# OptiPlex 7060 Small Form Factor

## Setup and specifications guide

Regulatory Model: D11S
Regulatory Type: D11S004

## Notes, cautions, and warnings

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

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

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



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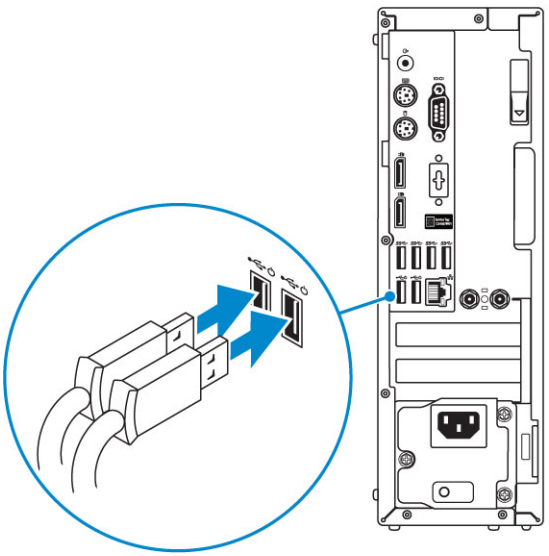
# Contents

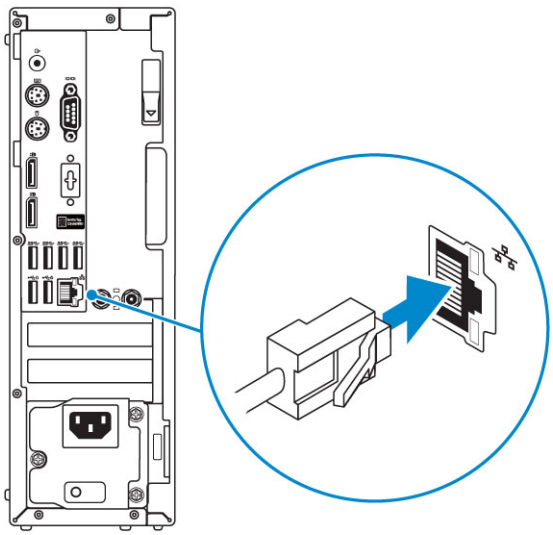
# 1

# Set up your computer

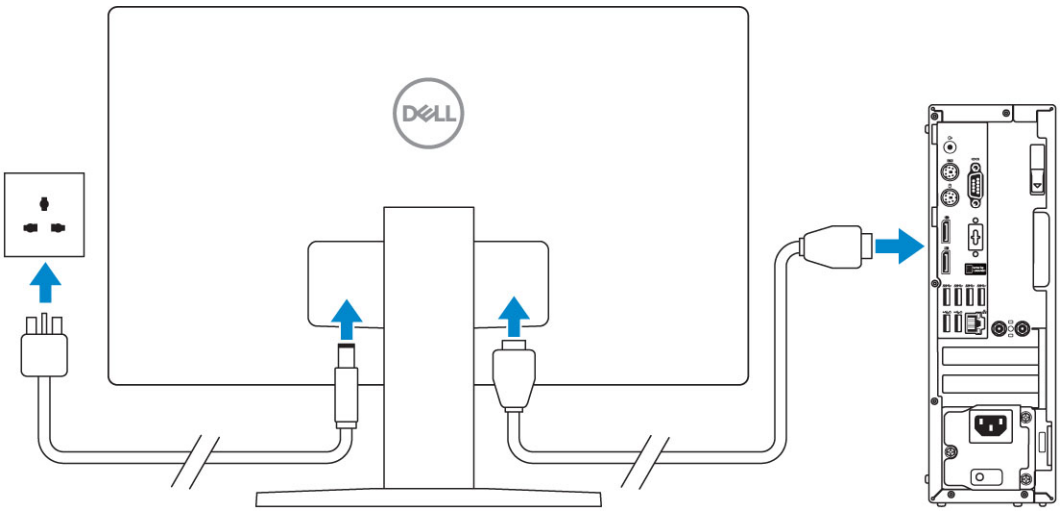
1 Connect the keyboard and mouse.



2 Connect to your network using a cable, or connect to a wireless network.

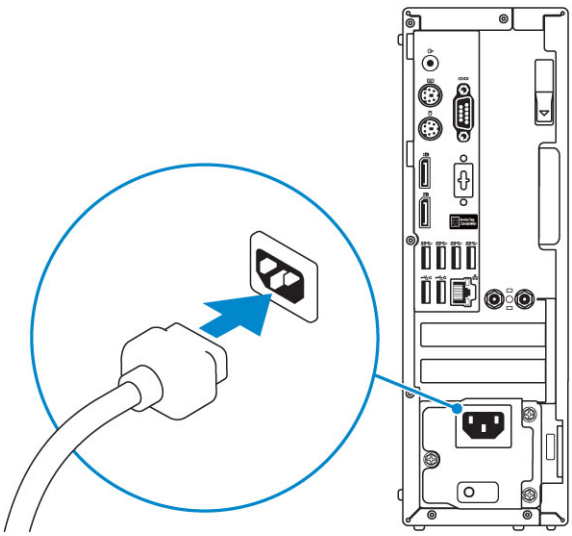


3 Connect the display.

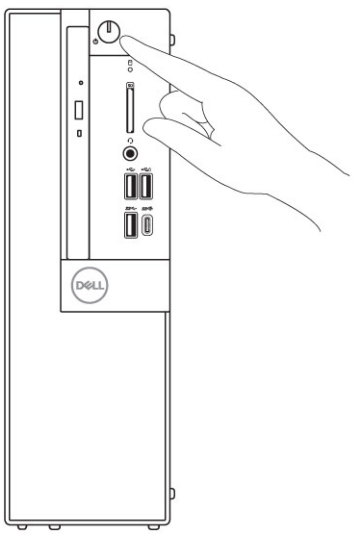


**NOTE: If you ordered your computer with a discrete graphics card, the HDMI and the display ports on the back panel of your computer are covered. Connect the display to the discrete graphics card.**

4 Connect the power cable.

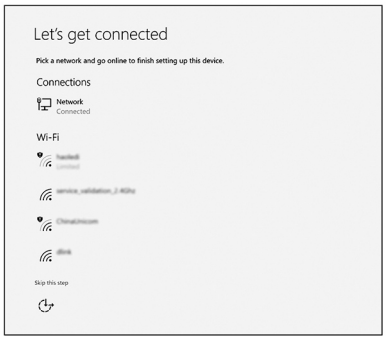


5 Press the power button.

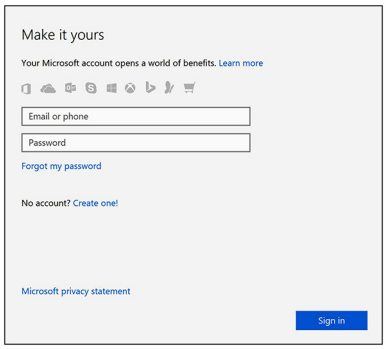


6 Follow the instructions on the screen to finish Windows setup:

a Connect to a network.




b Sign-in to your Microsoft account or create a new account.

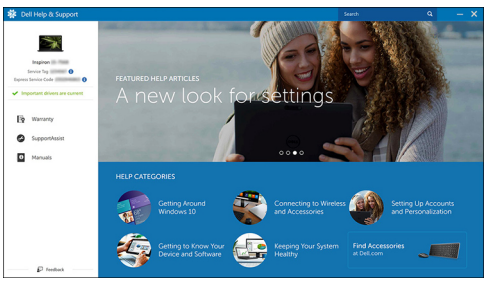



7 Locate Dell apps.

**Table 1. Locate Dell apps**

Register your computer

Dell Help & Support




SupportAssist — Check and update your computer

# 2

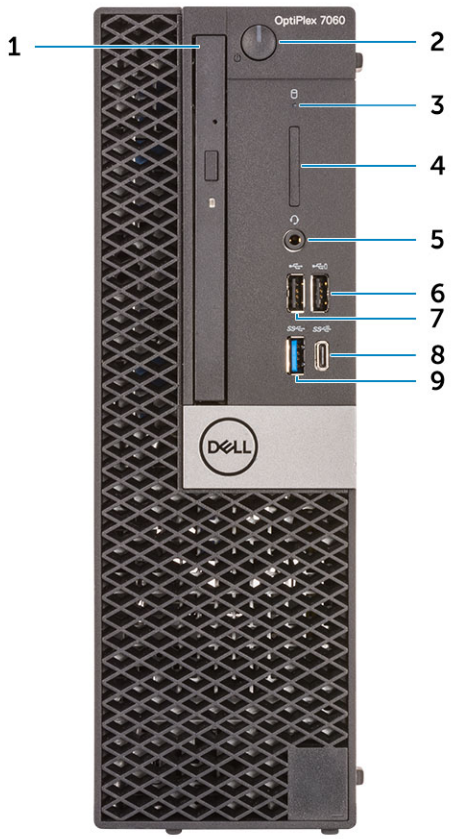
# Chassis

This chapter illustrates the multiple chassis views along with the ports and connectors and also explains the FN hot key combinations.

