

Latitude 3510

Setup and specifications guide

1



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.

| | |
|---|-----------|
| Chapter 1: Set up your computer | 5 |
| Chapter 2: Create a USB recovery drive for Windows | 7 |
| Chapter 3: Chassis | 8 |
| Display view..... | 8 |
| Left view..... | 9 |
| Right view..... | 9 |
| Palmrest view..... | 10 |
| Bottom view..... | 11 |
| Keyboard shortcuts..... | 11 |
| Chapter 4: Technical specifications | 13 |
| Processors..... | 13 |
| Chipset..... | 14 |
| Operating system..... | 14 |
| Memory..... | 14 |
| Storage..... | 14 |
| Intel UHD Graphics..... | 15 |
| Ports and connectors..... | 15 |
| Audio..... | 16 |
| Video..... | 17 |
| Camera..... | 17 |
| Communications..... | 18 |
| Media-card reader..... | 19 |
| Power adapter..... | 19 |
| Battery..... | 20 |
| Dimensions and weight..... | 21 |
| Display..... | 21 |
| Fingerprint reader..... | 22 |
| Security..... | 22 |
| Security Software..... | 22 |
| Computer environment..... | 23 |
| Support policy..... | 23 |
| Chapter 5: Software | 24 |
| Downloading Windows drivers..... | 24 |
| Chapter 6: System setup | 25 |
| Boot menu..... | 25 |
| Navigation keys..... | 26 |
| Overview..... | 26 |
| Boot Configuration..... | 28 |
| Integrated Devices..... | 29 |

| | |
|---|-----------|
| Storage..... | 29 |
| Connection..... | 30 |
| Power..... | 31 |
| Security..... | 32 |
| Passwords..... | 33 |
| Update Recovery..... | 34 |
| System Management..... | 35 |
| Keyboard..... | 36 |
| Pre-boot Behavior..... | 37 |
| Virtualization..... | 38 |
| Performance..... | 38 |
| System Logs..... | 39 |
| Updating the BIOS in Windows | 40 |
| Updating BIOS on systems with BitLocker enabled..... | 40 |
| Updating your system BIOS using a USB flash drive..... | 40 |
| System and setup password..... | 41 |
| Assigning a system setup password..... | 41 |
| Deleting or changing an existing system setup password..... | 42 |
| Chapter 7: Getting help..... | 43 |
| Contacting Dell..... | 43 |

Set up your computer

Steps


1. Connect the power adapter and press the power button.

 **NOTE:** To conserve battery power, the battery might enter power saving mode.



2. Finish Windows system setup.

Follow the on-screen instructions to complete the setup. When setting up, Dell recommends that you:

- Connect to a network for Windows updates.
 -  **NOTE:** If connecting to a secured wireless network, enter the password for the wireless network access when prompted.
- If connected to the internet, sign-in with or create a Microsoft account. If not connected to the internet, create an offline account.
- On the **Support and Protection** screen, enter your contact details.

3. Locate and use Dell apps from the Windows Start menu—Recommended

Table 1. Locate Dell apps






| Dell apps | Details |
|---|--|
|  | <p>Dell Product Registration Register your computer with Dell.</p> |
|  | <p>Dell Help & Support Access help and support for your computer.</p> |

Table 1. Locate Dell apps (continued)

| Dell apps | Details |
|---|---|
|  | <p>SupportAssist</p> <p>Proactively checks the health of your computer’s hardware and software.</p> <p>i NOTE: Renew or upgrade your warranty by clicking the warranty expiry date in SupportAssist.</p> |
|  | <p>Dell Update</p> <p>Updates your computer with critical fixes and important device drivers as they become available.</p> |
|  | <p>Dell Digital Delivery</p> <p>Download software applications including software that is purchased but not preinstalled on your computer.</p> |

4. Create recovery drive for Windows.

i **NOTE:** It is recommended to create a recovery drive to troubleshoot and fix problems that may occur with Windows.

For more information, see [Create a USB recovery drive for Windows](#).

Create a USB recovery drive for Windows

Create a recovery drive to troubleshoot and fix problems that may occur with Windows. An empty USB flash drive with a minimum capacity of 16 GB is required to create the recovery drive.

Prerequisites

NOTE: This process may take up to an hour to complete.

NOTE: The following steps may vary depending on the version of Windows installed. Refer to the [Microsoft support site](#) for latest instructions.

