disables the L1 stream hardware prefetcher. This option is set to <b>Enabled</b> by default.
<b>L2 Stream HW Prefetcher</b>	Enables or disables the L2 stream hardware prefetcher. This option is set to <b>Enabled</b> by default.
<b>L1 Stride Prefetcher</b>	Enables or disables the L1 stride prefetcher. This option is set to <b>Enabled</b> by default, as it optimizes overall workload.  <b>NOTE:</b> This option is only available for 3rd Generation AMD EPYC processors.
<b>L1 Region Prefetcher</b>	Enables or disables the L1 region prefetcher. This option is set to <b>Enabled</b> by default, as it optimizes overall workload.  <b>NOTE:</b> This option is only available for 3rd Generation AMD EPYC processors.
<b>L2 Up Down Prefetcher</b>	Enables or disables the L2 up down prefetcher. This option is set to <b>Enabled</b> by default, as it optimizes overall workload.  <b>NOTE:</b> This option is only available for 3rd Generation AMD EPYC processors.
<b>MADT Core Enumeration</b>	Specifies the MADT Core Enumeration. This option is set to <b>Linear</b> by default.
<b>NUMA Nodes Per Socket</b>	Specifies the number of NUMA nodes per socket. This option is set to <b>1</b> by default.
<b>L3 cache as NUMA Domain</b>	Enables or disables the CCX as NUMA Domain. This option is set to <b>Disabled</b> by default.
<b>Secure Memory Encryption (SME)</b>	Enables or disables the AMD secure encryption features such as <b>SME</b> and <b>Secure Encrypted Virtualization (SEV)</b> . It also determines if other secure encryption features such as <b>TSME</b> and <b>SEV-SNP</b> can be enabled. This option is set to <b>Disabled</b> by default.  <b>NOTE:</b> This option is only available for 3rd Generation AMD EPYC processors.
<b>Minimum SEV non-ES ASID</b>	Determines the number of Secure Encrypted Virtualization ES and non-ES available Address Space IDs. This option is set to <b>1</b> by default.

**Table 5. Processor Settings details (continued)**

Option	Description
<b>Secured Nested Paging (SNP)</b>	<p>Enables or disables <b>SEV-SNP</b>, a set of additional security protections. This option is set to <b>Disabled</b> by default.</p> <p><b>i</b> <b>NOTE:</b> This option is only available for 3rd Generation AMD EPYC processors.</p>
<b>SNP Memory Coverage</b>	<p>This option selects the operating mode of the Nested Paging (SNP) Memory and the reverse Map Table(RMP). The RMP is used to ensure a one-to-one mapping between system physical addresses and guest physical addresses.</p> <p><b>i</b> <b>NOTE:</b> This option is only available for 3rd Generation AMD EPYC processors.</p>
<b>Transparent Secure Memory Encryption (TSME)</b>	<p>Enables or disables the <b>TSME</b>. <b>TSME</b> is always-on memory encryption that does not require OS or hypervisor support. This option is set to <b>Disabled</b> by default.</p> <ul style="list-style-type: none"> <li>• If the OS supports <b>SME</b>, do not enable this field.</li> <li>• If the hypervisor supports <b>SEV</b>, do not enable this field.</li> </ul> <p>Enabling <b>TSME</b> affects the system memory performance.</p>
<b>Enhanced REP MOVSB/STOSB</b>	<p>Enables or disables Enhanced REP MOVSB/STOSB support. This setting can affect performance, depending on the application running on the server. This option is set to <b>Disabled</b> by default.</p> <p><b>i</b> <b>NOTE:</b> This option is only available for the AMD EPYC 7003 processor.</p>
<b>Fast Short REP MOVSB</b>	<p>Enables or disables Fast Short REP MOVSB support. This setting can affect performance, depending on the application running on the server. This option is set to <b>Disabled</b> by default.</p> <p><b>i</b> <b>NOTE:</b> This option is only available for the AMD EPYC 7003 processor.</p>
<b>REP-MOV/STOS Streaming</b>	<p>Enables or disables REP MOVISTOS Streaming support. This setting can affect performance, depending on the application running on the server. This option is set to <b>Disabled</b> by default.</p> <p><b>i</b> <b>NOTE:</b> This option is only available for the AMD EPYC 7003 processor.</p>
<b>Configurable TDP</b>	<p>Allows the reconfiguration of the processor Thermal Design Power (TDP) levels based on the power and thermal delivery capabilities of the system. TDP refers to the maximum amount of power the cooling system is required to dissipate. This option is set to <b>Maximum</b> by default.</p> <p><b>i</b> <b>NOTE:</b> This option is only available on certain SKUs of the processors, and the number of alternative levels varies as well.</p>
<b>x2APIC Mode</b>	<p>Enables or disables x2APIC mode. This option is set to <b>Enabled</b> by default.</p> <p><b>i</b> <b>NOTE:</b> For two CPU 64 cores configuration, x2APIC mode is not switchable if 256 threads are enabled (BIOS settings: All CCD, cores, and logical processors enabled).</p>
<b>Number of CCDs per Processor</b>	<p>Controls the number of enabled CCDs in each processor. This option is set to <b>All</b> by default.</p>



**Table 5. Processor Settings details (continued)**

Option	Description
<b>Number of Cores per CCD</b>	Specifies the number of cores per CCD. This option is set to <b>All</b> by default.
<b>Processor Core Speed</b>	Specifies the maximum core frequency of the processor.
<b>Processor n</b>	<p> <b>NOTE:</b> Depending on the number of CPUs, there might be up to n processors listed.</p> <p>The following settings are displayed for each processor that is installed in the system:</p>


**Table 6. Processor n details**

Option	Description
<b>Family-Model-Stepping</b>	Specifies the family, model, and stepping of the processor as defined by AMD.
<b>Brand</b>	Specifies the brand name.
<b>Level 2 Cache</b>	Specifies the total L2 cache.
<b>Level 3 Cache</b>	Specifies the total L3 cache.
<b>Number of Cores</b>	Specifies the number of cores per processor.
<b>Microcode</b>	Specifies the processor microcode version.

## SATA Settings

To view the **SATA Settings** screen, power on the system, press F2, and click **System Setup Main Menu > System BIOS > SATA Settings**.