Topics:

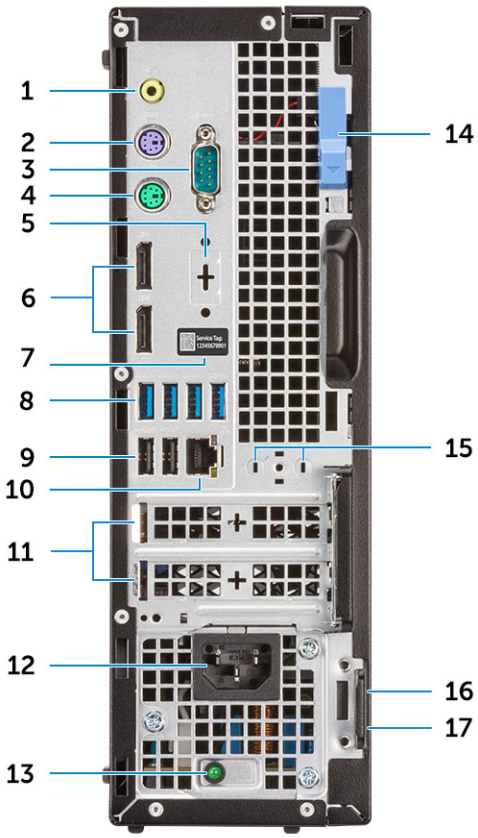
- Front view
- Back view

## Front view




| | | | |
|---|---|---|---|
| 1 | Optical drive (optional) | 2 | Power button and power light |
| 3 | Hard-drive activity light | 4 | Memory card reader (optional) |
| 5 | Headset/Universal audio jack port | 6 | USB 2.0 port with PowerShare (supports battery charge capability) |
| 7 | USB 2.0 port | 8 | USB 3.1 Gen 2 Type-C port with PowerShare |
| 9 | USB 3.1 Gen 1 port | | |

# Back view




| | | | |
|---|---|---|---|
| 1 | Line-out port | 2 | PS/2 keyboard port |
| 3 | Serial port (optional) | 4 | PS/2 mouse port |
| 5 | DisplayPort/HDMI 2.0b/VGA/USB Type-C Alt-Mode (optional) | 6 | DisplayPorts |
| 7 | Service tag | 8 | USB 3.1 Gen 1 ports |
| 9 | USB 2.0 ports (supports SmartPower On) | 10 | Network port |
| 11 | Expansion card slots | 12 | Power connector port |
| 13 | Power supply diagnostic light | 14 | Release latch |
| 15 | Antenna SMA connectors (optional) | 16 | Kensington security cable slot |
| 17 | Padlock ring | | |

# 3

# System specifications

**NOTE: Offerings may vary by region. The following specifications are only those required by law to ship with your computer. For more information about the configuration of your computer, go to Help and Support in your Windows operating system and select the option to view information about your computer.**

Topics:



# Chipset

**Table 2. Chipset specifications**

| | |
|---|---|
| Type | Intel Q370 |
| Non-volatile memory on chipset | Yes |
| BIOS configuration SPI (Serial Peripheral Interface) | 256Mbit (32MB) located at SPI_FLASH on chipset |
| Trusted Platform Module (Discrete TPM Enabled) | 24KB located at TPM 2.0 on chipset |
| Firmware TPM (Discrete TPM Disabled) | Available in select countries |
| NIC EEPROM | LOM configuration contained within LOM e-fuse – no dedicated LOM EEPROM |

# Processor

Global Standard Products (GSP) are a subset of Dell's relationship products that are managed for availability and synchronized transitions on a worldwide basis. They ensure the same platform is available for purchase globally. This allows customers to reduce the number of configurations managed on a worldwide basis, thereby reducing their costs. They also enable companies to implement global IT standards by locking in specific product configurations worldwide. The following GSP processors identified below will be made available to Dell customers.

**NOTE: Processor numbers are not a measure of performance. Processor availability is subject to change and may vary by region/country.**

### Table 3. Processor specifications

| Type | UMA Graphics |
|---|---|
| Intel Core i3-8100 (4 Cores/6MB/4T/3.6GHz/65W) | Intel UHD Graphics 630 |
| Intel Core i3-8300 (4 Cores/8MB/4T/3.7GHz/65W) | Intel UHD Graphics 630 |
| Intel Core i5-8400 (6 Cores/9MB/6T/up to 4.0GHz/65W) | Intel UHD Graphics 630 |
| Intel Core i5-8500 (6 Cores/9MB/6T/up to 4.1GHz/65W) | Intel UHD Graphics 630 |
| Intel Core i5-8600 (6 Cores/9MB/6T/up to 4.3GHz/65W) | Intel UHD Graphics 630 |
| Intel Core i7-8700 (6 Cores/12MB/12T/up to 4.6GHz/65W) | Intel UHD Graphics 630 |

# Memory

### Table 4. Memory specifications

| | |
|---|---|
| Minimum memory configuration | 4 GB |
| Maximum memory configuration | 64 GB |
| Number of slots | 4 UDIMM |
| Maximum memory supported per slot | 16 GB |
| Memory options | • 4 GB - 1 x 4 GB<br>• 8 GB - 1 x 8 GB<br>• 8 GB - 2 x 4 GB<br>• 16 GB - 2 x 8 GB<br>• 16 GB - 1 x 16 GB<br>• 32 GB - 2 x 16 GB<br>• 32 GB - 4 x 8 GB<br>• 64 GB - 4 x 16 GB |
| Type | DDR4 DRAM Non-ECC memory |
| Speed | 2666 MHz memory will perform at 2400 MHz on i3 processors |

# Storage

### Table 5. Storage specifications

| Type | Form factor | Interface | Capacity |
|---|---|---|---|
| Solid-State Drive (SSD) | M.2 2280 | • SATA AHCI, Up to 6 Gbps | Up to 2 TB |

| Type | Form factor | Interface | Capacity |
|---|---|---|---|
| | | • PCIe 3 x4 NVME, Up to 32 Gbps | |
| Hard drive (HDD) | 2.5 and 3.5 inch | SATA AHCI, Up to 6 Gbps | Up to 2 TB at 5400/7200 RPM |
| Self-encrypting Opal drive Hard-Disk Drive (SED HDD) | One 2.5 inch | SATA AHCI, Up to 6 Gbps | 2.5 inch 500 GB at 7200 RPM |
| Solid State Hybrid Drive | One 2.5 inch | SATA AHCI, Up to 6 Gbps | 2.5 inch 1 TB at 5400 RPM |
| Optical drive | 1 Slim | SATA AHCI, Up to 6 Gbps | |
| Intel Optane Memory | M.2 | | 16 GB |

# Storage combinations

**Table 6. Storage combinations**

| Primary/Boot drive | Secondary drive |
|---|---|
| M.2 Drive | |
| M.2 Drive | 2.5 inch HDD |
| M.2 Drive | 3.5 inch HDD |
| 2.5 inch HDD | |
| 2.5 inch HDD | 2.5 inch HDD |
| 3.5 inch HDD | |
| 2.5 inch HDD with Intel Optane | |
| 2.5 inch HDD with Intel Optane | 2.5 inch HDD |
| 3.5 inch HDD with Intel Optane | 2.5 inch HDD |

# Audio

**Table 7. Audio specifications**

| | |
|---|---|
| Controller | Realtek ALC3234 |
| Type | Integrated |
| Speakers | Internal speaker (mono) |
| Interface | • AC511 Sound Bar (optional)<br>• AC411 External speakers (optional)<br>• Dell AX210CR USB Stereo speakers (optional)<br>• Stereo headset/mic combo |
| Internal speaker amplifier | 2W (RMS) per channel |

# Video

**Table 8. Video**

| Controller | Type | CPU Dependency | Graphics memory type | Capacity | External display support | Maximum resolution |
|---|---|---|---|---|---|---|
| Intel UHD Graphics 630 | UMA | 8th Generation Intel Core Processor i3, i5,i7 | Integrated | Shared system memory | DisplayPort<br>HDMI 1.4 | VGA: 2048x1536@60 Hz<br>HDMI : 1920x1080@60 Hz<br>DP:4196x2160 @ 60hz |
| AMD Radeon R5 430 | Discrete | NA | GDDR5 | 2GB | Two DP 1.2 | 1 display of 4K @ 60hz |
| NVIDIA GeForce GT 730 | Discrete | NA | GDDR5 | 2GB | 3 displays with 1 or 2 DP of 1.2 ports | 1 display of 3840x2160 @ 60hz |
| AMD Radeon RX 550 | Discrete | NA | GDDR5 | 4GB | DP 1.4<br>Two mDP 1.4 | 1 display of 5K @ 60hz . 3 displays 4K @ 60hz |
| Dual AMD Radeon R5 430 | Discrete | NA | GDDR5 | 2GB | Two DP 1.2 | 1 display of 4K @ 60hz |

# Communications

**Table 9. Communications**

| | |
|---|---|
| Network adapter | Intel i219-LM Gigabit Ethernet LAN 10/100/1000 (Remote Wake Up, PXE support and Intel Active Management Technology support) |
| Wireless | • Qualcomm QCA61x4A Dual-band 2x2 802.11ac Wireless with MU-MIMO + Bluetooth 4.2<br>• Intel Wireless-AC 9560, Dual-band 2x2 802.11ac Wi-Fi with MU-MIMO + Bluetooth 5 |

# Ports and connectors

**Table 10. Ports and connectors**

| | |
|---|---|
| Memory card reader | SD 4.0 memory card reader—optional |
| USB | • One USB 3.1 Gen 2 Type-C port with PowerShare (front)<br>• One USB 3.1 Gen 1 port (front)<br>• Two USB 2.0 ports (one with PowerShare, supports battery charge capability) (front) |

| | |
|---|---|
| Security | Kensington security cable slot |
| Audio | • One headset port/Universal audio jack (front)<br>• One line-out port (rear) |
| Video | • Two DisplayPorts (rear)<br>• DisplayPort/HDMI 2.0b/VGA/USB Type-C Alt-Mode (optional) (rear) |
| Network adapter | One RJ-45 (10/100/1000) connector |
| Serial port | One serial port (optional) (rear) |

# System board connectors

**Table 11. System board connectors**

| | |
|---|---|
| M.2 Connectors | • 1 - 2230/2280<br>• 1 - 2230 (keyed to support Integrated or Discrete WiFi, Support Intel CNVi or USB2.0/PCIe) |
| Serial ATA (SATA) connector | 3 (one Gen2 port for ODD and the rest of the ports support Gen3) |
| PCIe X16 slot | 1 (Support Standard Rev 3.0) |
| PCIe X1 slot | 0 |
| PCIe X16 slot (wired x4) slot | 0 |
| PCIe X4 | 1 (open ended X4) |

# Operating system

**Table 12. Operating system**

| | |
|---|---|
| Operating systems supported | • Windows 10 Home (64-bit)<br>• Windows 10 Pro (64-bit)<br>• Windows 10 Pro National Academic (64-bit)<br>• Windows 10 Home National Academic (64-bit)<br>• Ubuntu 16.04 SP1 LTS (64-bit)<br>• Neokylin v6.0 SP4 (China only) |

# Power supply

**Table 13. Power supply**

| | |
|---|---|
| Input Voltage | 90-264 Vac |
| Input current (maximum) | 3.2A |

| | |
|---|---|
| Wattage | • 200W Bronze<br>• 200W Platinum |

# Physical specifications

**Table 14. Physical system dimensions**

| | |
|---|---|
| Chassis volume (liters) | 7.8 |
| Chassis weight (pounds / kilograms) | 11.57/5.26 |

**Table 15. Chassis dimensions**

| | |
|---|---|
| Height (inches / centimeters) | 11.42/29 |
| Width (inches / centimeters) | 3.65/9.26 |
| Depth (inches / centimeters) | 11.50/29.2 |
| Shipping weight (pounds / kilograms – includes packaging materials) | 15.09 / 6.86 |

**Table 16. Packaging parameters**

| | |
|---|---|
| Height (inches / centimeters) | 10.38/26.4 |
| Width (inches / centimeters) | 19.2/48.7 |
| Depth (inches / centimeters) | 15.5/39.4 |

# Environmental

**NOTE: For more details on Dell environmental features, please go to the environmental attributes section. See your specific region for availability.**

**Table 17. Environmental**

| | |
|---|---|
| Energy efficient power supply | Standard |
| 80 plus bronze certification | No |
| 80 plus platinum certification | No |
| Recyclable packaging | Yes |
| MultiPack packaging | Optional, US only |

# 4

# System setup

System setup enables you to manage your desktop hardware and specify BIOS level options. From the System setup, you can:

- Change the NVRAM settings after you add or remove hardware
- View the system hardware configuration
- Enable or disable integrated devices
- Set performance and power management thresholds
- Manage your computer security

Topics:



## Boot menu

Press <F12> when the Dell logo appears to initiate a one-time boot menu with a list of the valid boot devices for the system. Diagnostics and BIOS Setup options are also included in this menu. The devices listed on the boot menu depend on the bootable devices in the system. This menu is useful when you are attempting to boot to a particular device or to bring up the diagnostics for the system. Using the boot menu does not make any changes to the boot order stored in the BIOS.

The options are:

- UEFI Boot:
  - Windows Boot Manager
- 
- Other Options:
  - BIOS Setup
  - BIOS Flash Update
  - Diagnostics
  - Change Boot Mode Settings

## Navigation keys

**NOTE: For most of the System Setup options, changes that you make are recorded but do not take effect until you restart the system.**

| Keys | Navigation |
|---|---|
| Up arrow | Moves to the previous field. |
| Down arrow | Moves to the next field. |

| Keys | Navigation |
|---|---|
| Enter | Selects a value in the selected field (if applicable) or follow the link in the field. |
| Spacebar | Expands or collapses a drop-down list, if applicable. |
| Tab | Moves to the next focus area.<br>**NOTE: For the standard graphics browser only.** |
| Esc | Moves to the previous page until you view the main screen. Pressing Esc in the main screen displays a message that prompts you to save any unsaved changes and restarts the system. |

# System setup options

**NOTE: Depending on the computer and its installed devices, the items listed in this section may or may not appear.**

# General options

**Table 18. General**

| Option | Description |
|---|---|
| System Information | Displays the following information:<br>· System Information: Displays **BIOS Version, Service Tag, Asset Tag, Ownership Tag, Ownership Date, Manufacture Date,** and the **Express Service Code**.<br>· Memory Information: Displays **Memory Installed, Memory Available, Memory Speed, Memory Channel Mode, Memory Technology, DIMM 1 Size, DIMM 2 Size**.<br>· PCI Information: Displays SLOT1, SLOT 2, SLOT1_M.2, SLOT2_M.2<br>· Processor Information: Displays **Processor Type, Core Count, Processor ID, Current Clock Speed, Minimum Clock Speed, Maximum Clock Speed, Processor L2 Cache, Processor L3 Cache, HT Capable,** and **64-Bit Technology.**<br>· Device Information: Displays **SATA-0, SATA 4, M.2 PCIe SSD-0, LOM MAC Address, Video Controller, Audio Controller, Wi-Fi Device, and Bluetooth Device.** |
| Boot Sequence | Allows you to specify the order in which the computer attempts to find an operating system from the devices specified in this list.<br>· **Windows Boot Manager**<br>· **ONboard NIC (IPV4)**<br>· **Onboard NIC (IPV6)** |
| Advanced Boot Options | Allows you to select the Enable Legacy Option ROMs option, when in UEFI boot mode. By default, this option is selected.<br>· **Enable Legacy Option ROMs**—Default<br>· Enable Attempt Legacy Boot |
| UEFI Boot Path Security | This option controls whether or not the system will prompt the user to enter the Admin password when booting a UEFI boot path from the F12 Boot Menu.<br>· **Always, Except Internal HDD**—Default<br>· Always<br>· Never |
| Date/Time | Allows you to set the date and time settings. Changes to the system date and time take effect immediately. |