**Table 7. SATA Settings details**

Option	Description						
<b>Embedded SATA</b>	<p>Enables the embedded SATA option to be set to <b>Off</b>, <b>AHCI mode</b>, or <b>RAID modes</b>. This option is set to <b>AHCI Mode</b> by default.</p> <p> <b>NOTE:</b></p> <ol style="list-style-type: none"> <li>You might also need to change the Boot Mode setting to UEFI. Otherwise, you should set the field to Non-RAID mode.</li> <li>No ESXi and Ubuntu OS support under RAID mode.</li> </ol>						
<b>Security Freeze Lock</b>	Sends <b>Security Freeze Lock</b> command to the embedded SATA drives during POST. This option is applicable only for AHCI Mode. This option is set to <b>Enabled</b> by default.						
<b>Write Cache</b>	Enables or disables the command for the embedded SATA drives during POST. This option is set to <b>Disabled</b> by default.						
<b>Port n</b>	<p>Sets the drive type of the selected device.</p> <p>For <b>AHCI Mode</b> or <b>RAID Mode</b>, BIOS support is always enabled.</p> <p><b>Table 8. Port n</b></p> <table border="1" data-bbox="549 1809 1481 2007"> <thead> <tr> <th>Options</th> <th>Descriptions</th> </tr> </thead> <tbody> <tr> <td><b>Model</b></td> <td>Specifies the drive model of the selected device.</td> </tr> <tr> <td><b>Drive Type</b></td> <td>Specifies the type of drive attached to the SATA port.</td> </tr> </tbody> </table>	Options	Descriptions	<b>Model</b>	Specifies the drive model of the selected device.	<b>Drive Type</b>	Specifies the type of drive attached to the SATA port.
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<b>Drive Type</b>	Specifies the type of drive attached to the SATA port.						

**Table 7. SATA Settings details**

Option	Description				
	<p><b>Table 8. Port n (continued)</b></p> <table border="1"> <thead> <tr> <th>Options</th> <th>Descriptions</th> </tr> </thead> <tbody> <tr> <td>Capacity</td> <td>Specifies the total capacity of the drive. This field is undefined for removable media devices such as optical drives.</td> </tr> </tbody> </table>	Options	Descriptions	Capacity	Specifies the total capacity of the drive. This field is undefined for removable media devices such as optical drives.
Options	Descriptions				
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## NVMe Settings

To view the **NVMe Settings** screen, power on the system, press F2, and click **System Setup Main Menu > System BIOS > NVMe Settings**

**Table 9. NVMe Settings details**

Option	Description
<b>NVMe Mode</b>	This option sets the NVMe drive mode. If the system contains NVMe drives that you want to configure in a RAID array, you must set both this field and the Embedded SATA field on the SATA settings menu to RAID Mode. You may also need to change the Boot Mode setting to UEFI. The option is set to <b>Non-RAID</b> mode by default.
<b>BIOS NVMe Driver</b>	<p>Dell Qualified NVMe drives always use the UEFI NVMe driver built into the Dell BIOS. When this option is set to 'All Drives', the BIOS driver will also be used with any NVMe drives in the system that has not been qualified by Dell. The option is set to <b>Dell Qualified Drives</b> by default.</p> <p><b>i</b> <b>NOTE:</b> When this option is set to 'All Drives' and non-Dell qualified NVMe drives are present, you have a configuration that has not been validated which may lead to unexpected behavior.</p>

## Boot Settings

You can use the **Boot Settings** screen to set the boot mode to either **BIOS** or **UEFI**. It also enables you to specify the boot order.

- **UEFI:** The Unified Extensible Firmware Interface (UEFI) is a new interface between operating systems and platform firmware. The interface consists of data tables with platform related information, boot and runtime service calls that are available to the operating system and its loader. The following benefits are available when the **Boot Mode** is set to **UEFI**:
  - Support for drive partitions larger than 2 TB.
  - Enhanced security (e.g., UEFI Secure Boot).
  - Faster boot time.

**i** **NOTE:** You must use only the UEFI boot mode in order to boot from NVMe drives.


- **BIOS:** The **BIOS Boot Mode** is the legacy boot mode. It is maintained for backward compatibility.

To view the **Boot Settings** screen, power on the system, press F2, and click **System Setup Main Menu > System BIOS > Boot Settings**.

**Table 10. Boot Settings details**

Option	Description
<b>Boot Mode</b>	<p>Enables you to set the boot mode of the system. If the operating system supports UEFI, you can set this option to UEFI. Setting this field to BIOS allows compatibility with non-UEFI operating systems. This option is set to <b>UEFI</b> by default.</p> <p><b>Δ</b> <b>CAUTION: Switching the boot mode may prevent the system from booting if the operating system is not installed in the same boot mode.</b></p> <p><b>i</b> <b>NOTE:</b> Setting this field to UEFI disables the <b>BIOS Boot Settings</b> menu.</p>

**Table 10. Boot Settings details (continued)**

Option	Description						
<b>Boot Sequence Retry</b>	Enables or disables the <b>Boot Sequence Retry</b> feature. If this option is set to <b>Enabled</b> and the system fails to boot, the system re-attempts the boot sequence after 30 seconds. This option is set to <b>Enabled</b> by default.						
<b>Hard-disk Failover</b>	Enables or disables the Hard-disk failover. This option is set to <b>Disabled</b> by default.						
<b>Generic USB Boot</b>	Enables or disables the generic USB boot placeholder. This option is set to <b>Disabled</b> by default.						
<b>Hard-disk Drive Placeholder</b>	Enables or disables the Hard-disk drive placeholder. This option is set to <b>Disabled</b> by default.						
<b>Clean all Sysprep order and variables</b>	When set to <b>None</b> , BIOS will do nothing. When set to <b>Yes</b> , BIOS will delete variables of SysPrep #### and SysPrepOrder this option is a onetime option, will reset to none when deleting variables. This setting is only available in <b>UEFI Boot Mode</b> . This option is set to <b>None</b> by default.						
<b>UEFI Boot Settings</b>	Specifies the UEFI boot sequence. Enables or disables UEFI Boot options.  <b>NOTE:</b> This option controls the UEFI boot order. The first option in the list will be attempted first.  <b>Table 11. UEFI Boot Settings</b> <table border="1" data-bbox="571 864 1481 1061"> <thead> <tr> <th>Option</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>UEFI Boot Sequence</b></td> <td>Enables you to change the boot device order.</td> </tr> <tr> <td><b>Boot Options Enable/Disable</b></td> <td>Enables you to select the enabled or disabled boot devices</td> </tr> </tbody> </table>	Option	Description	<b>UEFI Boot Sequence</b>	Enables you to change the boot device order.	<b>Boot Options Enable/Disable</b>	Enables you to select the enabled or disabled boot devices
Option	Description						
<b>UEFI Boot Sequence</b>	Enables you to change the boot device order.						
<b>Boot Options Enable/Disable</b>	Enables you to select the enabled or disabled boot devices						


## Choosing system boot mode

System Setup enables you to specify one of the following boot modes for installing your operating system:


- UEFI boot mode (the default), is an enhanced 64-bit boot interface.