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# System information

**Table 19. System Configuration**

| Option | Description |
|---|---|
| Integrated NIC | Allows you to control the on-board LAN controller. The option 'Enable UEFI Network Stack' is not selected by default. The options are:<br>• Disabled<br>• Enabled<br>• **Enabled w/PXE** (default)<br>**NOTE: Depending on the computer and its installed devices, the items listed in this section may or may not appear.** |
| Serial Port | Determines how the built-in serial port operates.<br>Choose any one option:<br>• Disabled<br>• **COM1** (default)<br>• COM2<br>• COM3<br>• COM4 |
| SATA Operation | Allows you to configure the operating mode of the integrated hard drive controller.<br>• Disabled = The SATA controllers are hidden<br>• AHCI = SATA is configured for AHCI mode<br>• **RAID ON** = SATA is configured to support RAID mode (selected by default) |
| Drives | Allows you to enable or disable the various drives on-board:<br>• **SATA-0**<br>• **SATA-2**<br>• **SATA**-3<br>• **SATA-4**<br>• **M.2 PCIe SSD-0** |
| Smart Reporting | This field controls whether hard drive errors for integrated drives are reported during system startup. The **Enable Smart Reporting option** is disabled by default. |
| USB Configuration | Allows you to enable or disable the integrated USB controller for:<br>• Enable USB Boot Support<br>• Enable Front USB Ports<br>• Enable Rear USB Ports<br>All the options are enabled by default. |
| Front USB Configuration | Allows you to enable or disable the front USB ports. All the ports are enabled by default. |
| Rear USB Configuration | Allows you to enable or disable the rear USB ports. All the ports are enabled by default. |
| USB PowerShare | This option allows you to charge the external devices, such as mobile phones, music player. This option is enabled by default. |

| Option | Description |
|---|---|
| Audio | Allows you to enable or disable the integrated audio controller. The option **Enable Audio** is selected by default.<br>· **Enable Microphone**<br>· **Enable Internal Speaker**<br>Both the options are selected by default. |
| Dust Filter Maintenance | Allows you to enable or disable BIOS messages for maintaining the optional dust filter installed in your computer. BIOS will generate a pre-boot reminder to clean or replace the dust filter based on the interval set.<br>· **Disabled** (default)<br>· 15 days<br>· 30 days<br>· 60 days<br>· 90 days<br>· 120 days<br>· 150 days<br>· 180 days |
| Miscellaneous Devices | · **Enable Secure Digital SD Card (default)**<br>· Secure Digital SD Card<br>· Secure Digital SD Card Read-Only Mode |

# Video screen options

### Table 20. Video

| Option | Description |
|---|---|
| Primary Display | Allows you to select the primary display when multiple controllers are available in the system.<br>· **Auto** (default)<br>· Intel HD Graphics<br>**NOTE: If you do not select Auto, the on-board graphics device will be present and enabled.** |

# Security

### Table 21. Security

| Option | Description |
|---|---|
| Strong Password | This option lets you enable or disable strong passwords for the system. The option is disabled by default. |
| Password Configuration | Allows you to control the minimum and maximum number of characters allowed for a administrative password and the system password. The range of characters is between 4 and 32. |
| Password Bypass | This option lets you bypass the System (Boot) Password and the internal HDD password prompts during a system restart. |

| Option | Description |
|---|---|
| | • **Disabled** — Always prompt for the system and internal HDD password when they are set. This option is enabled by default.<br>• Reboot Bypass — Bypass the password prompts on Restarts (warm boots).<br>**NOTE: The system will always prompt for the system and internal HDD passwords when powered on from the off state (a cold boot). Also, the system will always prompt for passwords on any module bay HDDs that may be present.** |
| Password Change | This option lets you determine whether changes to the System and Hard Disk passwords are permitted when an administrator password is set.<br>**Allow Non-Admin Password Changes** - This option is enabled by default. |
| UEFI Capsule Firmware Updates | This option controls whether this system allows BIOS updates via UEFI capsule update packages. This option is selected by default. Disabling this option will block BIOS updates from services such as Microsoft Windows Update and Linux Vendor Firmware Service (LVFS) |
| TPM 2.0 Security | Allows you to control whether the Trusted Platform Module (TPM) is visible to the operating system.<br>• TPM On (default)<br>• Clear<br>• PPI Bypass for Enable Commands<br>• PPI Bypass for Disable Commands<br>• PPI Bypass for Clear Commands<br>• Attestation Enable (default)<br>• Key Storage Enable (default)<br>• SHA-256 (default)<br>Choose any one option:<br>• Disabled<br>• Enabled (default) |
| Computrace | This field lets you Activate or Disable the BIOS module interface of the optional Computrace Service from Absolute Software. Enables or disables the optional Computrace service designed for asset management.<br>• **Deactivate** (default)<br>• Disable<br>• Activate |
| Chassis Intrusion | This field controls the chassis intrusion feature.<br>Choose any one of the option:<br>• **Disabled** (default)<br>• Enabled<br>• On-Silent |
| OROM Keyboard Access | • Disabled<br>• **Enabled** (default)<br>• One Time Enable |
| Admin Setup Lockout | Allows you to prevent users from entering Setup when Admin password is set. This option is not set by default. |
| SMM Security Mitigation | Allows you to enable or disable additional UEFI SMM Security Mitigation protections. This option is not set by default. |

# Secure boot options

**Table 22. Secure Boot**

| Option | Description |
|---|---|
| Secure Boot Enable | Allows you to enable or disable Secure Boot feature<br>• Secure Boot Enable<br>This option is not selected by default. |
| Secure Boot Mode | Allows you to modify the behavior of Secure Boot to allow evaluation or enforcement of UEFI driver signatures.<br>• **Deployed Mode** (default)<br>• Audit Mode |
| Expert key Management | Allows you to manipulate the security key databases only if the system is in Custom Mode. The **Enable Custom Mode** option is disabled by default. The options are:<br>• **PK** (default)<br>• KEK<br>• db<br>• dbx<br>If you enable the **Custom Mode**, the relevant options for **PK, KEK, db, and dbx** appear. The options are:<br>• **Save to File**- Saves the key to a user-selected file<br>• **Replace from File**- Replaces the current key with a key from a user-selected file<br>• **Append from File**- Adds a key to the current database from a user-selected file<br>• **Delete**- Deletes the selected key<br>• **Reset All Keys**- Resets to default setting<br>• **Delete All Key**s- Deletes all the keys<br>NOTE: **If you disable the Custom Mode, all the changes made will be erased and the keys will restore to default settings.** |

# Intel Software Guard Extensions options

**Table 23. Intel Software Guard Extensions**

| Option | Description |
|---|---|
| **Intel SGX Enable** | This field specifies you to provide a secured environment for running code/storing sensitive information in the context of the main OS.<br>Click one of the following options:<br>• Disabled<br>• Enabled |

| Option | Description |
|---|---|
| | • **Software controlled**—Default |
| **Enclave Memory Size** | This option sets **SGX Enclave Reserve Memory Size**<br><br>Click one of the following options:<br><br>• **32 MB**<br>• **64 MB**<br>• **128 MB**—Default |

# Performance

**Table 24. Performance**

| Option | Description |
|---|---|
| **Multi Core Support** | This field specifies whether the process has one or all cores enabled. The performance of some applications improves with the additional cores.<br><br>• **All**—Default<br>• **1**<br>• **2**<br>• **3** |
| **Intel SpeedStep** | Allows you to enable or disable the Intel SpeedStep mode of processor.<br><br>• **Enable Intel SpeedStep**<br><br>This option is set by default. |
| **C-States Control** | Allows you to enable or disable the additional processor sleep states.<br><br>• **C states**<br><br>This option is set by default. |
| **Intel TurboBoost** | Allows you to enable or disable the Intel TurboBoost mode of the processor.<br><br>• **Enable Intel TurboBoost**<br><br>This option is set by default. |
| **Hyper-Thread Control** | Allows you to enable or disable the HyperThreading in the processor.<br><br>• Disabled<br>• **Enabled**—Default |

# Power management

**Table 25. Power Management**

| Option | Description |
|---|---|
| AC Recovery | Determines how the system responds when AC power is re-applied after a power loss. You can set the AC Recovery to:<br>• Power Off<br>• Power On<br>• Last Power State<br>This option is set to **Power Off** by default. |
| Enable Intel Speed Shift Technology | Allows you to enable or disable Intel Speed Shift Technology support. The option **Enable Intel Speed Shift Technology** is set by default. |
| Auto On Time | Sets time to automatically turn on the computer. Time is kept in standard 12-hour format (hour:minutes:seconds). Change the startup time by typing the values in the time and AM/PM fields.<br>**NOTE: This feature does not work if you turn off your computer using the switch on a power strip or surge protector or if Auto Power is set to disabled.** |
| Deep Sleep Control | Allows you to define the controls when Deep Sleep is enabled.<br>• **Disabled (default)**<br>• Enabled in S5 only<br>• Enabled in S4 and S5 |
| Fan Control Override | The option is not set by default |
| USB Wake Support | Allows you to enable the USB devices to wake the computer from standby mode. The option "**Enable USB Wake Support**" is selected by default |
| Wake on LAN/WWAN | This option allows the computer to power up from the off state when triggered by a special LAN signal. This feature only works when the computer is connected to AC power supply.<br>• **Disabled** - Does not allows the system to power on by special LAN signals when it receives a wake-up signal from the LAN or wireless LAN.<br>• **LAN** or **WLAN** - Allows the system to be powered on by special LAN or wireless LAN signals.<br>• **LAN Only** - Allows the system to be powered on by special LAN signals.<br>• **LAN with PXE Boot** - A wakeup packet sent to the system in either the S4 or S5 state, that will cause the system to wake-up and immediately boot to PXE.<br>• **WLAN Only** - Allows the system to be powered on by special WLAN signals.<br>This option is set to **Disabled** by default. |
| Block Sleep | Allows you to block entering to sleep (S3 state) in OS environment. This option is disabled by default. |