If you have configured your system to boot to UEFI mode, it replaces the system BIOS.

1. From the **System Setup Main Menu**, click **Boot Settings**, and select **Boot Mode**.
2. Select the UEFI boot mode you want the system to boot into.

 **CAUTION: Switching the boot mode may prevent the system from booting if the operating system is not installed in the same boot mode.**

3. After the system boots in the specified boot mode, proceed to install your operating system from that mode.

 **NOTE:** Operating systems must be UEFI-compatible to be installed from the UEFI boot mode. DOS and 32-bit operating systems do not support UEFI and can only be installed from the BIOS boot mode.

 **NOTE:** For the latest information about supported operating systems, go to [www.dell.com/ossupport](http://www.dell.com/ossupport).

## Changing boot order


### About this task

You may have to change the boot order if you want to boot from a USB key or an optical drive. The following instructions may vary if you have selected **BIOS** for **Boot Mode**.

 **NOTE:** Changing the drive boot sequence is only supported in BIOS boot mode.


## Steps


1. On the **System Setup Main Menu** screen, click **System BIOS > Boot Settings > UEFI Boot Settings > UEFI Boot Sequence**.
2. Use the arrow keys to select a boot device, and use the plus (+) and minus (-) sign keys to move the device down or up in the order.
3. Click **Exit**, and then click **Yes** to save the settings on exit.

 **NOTE:** You can also enable or disable boot order devices as needed.

## Network Settings

To view the **Network Settings** screen, power on the system, press F2, and click **System Setup Main Menu > System BIOS > Network Settings**.

 **NOTE:** For information about Linux network performance settings, see the *Linux Network Tuning Guide for AMD EPYC Processor Based Servers* at [AMD.com](https://www.amd.com).

 **NOTE:** Network Settings are not supported in BIOS boot mode.

**Table 12. Network Settings details**

Option	Description
<b>UEFI PXE Settings</b>	Enables you to control the configuration of the UEFI PXE device.
<b>PXE Device n</b> (n = 1 to 4)	Enables or disables the device. When enabled, a UEFI PXE boot option is created for the device.
<b>PXE Device n Settings</b> (n = 1 to 4)	Enables you to control the configuration of the PXE device.
<b>UEFI HTTP Settings</b>	Enables you to control the configuration of the UEFI HTTP device.
<b>HTTP Device n</b> (n = 1 to 4)	Enables or disables the device. When enabled, a UEFI HTTP boot option is created for the device.
<b>HTTP Device n Settings</b> (n = 1 to 4)	Enables you to control the configuration of the HTTP device.
<b>UEFI iSCSI Settings</b>	Enables you to control the configuration of the iSCSI device.

**Table 13. PXE Device n Settings details**

Option	Description
<b>Interface</b>	Specifies NIC interface used for the PXE device.
<b>Protocol</b>	Specifies Protocol used for PXE device. This option is set to <b>IPv4</b> or <b>IPv6</b> . This option is set to <b>IPv4</b> by default.
<b>Vlan</b>	Enables Vlan for PXE device. This option is set to <b>Enable</b> or <b>Disable</b> . This option is set to <b>Disable</b> by default.
<b>Vlan ID</b>	Shows the Vlan ID for the PXE device
<b>Vlan Priority</b>	Shows the Vlan Priority for the PXE device.

**Table 14. HTTP Device n Settings details**

Option	Description
<b>Interface</b>	Specifies NIC interface used for the HTTP device.
<b>Protocol</b>	Specifies Protocol used for HTTP device. This option is set to <b>IPv4</b> or <b>IPv6</b> . This option is set to <b>IPv4</b> by default.  The following options will be available when Protocol is set as IPv6:  <b>Auto Configuration:</b> IPv6 Auto Configuration Enable/Disabled for this HTTP Device.  <b>IPv6 Address:</b> IPv6 Unicast address for this HTTP Device.

**Table 14. HTTP Device n Settings details (continued)**

Option	Description
	<b>Prefix Length:</b> IPv6 Prefix Length (0-128) for this HTTP Device.
<b>Vlan</b>	Enables Vlan for HTTP device. This option is set to <b>Enable</b> or <b>Disable</b> . This option is set to <b>Disable</b> by default.
<b>Vlan ID</b>	Shows the Vlan ID for the HTTP device
<b>Vlan Priority</b>	Shows the Vlan Priority for the HTTP device.
<b>DHCP</b>	Enables or disables DHCP for this HTTP device. This option is set to <b>Enable</b> by default.
<b>IP Address</b>	Specifies IP address for the HTTP device.
<b>Subnet Mask</b>	Specifies subnet mask for the HTTP device.
<b>Gateway</b>	Specifies gateway for the HTTP device.
<b>DNS info via DHCP</b>	Enables or disables DNS Information from DHCP. This option is set to <b>Enable</b> by default.
<b>Primary DNS</b>	Specifies the primary DNS server IP address for the HTTP Device.
<b>Secondary DNS</b>	Specifies the secondary DNS server IP address for the HTTP Device.
<b>URI</b>	Obtain URI from the DHCP server if not specified
<b>TLS Authentication Configuration</b>	Specifies the option for TLS authentication configuration.
<b>TLS authentication mode</b>	Enables or disables the device's boot TLS authentication mode. This option is set to <b>None</b> or <b>One way</b> . This option is set to <b>None</b> by default. If this option is set to <b>None</b> , the HTTP server and the client will not authenticate each other for the boot. When this option is set to <b>One way</b> , the HTTP server will be authenticated by the client, while the client will not be authenticated by the server. Read-only if System <b>BIOS Settings &gt; Network Settings &gt; HTTP Device n</b> is set to <b>Disabled n = 1, 2, 3, 4, etc.</b> depending on which HTTP device is used.  For example: TLS authentication mode of <b>HTTP Device 1</b> cannot be changed when <b>HTTP Device1</b> is disabled.

**Table 15. UEFI iSCSI Settings screen details**

Option	Description
<b>iSCSI Initiator Name</b>	Specifies the name of the iSCSI initiator in IQN format.
<b>iSCSI Device1</b>	Enables or disables the iSCSI device. When disabled, a UEFI boot option is created for the iSCSI device automatically. This is set to <b>Disabled</b> by default.
<b>iSCSI Device1 Settings</b>	Enables you to control the configuration of the iSCSI device.

**Table 16. iSCSI Device1 Settings screen details**

Option	Description
<b>Connection 1</b>	Enables or disables the iSCSI connection. This option is set to <b>Disable</b> by default.
<b>Connection 2</b>	Enables or disables the iSCSI connection. This option is set to <b>Disable</b> by default.
<b>Connection 1 Settings</b>	Enables you to control the configuration for the iSCSI connection.
<b>Connection 2 Settings</b>	Enables you to control the configuration for the iSCSI connection.
<b>Connection Order</b>	Enables you to control the order for which the iSCSI connections will be attempted.

## Integrated Devices

To view the **Integrated Devices** screen, power on the system, press F2, and click **System Setup Main Menu > System BIOS > Integrated Devices**.

**Table 17. Integrated Devices details**

Option	Description
<b>User Accessible USB Ports</b>	<p>Configures the user accessible USB ports. Selecting <b>Only Back Ports On</b> disables the front USB ports; selecting <b>All Ports Off</b> disables all front and back USB ports; selecting <b>All Ports Off (Dynamic)</b> disables all front and back USB ports during POST. This option is set to <b>All Ports On</b> by default.</p> <p>When user accessible USB ports is set to <b>All Ports Off (Dynamic)</b> the <b>Enable Front Ports Only</b> option is enabled.</p> <ul style="list-style-type: none"> <li>• <b>Enable Front Ports Only:</b> Enables or disables the front USB ports during the OS runtime.</li> </ul> <p>The USB keyboard and mouse still function in certain USB ports during the boot process, depending on the selection. After the boot process is complete, the USB ports will be enabled or disabled as per the setting.</p>
<b>Internal USB Port</b>	<p>Enables or disables the <b>Internal USB Port</b>. This option is set to <b>On</b> or <b>Off</b>. This option is set to <b>On</b> by default.</p>
<b>iDRAC Direct USB Port</b>	<p>The iDRAC Direct USB port is managed by iDRAC exclusively with no host visibility. This option is set to <b>ON</b> or <b>OFF</b>. When set to <b>OFF</b>, iDRAC does not detect any USB devices installed in this managed port. This option is set to <b>On</b> by default.</p>
<b>Integrated RAID Controller</b>	<p>Enables or disables the integrated RAID controller. This option is set to <b>Enabled</b> by default.</p>
<b>Embedded NIC1 and NIC2</b>	<p>Enables or disables the <b>Embedded NIC1 and NIC2</b> options. If set to <b>Disabled (OS)</b>, the NIC may still be available for shared network access by the embedded management controller. Configure the <b>Embedded NIC1 and NIC2</b> option by using the NIC management utilities of the system.</p>
<b>Embedded Video Controller</b>	<p>Enables or disables the use of Embedded Video Controller as the primary display. When set to <b>Enabled</b>, the Embedded Video Controller will be the primary display even if add-in graphic cards are installed. When set to <b>Disabled</b>, an add-in graphics card will be used as the primary display. BIOS will output displays to both the primary add-in video and the embedded video during POST and pre-boot environment. The embedded video will then be disabled right before the operating system boots. This option is set to <b>Enabled</b> by default.</p> <p><b>NOTE:</b> When there are multiple add-in graphic cards installed in the system, the first card discovered during PCI enumeration is selected as the primary video. You might have to re-arrange the cards in the slots in order to control which card is the primary video.</p>
<b>Current State of Embedded Video Controller</b>	<p>Displays the current state of the embedded video controller. The <b>Current State of Embedded Video Controller</b> option is a read-only field. If the Embedded Video Controller is the only display capability in the system (that is, no add-in graphics card is installed), then the Embedded Video Controller is automatically used as the primary display even if the <b>Embedded Video Controller</b> setting is set to <b>Disabled</b>.</p>
<b>Root Complex 0x00 LCLK Frequency</b>	<p>Sets the LCLK frequency for Bus address 0x00.</p> <p><b>NOTE:</b> This option is only available for 3rd Generation AMD EPYC processors.</p>
<b>Root Complex 0x40 LCLK Frequency</b>	<p>Sets the LCLK frequency for Bus address 0x40.</p> <p><b>NOTE:</b> This option is only available for 3rd Generation AMD EPYC processors.</p>