# Post behavior

### Table 26. POST Behavior

| Option | Description |
|---|---|
| Numlock LED | Allows you to enable or disable the Numlock feature when your computer starts. This option is enabled by default. |
| Keyboard Errors | Allows you to enable or disable the keyboard error reporting when the computer starts. The option **Enable Keyboard Error Detection** is enabled by default. |
| Fast Boot | This option can speed up the boot process by bypassing some compatibility steps:<br>• Minimal — The system boots quickly, unless the BIOS has been updated, memory changed, or the previous POST did not complete.<br>• Thorough — The system does not skip any steps in the boot process.<br>• Auto — This allows the operating system to control this setting (this works only when the operating system supports Simple Boot Flag).<br>This option is set to **Thorough** by default. |
| Extend BIOS POST Time | This option creates an additional pre-boot delay.<br>• **0 seconds** (default)<br>• 5 seconds<br>• 10 seconds |
| Full Screen Logo | This option will display full screen logo if your image match screen resolution. The option Enable Full Screen Logo is not set by default. |
| Warnings and Errors | This option causes the boot process to only pause when warning or errors are detected. Choose any one of the option:<br>• **Prompt on Warnings and Errors** (default)<br>• Continue on Warnings<br>• Continue on Warnings and Errors |

# Manageability

### Table 27. Manageability

| Option | Description |
|---|---|
| USB provision | This option is not selected by default. |
| MEBx Hotkey | This option is selected by default. |

# Virtualization support

**Table 28. Virtualization Support**

| Option | Description |
|---|---|
| Virtualization | This option specifies whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities provided by the Intel Virtualization technology.<br>· **Enable Intel Virtualization Technology**<br>This option is set by default. |
| VT for Direct I/O | Enables or disables the Virtual Machine Monitor (VMM) from utilizing the additional hardware capabilities provided by the Intel Virtualization technology for direct I/O.<br>· **Enable VT for Direct I/O**<br>This option is set by default. |

# Wireless options

**Table 29. Wireless**

| Option | Description |
|---|---|
| Wireless Device Enable | Allows you to enable or disable the internal wireless devices.<br>The options are:<br>· **WLAN/WiGig**<br>· **Bluetooth**<br>All the options are enabled by default. |

# Maintenance

**Table 30. Maintenance**

| Option | Description |
|---|---|
| Service Tag | Displays the service tag of your computer. |
| Asset Tag | Allows you to create a system asset tag if an asset tag is not already set.<br>This option is not set by default. |
| SERR Messages | Controls the SERR message mechanism. This option is set by default. Some graphics cards require that the SERR message mechanism be disabled. |
| BIOS Downgrade | Allows you to flash previous revisions of the system firmware.<br>· **Allow BIOS Downgrade** |

| Option | Description |
|---|---|
| | This option is set by default. |
| Bios Recovery | **BIOS Recovery from Hard Drive**—This option is set by default. Allows you to recover the corrupted BIOS from a recovery file on the HDD or an external USB key.<br><br>**BIOS Auto-Recovery**— Allows you to recover the BIOS automatically. |
| First Power On Date | Allows you the set Ownership date. The option **Set Ownership Date** is not set by default. |

# System logs

**Table 31. System Logs**

| Option | Description |
|---|---|
| BIOS events | Allows you to view and clear the System Setup (BIOS) POST events. |

# Advanced configuration

**Table 32. Advanced configuration**

| Option | Description |
|---|---|
| ASPM | Allows you to set the ASPM level.<br>• Auto (default) - There is handshaking between the device and PCI Express hub to determine the best ASPM mode supported by the device<br>• Disabled - ASPM power management is turned off at all time<br>• L1 Only - ASPM power management is set to use L1 |

# Updating the BIOS in Windows

It is recommended to update your BIOS (System Setup), when you replace the system board or if an update is available.

**NOTE: If BitLocker is enabled, it must be suspended prior to updating the system BIOS, and then re-enabled after the BIOS update is completed.**

1 Restart the computer.
2 Go to **Dell.com/support**.
   - Enter the **Service Tag** or **Express Service Code** and click **Submit**.
   - Click **Detect Product** and follow the instructions on screen.
3 If you are unable to detect or find the Service Tag, click **Choose from all products**.
4 Choose the **Products** category from the list.

   **NOTE: Choose the appropriate category to reach the product page**
5 Select your computer model and the **Product Support** page of your computer appears.
6 Click **Get drivers** and click **Drivers and Downloads**.
   The Drivers and Downloads section opens.
7 Click **Find it myself**.
8 Click **BIOS** to view the BIOS versions.

9 Identify the latest BIOS file and click **Download**.

10 Select your preferred download method in the **Please select your download method below** window, click **Download File**.

The **File Download** window appears.

11 Click **Save** to save the file on your computer.

12 Click **Run** to install the updated BIOS settings on your computer.

Follow the instructions on the screen.

# Updating BIOS on systems with BitLocker enabled

**CAUTION: If BitLocker is not suspended before updating the BIOS, the next time you reboot the system it will not recognize the BitLocker key. You will then be prompted to enter the recovery key to progress and the system will ask for this on each reboot. If the recovery key is not known this can result in data loss or an unnecessary operating system re-install. For more information on this subject, see Knowledge Article: http://www.dell.com/support/article/sln153694**

# Updating your system BIOS using a USB flash drive

If the system cannot load into Windows but there is still a need to update the BIOS, download the BIOS file using another system and save it to a bootable USB Flash Drive.

**NOTE: You will need to use a bootable USB Flash drive. Please refer to the following article for further details: http://www.dell.com/support/article/sln143196**

1 Download the BIOS update .EXE file to another system.

2 Copy the file e.g. O9010A12.EXE onto the bootable USB Flash drive.

3 Insert the USB Flash drive into the system that requires the BIOS update.

4 Restart the system and press F12 when the Dell Splash logo appears to display the One Time Boot Menu.

5 Using arrow keys, select **USB Storage Device** and click Return.

6 The system will boot to a Diag C:\> prompt.

7 Run the file by typing the full filename e.g. O9010A12.exe and press Return.

8 The BIOS Update Utility will load, follow the instructions on screen.

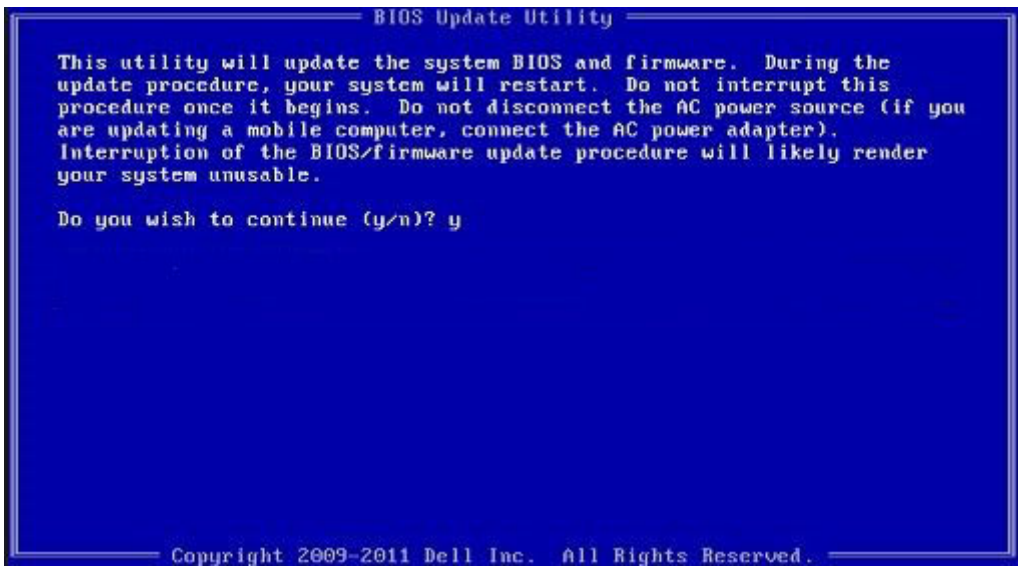



Figure 1. DOS BIOS Update Screen

# Updating the Dell BIOS in Linux and Ubuntu environments

If you want to update the system BIOS in a Linux environment such as Ubuntu, see http://www.dell.com/support/article/sln171755.