**Table 17. Integrated Devices details (continued)**

Option	Description
<b>Root Complex 0x80 LCLK Frequency</b>	Sets the LCLK frequency for Bus address 0x80. ⓘ <b>NOTE:</b> This option is only available for 3rd Generation AMD EPYC processors.
<b>Root Complex 0xC0 LCLK Frequency</b>	Sets the LCLK frequency for Bus address 0xC0. ⓘ <b>NOTE:</b> This option is only available for 3rd Generation AMD EPYC processors.
<b>PCIe Preferred IO Bus</b>	When set to <b>Enabled</b> , you can provide the Bus address (in decimal) to choose end device for preferred IO Bus. This option is set to <b>Disabled</b> by default.
<b>Enhanced Preferred IO</b>	When set to <b>Enabled</b> , the LCLK speed for the root complex where Preferred IO is enabled will automatically be set to 600 MHz (effective 593 MHz).
<b>SR-IOV Global Enable</b>	Enables or disables the BIOS configuration of Single Root I/O Virtualization (SR-IOV) devices. This option is set to <b>Disabled</b> by default.
<b>Internal SD Card Port</b>	Enables or disables the internal SD card port of the Internal Dual SD Module (IDSDM). This option is set to <b>On</b> by default.
<b>Internal SD Card Redundancy</b>	Configures the redundancy mode of the Internal Dual SD Module (IDSDM). When set to <b>Mirror</b> Mode, data is written on both SD cards. After failure of either card and replacement of the failed card, the data of the active card is copied to the offline card during the system boot.  When Internal SD Card Redundancy is set to <b>Disabled</b> , only the primary SD card is visible to the OS. This option is set to <b>Mirror</b> by default.
<b>Internal SD Primary Card</b>	By default, the primary SD card is selected to be SD Card 1. If SD Card 1 is not present, then the controller selects SD Card 2 to be the primary SD card. This option is set to <b>SD Card 1</b> by default.
<b>OS Watchdog Timer</b>	If your system stops responding, this watchdog timer aids in the recovery of your operating system. When this option is set to <b>Enabled</b> , the operating system initializes the timer. When this option is set to <b>Disabled</b> (the default), the timer does not have any effect on the system.
<b>Memory Mapped I/O Limit</b>	Controls where MMIO is mapped. The <b>1 TB</b> option is designed for specific OS which cannot support MMIO over 1 TB. This option is set to <b>8 TB</b> by default. The default option is the maximum address that the system supports and recommended in most cases.
<b>Slot Disablement</b>	Enables or disables the available PCIe slots on your system. The slot disablement feature controls the configuration of the PCIe cards installed in the specified slot. Slots must be disabled only when the installed peripheral card prevents booting into the operating system or causes delays in system startup. If the slot is disabled, both the Option ROM and UEFI drivers are disabled. Only slots that are present on the system will be available for control.  <b>Slot n:</b> Enables or disables or only the boot driver is disabled for the PCIe slot n. This option is set to <b>Enabled</b> by default.
<b>Slot Bifurcation</b>	<b>Slot Discovery Bifurcation Settings</b> allows <b>Platform Default Bifurcation</b> and <b>Manual bifurcation Control</b> .  The default is set to <b>Platform Default Bifurcation</b> . The slot bifurcation field is accessible when set to <b>Manual bifurcation Control</b> and is grayed out when set to <b>Platform Default Bifurcation</b> .  ⓘ <b>NOTE:</b> This option is only available for 3rd Generation AMD EPYC processors.

## Serial Communication

To view the **Serial Communication** screen, power on the system, press F2, and click **System Setup Main Menu > System BIOS > Serial Communication**.

**Table 18. Serial Communication details**

Option	Description
<b>Serial Communication</b>	Selects serial communication devices (Serial Device 1 and Serial Device 2) in BIOS. BIOS console redirection can also be enabled, and the port address can be specified. This option is set to <b>Auto</b> by default.
<b>Serial Port Address</b>	<p>Enables you to set the port address for serial devices. This option is set to <b>Serial Device1=COM2, Serial Device 2=COM1</b> by default.</p> <p><b>i</b> <b>NOTE:</b> You can use only Serial Device 2 for the Serial Over LAN (SOL) feature. To use console redirection by SOL, configure the same port address for console redirection and the serial device.</p> <p><b>i</b> <b>NOTE:</b> Every time the system boots, the BIOS syncs the serial MUX setting that is saved in iDRAC. The serial MUX setting can independently be changed in iDRAC. Loading the BIOS default settings from within the BIOS setup utility may not always revert the serial MUX setting to the default setting of Serial Device 1.</p>
<b>External Serial Connector</b>	<p>Enables you to associate the External Serial Connector to <b>Serial Device 1, Serial Device 2,</b> or the <b>Remote Access Device</b> by using this option. This option is set to <b>Serial Device 1</b> by default.</p> <p><b>i</b> <b>NOTE:</b> Only Serial Device 2 can be used for Serial Over LAN (SOL). To use console redirection by SOL, configure the same port address for console redirection and the serial device.</p> <p><b>i</b> <b>NOTE:</b> Every time the system boots, the BIOS syncs the serial MUX setting saved in iDRAC. The serial MUX setting can independently be changed in iDRAC. Loading the BIOS default settings from within the BIOS setup utility may not always revert this setting to the default setting of Serial Device 1.</p>
<b>Failsafe Baud Rate</b>	Specifies the failsafe baud rate for console redirection. The BIOS attempts to determine the baud rate automatically. This failsafe baud rate is used only if the attempt fails, and the value must not be changed. This option is set to <b>115200</b> by default.
<b>Remote Terminal Type</b>	Sets the remote console terminal type. This option is set to <b>VT100/VT220</b> by default.
<b>Redirection After Boot</b>	Enables or disables the BIOS console redirection when the operating system is loaded. This option is set to <b>Enabled</b> by default.

## System Profile Settings


To view the **System Profile Settings** screen, power on the system, press F2, and click **System Setup Main Menu > System BIOS > System Profile Settings**.

**Table 19. System Profile Settings details**

Option	Description
<b>System Profile</b>	Sets the system profile. If you set the System Profile option to a mode other than <b>Custom</b> , the BIOS automatically sets the rest of the options. You can only change the rest of the options if the mode is set to <b>Custom</b> . This option is set to <b>Performance Per Watt (OS)</b> by default. Other options include <b>Performance</b> and <b>Custom</b> .