# Flashing the BIOS from the F12 One-Time boot menu

Updating your system BIOS using a BIOS update .exe file copied to a FAT32 USB key and booting from the F12 one time boot menu.
**BIOS Update**
You can run the BIOS update file from Windows using a bootable USB key or you can also update the BIOS from the F12 One-Time boot menu on the system.

Most Dell systems built after 2012 have this capability and you can confirm by booting your system to the F12 One-Time Boot Menu to see if BIOS FLASH UPDATE is listed as a boot option for your system. If the option is listed, then the BIOS supports this BIOS update option.

**NOTE: Only systems with BIOS Flash Update option in the F12 One-Time Boot Menu can use this function.**

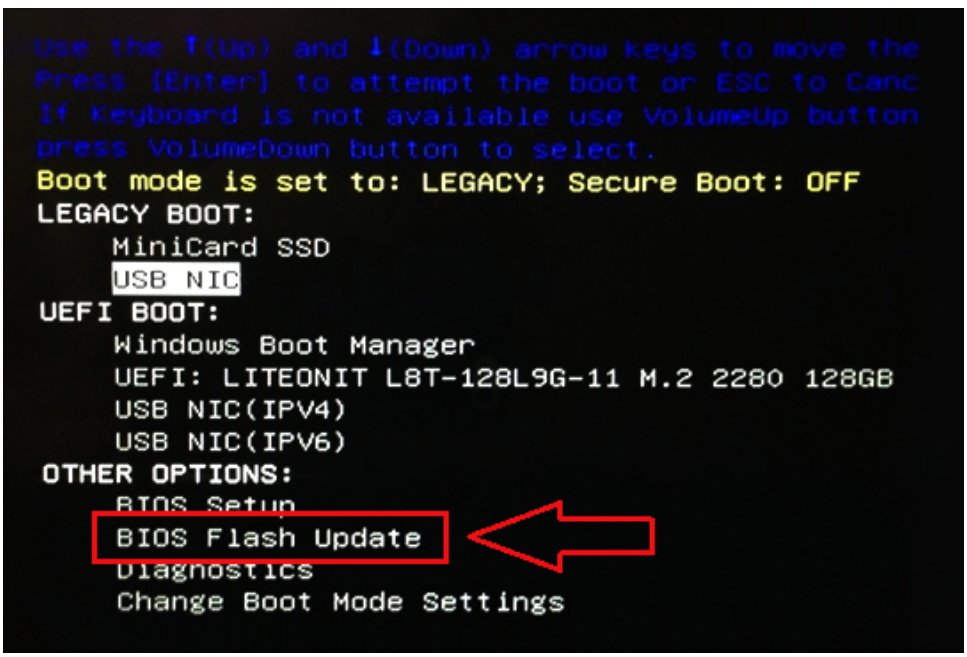
**Updating from the One-Time Boot Menu**
To update your BIOS from the F12 One-Time boot menu, you will need:

- USB key formatted to the FAT32 file system (key does not have to be bootable)
- BIOS executable file that you downloaded from the Dell Support website and copied to the root of the USB key
- AC power adapter connected to the system
- Functional system battery to flash the BIOS

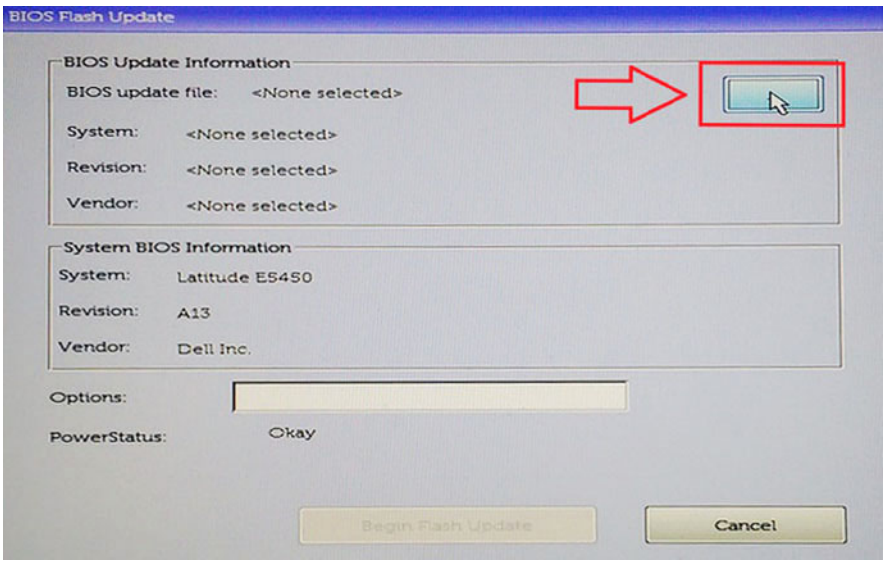
Perform the following steps to execute the BIOS update flash process from the F12 menu:

**CAUTION: Do not power off the system during the BIOS update process. Powering off the system could make the system fail to boot.**

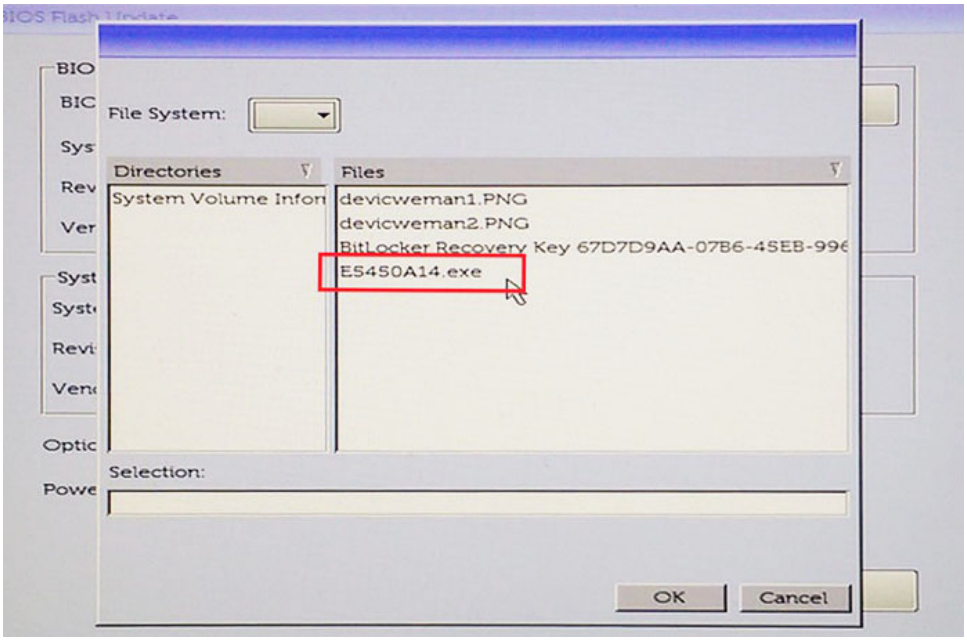
1 From a power off state, insert the USB key where you copied the flash into a USB port of the system .
2 Power on the system and press the F12 key to access the One-Time Boot Menu, Highlight BIOS Flash Update using the arrow keys then press **Enter**.