**Table 19. System Profile Settings details (continued)**

Option	Description
	 <b>NOTE:</b> All the parameters on the system profile setting screen are available only when the <b>System Profile</b> option is set to <b>Custom</b> .
<b>CPU Power Management</b>	Sets the CPU power management. This option is set to <b>OS DBPM</b> by default. Other option includes <b>Maximum Performance</b> .
<b>Memory Frequency</b>	Sets the speed of the system memory. You can select <b>Maximum Performance</b> or a specific speed. This option is set to <b>Maximum Performance</b> by default.
<b>Turbo Boost</b>	Enables or disables the processor to operate in the turbo boost mode. This option is set to <b>Enabled</b> by default.
<b>C States</b>	Enables or disables the processor to operate in all available power states. C States allow the processor to enter lower power states when idle. When set to <b>Enabled</b> (OS controlled) or when set to <b>Autonomous</b> (if hardware controlled is supported), the processor can operate in all available Power States to save power, but may increase memory latency and frequency jitter. This option is set to <b>Enabled</b> by default.
<b>Write Data CRC</b>	When set to <b>Enabled</b> , DDR4 data bus issues are detected and corrected during 'write' operations. Two extra cycles are required for CRC bit generation which impacts the performance. Read-only unless System Profile is set to <b>Custom</b> . This option is set to <b>Disabled</b> by default.
<b>Memory Patrol Scrub</b>	Sets the memory patrol scrub mode. This option is set to <b>Standard</b> by default.
<b>Memory Refresh Rate</b>	Sets the memory refresh rate to either 1x or 2x. This option is set to <b>1x</b> by default.
<b>Workload Profile</b>	Allows optimization of performance based on the workload type. The <b>Workload Profile</b> setting is not a <b>state</b> . Setting a workload profile is a one-time action that in turns modifies various BIOS settings to be optimized for the requested workload type. This option is set to <b>Not Configured</b> by default.
<b>PCI ASPM L1 Link Power Management</b>	Enables or disables the PCI ASPM L1 Link Power Management. This option is set to <b>Enabled</b> by default.
<b>Determinism Slider</b>	Set the system determinism by <b>Power Determinism</b> or <b>Performance Determinism</b> . This option is set to <b>Power Determinism</b> by default.
<b>Efficiency Optimized Mode</b>	Efficiency Optimized Mode maximizes Performance-per-Watt by opportunistically reducing frequency/power. Enables or disables the Efficiency Optimized Mode.
<b>Algorithm Performance Boost Disable (ApbDis)</b>	Enables or disables the Algorithm Performance Boost Disable (ApbDis). This option is set to <b>Disabled</b> by default.


## System Security

To view the **System Security** screen, power on the system, press F2, and click **System Setup Main Menu > System BIOS > System Security**.

**Table 20. System Security details**

Option	Description
<b>CPU AES-NI</b>	Improves the speed of applications by performing encryption and decryption by using the Advanced Encryption Standard Instruction Set (AES-NI). This option is set to <b>Enabled</b> by default.
<b>System Password</b>	Sets the system password. This option is set to <b>Enabled</b> by default and is read-only if the password jumper is not installed in the system.
<b>Setup Password</b>	Sets the setup password. This option is read-only if the password jumper is not installed in the system.
<b>Password Status</b>	Locks the system password. This option is set to <b>Unlocked</b> by default.

**Table 21. TPM 1.2 security information**

Option	Description
<b>TPM Security</b>	<p> <b>NOTE:</b> The TPM menu is available only when the TPM module is installed.</p> <p>Enables you to control the reporting mode of the TPM. The <b>TPM Security</b> option is set to <b>Off</b> by default. You can only modify the TPM Status, and TPM Activation if the <b>TPM Status</b> field is set to either <b>On with Pre-boot Measurements</b> or <b>On without Pre-boot Measurements</b>.</p> <p>When TPM 1.2 is installed, the <b>TPM Security</b> option is set to <b>Off, On with Pre-boot Measurements, or On without Pre-boot Measurements</b>.</p> <p>When TPM 2.0 is installed, the <b>TPM Security</b> option is set to <b>On</b> or <b>Off</b>. This option is set to <b>Off</b> by default.</p>
<b>TPM Information</b>	Changes the operational state of the TPM. This option is set to <b>No Change</b> by default.
<b>TPM Firmware</b>	Indicates the firmware version of the TPM.
<b>TPM Status</b>	Specifies the TPM status.
<b>TPM Command</b>	Controls the Trusted Platform Module (TPM). When set to <b>None</b> , no command is sent to the TPM. When set to <b>Activate</b> , the TPM is enabled and activated. When set to <b>Deactivate</b> , the TPM is disabled and deactivated. When set to <b>Clear</b> , all the contents of the TPM are cleared. This option is set to <b>None</b> by default.

**Table 22. TPM 2.0 security information**

Option	Description
<b>TPM Information</b>	Changes the operational state of the TPM. This option is set to <b>No Change</b> by default.
<b>TPM Firmware</b>	Indicates the firmware version of the TPM.
<b>TPM Hierarchy</b>	<p>Enables, disables, or clears the storage and endorsement hierarchies. When set to <b>Enabled</b>, the storage and endorsement hierarchies can be used.</p> <p>When set to <b>Disabled</b>, the storage and endorsement hierarchies cannot be used.</p> <p>When set to <b>Clear</b>, the storage and endorsement hierarchies are cleared of any values, and then reset to <b>Enabled</b>.</p>
<b>TPM Advanced Settings</b>	Specifies TPM Advanced Settings details.

**Table 23. System Security details**

Option	Description
<b>AMD Dynamic Root of Trust Measurement (DRTM)</b>	<p>Enable/Disable AMD Dynamic Root of Trust Measurement (DRTM)</p> <p>To enable AMD DRTM, below configurations must be enabled:</p> <ol style="list-style-type: none"> <li>1. TPM2.0 must be enabled and the hash algorithm must be set to SHA256.</li> <li>2. Transparent SME (TSME) must be enabled.</li> <li>3. Direct Memory Access Protection must be enabled.</li> </ol>
<b>Power Button</b>	Enables or disables the power button on the front of the system. This option is set to <b>Enabled</b> by default.
<b>AC Power Recovery</b>	Sets how the system behaves after AC power is restored to the system. This option is set to <b>Last</b> by default.
<b>AC Power Recovery Delay</b>	Sets the time delay for the system to power up after AC power is restored to the system. This option is set to <b>Immediate</b> by default.
<b>User Defined Delay (60 s to 600 s)</b>	Sets the <b>User Defined Delay</b> option when the <b>User Defined</b> option for <b>AC Power Recovery Delay</b> is selected.
<b>UEFI Variable Access</b>	Provides varying degrees of securing UEFI variables. When set to <b>Standard</b> (the default), UEFI variables are accessible in the operating system per the UEFI specification. When set to <b>Controlled</b> , selected UEFI variables are protected in the