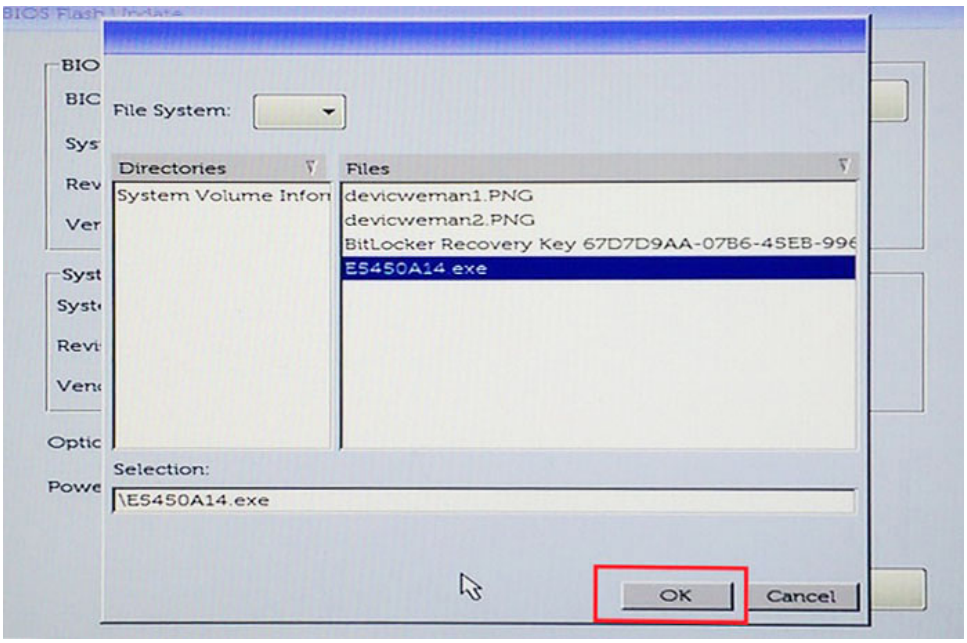

3 The Bios flash menu will open then click the browse button.



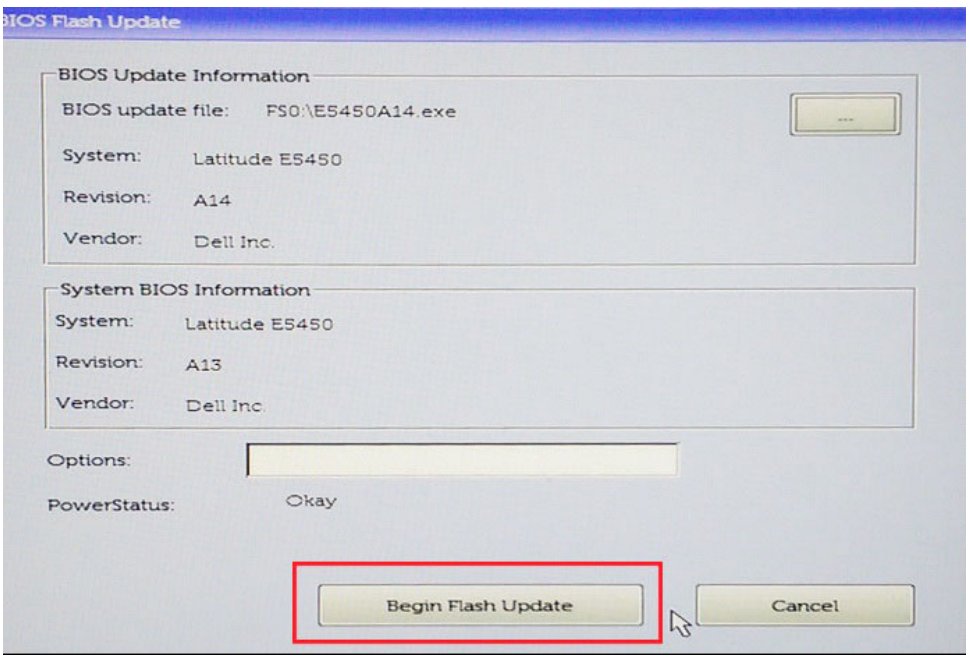

4 The E5450A14.exe file is shown as an example in the following screenshot. The actual file name may vary.



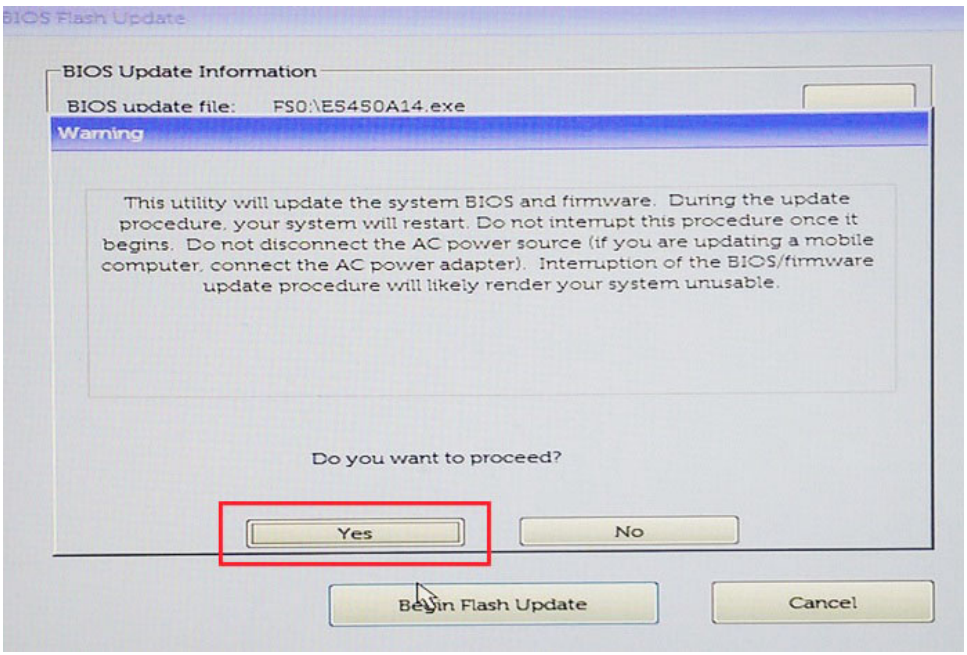

5 Once the file is selected, it will show in the file selection box and you can click the OK button to continue.



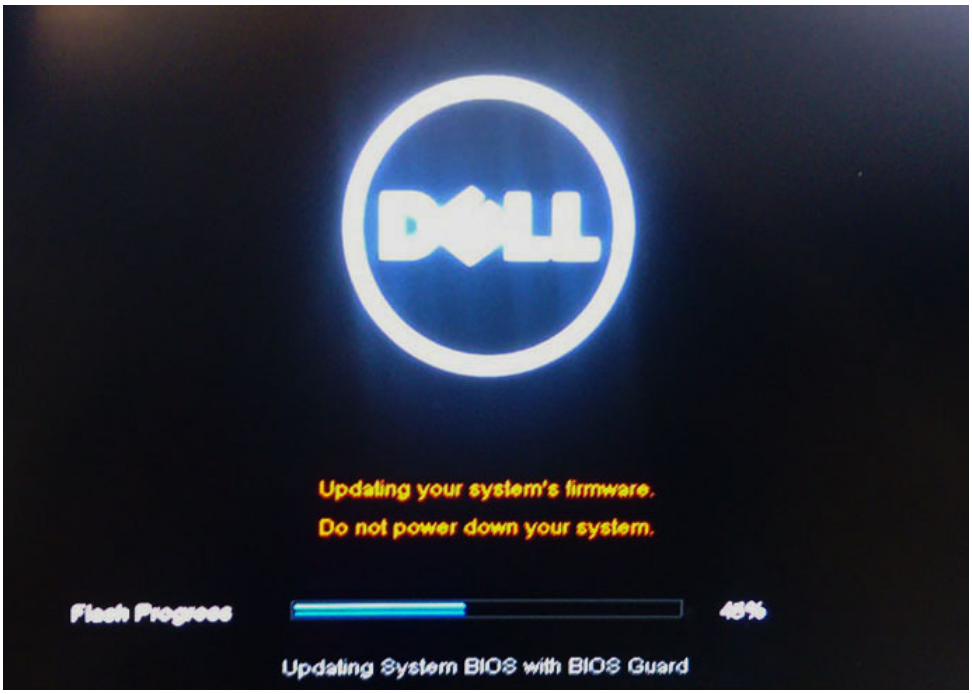

6 Click the **Begin Flash Update** button.




7 A warning box is displayed asking you if you want to proceed. Click the Yes button to begin the flash.




8 At this point the BIOS flash will execute, the system will reboot and then the BIOS flash will start and a progress bar will show the progress of the flash. Depending on the changes included in the update, the progress bar may go from zero to 100 multiple times and the flash process could take as long as 10 minutes. Generally this process takes two to three minutes.




9 Once complete, the system will reboot and the BIOS update process is completed.

# System and setup password

**Table 33. System and setup password**

| Password type | Description |
|---|---|
| System password | Password that you must enter to log on to your system. |

| | |
|---|---|
| Setup password | Password that you must enter to access and make changes to the BIOS settings of your computer. |

You can create a system password and a setup password to secure your computer.

**CAUTION: The password features provide a basic level of security for the data on your computer.**

**CAUTION: Anyone can access the data stored on your computer if it is not locked and left unattended.**

**NOTE: System and setup password feature is disabled.**

# Assigning a system password and setup password

You can assign a new **System Password** only when the status is in **Not Set**.

To enter the system setup, press F2 immediately after a power-on or re-boot.

1. In the **System BIOS** or **System Setup** screen, select **Security** and press Enter.
   The **Security** screen is displayed.
2. Select **System Password** and create a password in the **Enter the new password** field.
   Use the following guidelines to assign the system password:
   - A password can have up to 32 characters.
   - The password can contain the numbers 0 through 9.
   - Only lower case letters are valid, upper case letters are not allowed.
   - Only the following special characters are allowed: space, ("), (+), (,), (-), (.), (/), (;), ([), (\), (]), (`).
3. Type the system password that you entered earlier in the **Confirm new password** field and click **OK**.
4. Press Esc and a message prompts you to save the changes.
5. Press Y to save the changes.
   The computer reboots.

# Deleting or changing an existing system setup password

Ensure that the **Password Status** is Unlocked (in the System Setup) before attempting to delete or change the existing System and/or Setup password. You cannot delete or change an existing System or Setup password, if the **Password Status** is Locked.
To enter the System Setup, press F2 immediately after a power-on or reboot.

1. In the **System BIOS** or **System Setup** screen, select **System Security** and press Enter.
   The **System Security** screen is displayed.
2. In the **System Security** screen, verify that **Password Status** is **Unlocked**.
3. Select **System Password**, alter or delete the existing system password and press Enter or Tab.
4. Select **Setup Password**, alter or delete the existing setup password and press Enter or Tab.

   **NOTE: If you change the System and/or Setup password, re-enter the new password when promoted. If you delete the System and/or Setup password, confirm the deletion when promoted.**
5. Press Esc and a message prompts you to save the changes.
6. Press Y to save the changes and exit from System Setup.
   The computer reboot.

# 5

# Software

This chapter details the supported operating systems along with instructions on how to install the drivers.

## Downloading drivers

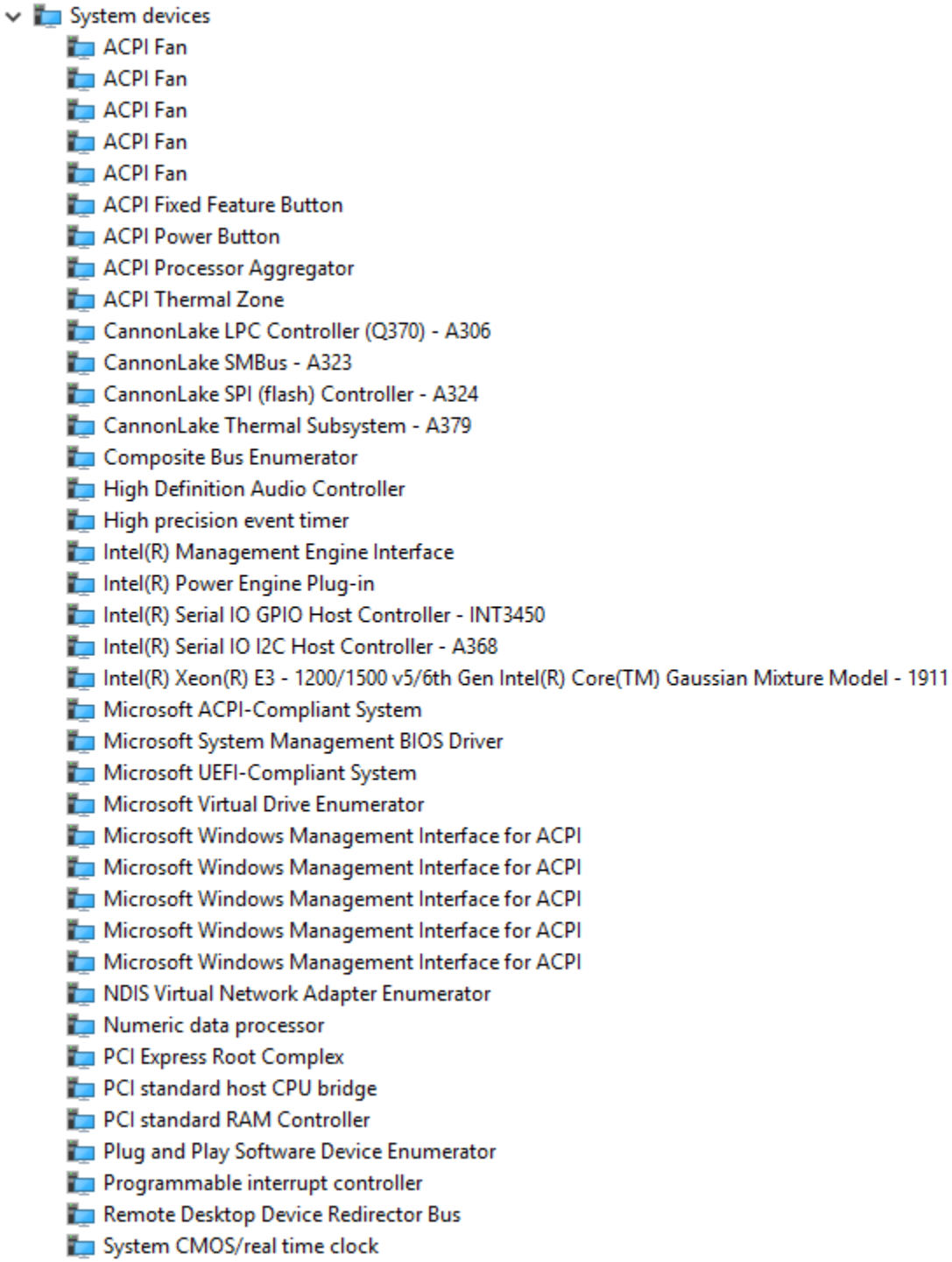
1 Turn on the desktop.
2 Go to **Dell.com/support**.
3 Click **Product Support**, enter the Service Tag of your desktop, and then click **Submit**.

**NOTE: If you do not have the Service Tag, use the auto detect feature or manually browse for your desktop model.**

4 Click **Drivers and Downloads**.
5 Select the operating system installed on your desktop.
6 Scroll down the page and select the driver to install.
7 Click **Download File** to download the driver for your desktop.
8 After the download is complete, navigate to the folder where you saved the driver file.
9 Double-click the driver file icon and follow the instructions on the screen.

## System device drivers

Verify if the system device drivers are already installed in the system.



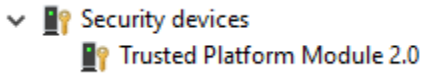

# Serial IO driver

Verify if the drivers for Touchpad, IR camera, and keyboard and are installed.


Figure 2. Serial IO driver

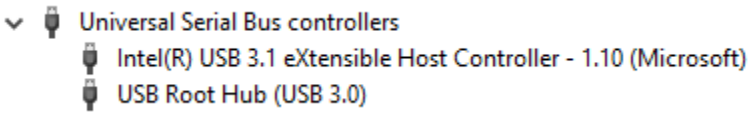
# Security drivers

Verify if the security drivers are already installed in the system.



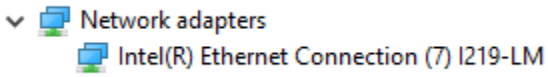

# USB drivers

Verify if the USB drivers are already installed in the computer.



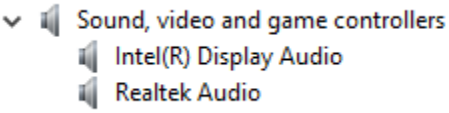

# Network adapter drivers

Verify if the Network adapter drivers are already installed in the system.



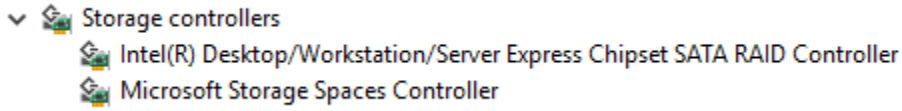

# Realtek Audio

Verify if audio drivers are already installed in the computer.



# Storage controller

Verify if the storage control drivers are already installed in the system.



# 6

# Getting help

## Contacting Dell

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

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

1 Go to **Dell.com/support.**
2 Select your support category.
3 Verify your country or region in the **Choose a Country/Region** drop-down list at the bottom of the page.
4 Select the appropriate service or support link based on your need.