**Table 23. System Security details (continued)**

Option	Description								
	environment and new UEFI boot entries are forced to be at the end of the current boot order.								
<b>Secure Boot</b>	Enables Secure Boot, where the BIOS authenticates each pre-boot image by using the certificates in the Secure Boot Policy. Secure Boot is set to <b>Disabled</b> by default.								
<b>Secure Boot Policy</b>	When Secure Boot policy is set to <b>Standard</b> , the BIOS uses the system manufacturer’s key and certificates to authenticate pre-boot images. When Secure Boot policy is set to <b>Custom</b> , the BIOS uses the user-defined key and certificates. Secure Boot policy is set to <b>Standard</b> by default.								
<b>Secure Boot Mode</b>	<p>Configures how the BIOS uses the Secure Boot Policy Objects (PK, KEK, db, dbx).                      If the current mode is set to <b>Deployed Mode</b>, the available options are <b>User Mode</b> and <b>Deployed Mode</b>. If the current mode is set to <b>User Mode</b>, the available options are <b>User Mode</b>, <b>Audit Mode</b>, and <b>Deployed Mode</b>.</p> <p><b>Table 24. Secure Boot Mode</b></p> <table border="1"> <thead> <tr> <th>Options</th> <th>Descriptions</th> </tr> </thead> <tbody> <tr> <td><b>User Mode</b></td> <td>In <b>User Mode</b>, PK must be installed, and BIOS performs signature verification on programmatic attempts to update policy objects.  The BIOS allows unauthenticated programmatic transitions between modes.</td> </tr> <tr> <td><b>Deployed Mode</b></td> <td><b>Deployed Mode</b> is the most secure mode. In <b>Deployed Mode</b>, PK must be installed and the BIOS performs signature verification on programmatic attempts to update policy objects.  <b>Deployed Mode</b> restricts the programmatic mode transitions.</td> </tr> <tr> <td><b>Audit Mode</b></td> <td>In <b>Audit mode</b>, PK is not present. The BIOS does not authenticate programmatic updates to the policy objects, and transitions between modes. The BIOS performs a signature verification on pre-boot images and logs the results in the image Execution Information Table, but executes the images whether they pass or fail verification.  <b>Audit Mode</b> is useful for programmatic determination of a working set of policy objects.</td> </tr> </tbody> </table>	Options	Descriptions	<b>User Mode</b>	In <b>User Mode</b> , PK must be installed, and BIOS performs signature verification on programmatic attempts to update policy objects.  The BIOS allows unauthenticated programmatic transitions between modes.	<b>Deployed Mode</b>	<b>Deployed Mode</b> is the most secure mode. In <b>Deployed Mode</b> , PK must be installed and the BIOS performs signature verification on programmatic attempts to update policy objects.  <b>Deployed Mode</b> restricts the programmatic mode transitions.	<b>Audit Mode</b>	In <b>Audit mode</b> , PK is not present. The BIOS does not authenticate programmatic updates to the policy objects, and transitions between modes. The BIOS performs a signature verification on pre-boot images and logs the results in the image Execution Information Table, but executes the images whether they pass or fail verification.  <b>Audit Mode</b> is useful for programmatic determination of a working set of policy objects.
Options	Descriptions								
<b>User Mode</b>	In <b>User Mode</b> , PK must be installed, and BIOS performs signature verification on programmatic attempts to update policy objects.  The BIOS allows unauthenticated programmatic transitions between modes.								
<b>Deployed Mode</b>	<b>Deployed Mode</b> is the most secure mode. In <b>Deployed Mode</b> , PK must be installed and the BIOS performs signature verification on programmatic attempts to update policy objects.  <b>Deployed Mode</b> restricts the programmatic mode transitions.								
<b>Audit Mode</b>	In <b>Audit mode</b> , PK is not present. The BIOS does not authenticate programmatic updates to the policy objects, and transitions between modes. The BIOS performs a signature verification on pre-boot images and logs the results in the image Execution Information Table, but executes the images whether they pass or fail verification.  <b>Audit Mode</b> is useful for programmatic determination of a working set of policy objects.								
<b>Secure Boot Policy Summary</b>	Specifies the list of certificates and hashes that secure boot uses to authenticate images.								
<b>Secure Boot Custom Policy Settings</b>	Configures the Secure Boot Custom Policy. To enable this option, set the Secure Boot Policy to <b>Custom</b> option.								

**Creating a system and setup password**

**Prerequisites**

Ensure that the password jumper is enabled. The password jumper enables or disables the system password and setup password features. For more information, see the System board jumper settings section.

**NOTE:** If the password jumper setting is disabled, the existing system password and setup password are deleted and you need not provide the system password to boot the system.

**Steps**

1. To enter System Setup, press F2 immediately after turning on or rebooting your system.
2. On the **System Setup Main Menu** screen, click **System BIOS > System Security**.
3. On the **System Security** screen, verify that **Password Status** is set to **Unlocked**.

4. In the **System Password** field, type your system password, and press Enter or Tab.

Use the following guidelines to assign the system password:

- A password can have up to 32 characters.

A message prompts you to reenter the system password.

5. Reenter the system password, and click **OK**.


6. In the **Setup Password** field, type your setup password and press Enter or Tab.

A message prompts you to reenter the setup password.

7. Reenter the setup password, and click **OK**.

8. Press Esc to return to the System BIOS screen. Press Esc again.

A message prompts you to save the changes.

 **NOTE:** Password protection does not take effect until the system reboots.

## Using your system password to secure your system

### About this task


If you have assigned a setup password, the system accepts your setup password as an alternate system password.

### Steps

1. Turn on or reboot your system.
2. Type the system password and press Enter.


### Next steps

When **Password Status** is set to **Locked**, type the system password and press Enter when prompted at reboot.

 **NOTE:** If an incorrect system password is typed, the system displays a message and prompts you to reenter your password. You have three attempts to type the correct password. After the third unsuccessful attempt, the system displays an error message that the system has stopped functioning and must be turned off. Even after you turn off and restart the system, the error message is displayed until the correct password is entered.


## Deleting or changing system and setup password

### Prerequisites

 **NOTE:** You cannot delete or change an existing system or setup password if the **Password Status** is set to **Locked**.

### Steps

1. To enter System Setup, press F2 immediately after turning on or restarting your system.
2. On the **System Setup Main Menu** screen, click **System BIOS > System Security**.
3. On the **System Security** screen, ensure that **Password Status** is set to **Unlocked**.
4. In the **System Password** field, alter or delete the existing system password, and then press Enter or Tab.
5. In the **Setup Password** field, alter or delete the existing setup password, and then press Enter or Tab.  
If you change the system and setup password, a message prompts you to reenter the new password. If you delete the system and setup password, a message prompts you to confirm the deletion.
6. Press Esc to return to the **System BIOS** screen. Press Esc again, and a message prompts you to save the changes.
7. Select **Setup Password**, change, or delete the existing setup password and press Enter or Tab.

 **NOTE:** If you change the system password or setup password, a message prompts you to reenter the new password. If you delete the system password or setup password, a message prompts you to confirm the deletion.

## Operating with setup password enabled

If **Setup Password** is set to **Enabled**, type the correct setup password before modifying the system setup options.

If you do not type the correct password in three attempts, the system displays the following message:

```
Invalid Password! Number of unsuccessful password attempts: <x> System Halted! Must power down.
```

```
Password Invalid. Number of unsuccessful password attempts: <x> Maximum number of password attempts exceeded. System halted.
```

Even after you turn off and restart the system, the error message is displayed until the correct password is typed. The following options are exceptions:

- If **System Password** is not set to **Enabled** and is not locked through the **Password Status** option, you can assign a system password. For more information, see the System Security Settings screen section.
- You cannot disable or change an existing system password.

**NOTE:** You can use the password status option with the setup password option to protect the system password from unauthorized changes.

## Redundant OS Control

To view the **Redundant OS Control** screen, power on the system, press F2, and click **System Setup Main Menu > System BIOS > Redundant OS Control**.


**Table 25. Redundant OS Control details**

Option	Description
<b>Redundant OS Location</b>	<p>Enables you to select a backup disk from the following devices:</p> <ul style="list-style-type: none"> <li>• <b>None</b></li> <li>• <b>IDSDM</b></li> <li>• <b>SATA Ports in AHCI mode</b></li> <li>• <b>BOSS PCIe Cards (Internal M.2 Drives)</b></li> <li>• <b>Internal USB</b></li> </ul> <p><b>NOTE:</b> RAID configurations and NVMe cards are not included, as BIOS does not have the ability to distinguish between individual drives in those configurations.</p>
<b>Redundant OS State</b>	<p><b>NOTE:</b> This option is disabled if <b>Redundant OS Location</b> is set to <b>None</b>.</p> <p>When set to <b>Visible</b>, the backup disk is visible to the boot list and OS. When set to <b>Hidden</b>, the backup disk is disabled and is not visible to the boot list and OS. This option is set to <b>Visible</b> by default.</p> <p><b>NOTE:</b> BIOS disables the device in hardware, so it is not accessed by the OS.</p>
<b>Redundant OS Boot</b>	<p><b>NOTE:</b> This option is disabled if <b>Redundant OS Location</b> is set to <b>None</b> or if <b>Redundant OS State</b> is set to <b>Hidden</b>.</p> <p>When set to <b>Enabled</b>, BIOS boots to the device specified in <b>Redundant OS Location</b>. When set to <b>Disabled</b>, BIOS preserves the current boot list settings. This option is set to <b>Enabled</b> by default.</p>

## Miscellaneous Settings


To view the **Miscellaneous Settings** screen, power on the system, press F2, and click **System Setup Main Menu > System BIOS > Miscellaneous Settings**.

**Table 26. Miscellaneous Settings details**

Option	Description
<b>System Time</b>	Enables you to set the time on the system.
<b>System Date</b>	Enables you to set the date on the system.
<b>Asset Tag</b>	Specifies the asset tag and enables you to modify it for security and tracking purposes.
<b>Keyboard NumLock</b>	Enables you to set whether the system boots with the NumLock enabled or disabled. This option is set to <b>On</b> by default.  <b>NOTE:</b> This option does not apply to 84-key keyboards.
<b>F1/F2 Prompt on Error</b>	Enables or disables the F1/F2 prompt on error. This option is set to <b>Enabled</b> by default. The F1/F2 prompt also includes keyboard errors.
<b>Load Legacy Video Option ROM</b>	Enables or disables the Load Legacy Video Option ROM option. This option is set to <b>Disabled</b> by default.
<b>Dell Wyse P25/P45 BIOS Access</b>	Enables or disables the Dell Wyse P25/P45 BIOS Access. This option is set to <b>Enabled</b> by default.
<b>Power Cycle Request</b>	Enables or disables the Power Cycle Request. This option is set to <b>None</b> by default.

## iDRAC Settings utility

The iDRAC settings utility is an interface to set up and configure the iDRAC parameters by using UEFI. You can enable or disable various iDRAC parameters by using the iDRAC settings utility.

 **NOTE:** Accessing some of the features on the iDRAC settings utility needs the iDRAC Enterprise License upgrade.

For more information about using iDRAC, see *Dell Integrated Dell Remote Access Controller User's Guide* at <https://www.dell.com/idracmanuals>.

## Device Settings

**Device Settings** enables you to configure device parameters such as storage controllers or network cards.

## Dell Lifecycle Controller

Dell Lifecycle Controller (LC) provides advanced embedded systems management capabilities including system deployment, configuration, update, maintenance, and diagnosis. LC is delivered as part of the iDRAC out-of-band solution and Dell system embedded Unified Extensible Firmware Interface (UEFI) applications.

## Embedded system management

The Dell Lifecycle Controller provides advanced embedded system management throughout the lifecycle of the system. The Dell Lifecycle Controller is started during the boot sequence and functions independently of the operating system.

 **NOTE:** Certain platform configurations may not support the full set of features provided by the Dell Lifecycle Controller.

For more information about setting up the Dell Lifecycle Controller, configuring hardware and firmware, and deploying the operating system, see the Dell Lifecycle Controller documentation at <https://www.dell.com/idracmanuals>.

# Boot Manager

The **Boot Manager** option enables you to select boot options and diagnostic utilities.

To enter **Boot Manager**, power on the system and press F11.

**Table 27. Boot Manager details**

Option	Description
<b>Continue Normal Boot</b>	The system attempts to boot to devices starting with the first item in the boot order. If the boot attempt fails, the system continues with the next item in the boot order until the boot is successful or no more boot options are found.
<b>One-shot Boot Menu</b>	Enables you to access boot menu, where you can select a one-time boot device to boot from.
<b>Launch System Setup</b>	Enables you to access System Setup.
<b>Launch Lifecycle Controller</b>	Exits the Boot Manager and invokes the Dell Lifecycle Controller program.
<b>System Utilities</b>	Enables you to launch System Utilities menu such as Launch Diagnostics, BIOS update File Explorer, Reboot System.

## PXE boot

You can use the Preboot Execution Environment (PXE) option to boot and configure the networked systems remotely.

To access the **PXE boot** option, boot the system and then press F12 during POST instead of using standard Boot Sequence from BIOS Setup. It does not pull any menu or allows managing of network devices.