Steps

1. Connect the USB flash drive to your computer.
2. In Windows search, type **Recovery**.
3. In the search results, click **Create a recovery drive**.
The **User Account Control** window is displayed.
4. Click **Yes** to continue.
The **Recovery Drive** window is displayed.
5. Select **Back up system files to the recovery drive** and click **Next**.
6. Select the **USB flash drive** and click **Next**.
A message appears, indicating that all data in the USB flash drive will be deleted.
7. Click **Create**.
8. Click **Finish**.
For more information about reinstalling Windows using the USB recovery drive, see the *Troubleshooting* section of your product's *Service Manual* at www.dell.com/support/manuals.

Chassis

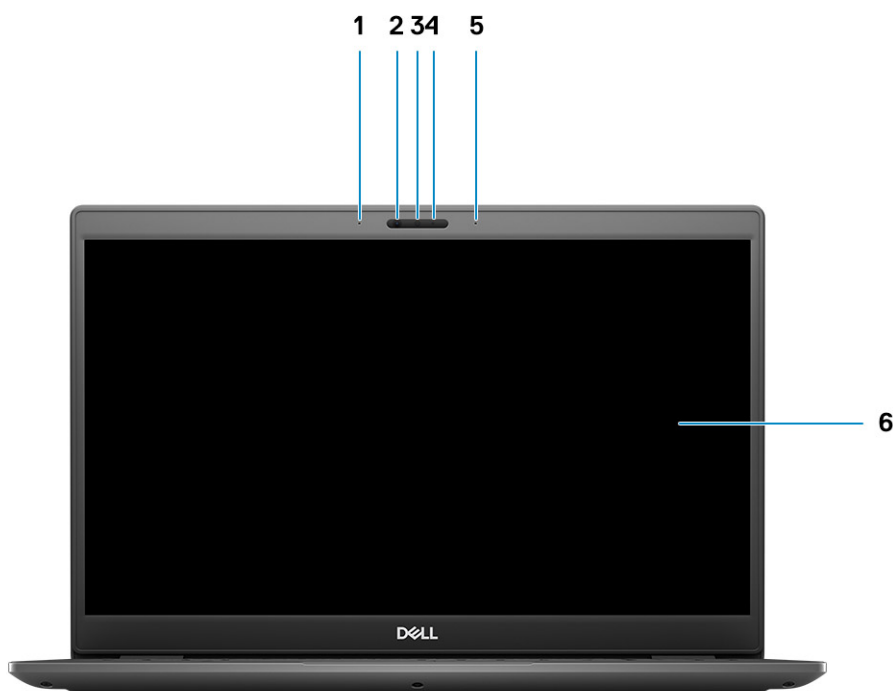
This chapter illustrates the multiple chassis views along with the ports and connectors and also explains the FN hot key combinations.

Topics:

- [Display view](#)
- [Left view](#)
- [Right view](#)
- [Palmrest view](#)
- [Bottom view](#)
- [Keyboard shortcuts](#)

Display view

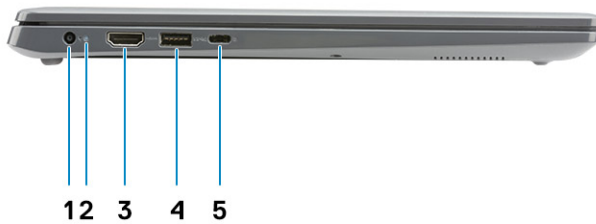
Latitude 3510 display



1. Left Microphone
2. IR sensors
3. Camera
4. Camera-status light

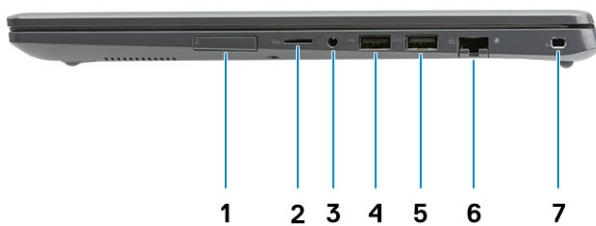
- 5. Right Microphone
- 6. LCD Panel

Left view



- 1. DC-in port
- 2. LED activity light
- 3. HDMI 1.4 port
- 4. USB 3.2 Gen 1 port with PowerShare
- 5. USB 3.2 Gen 1 Type-C port with DisplayPort 1.2 Alt mode

Right view



- 1. SIM card slot
- 2. Micro-SD 3.0 card reader slot
- 3. Universal audio jack
- 4. USB 2.0 Type-A port
- 5. USB 3.2 Gen 1 Type-A port
- 6. Network port
- 7. Wedge-shaped security slot

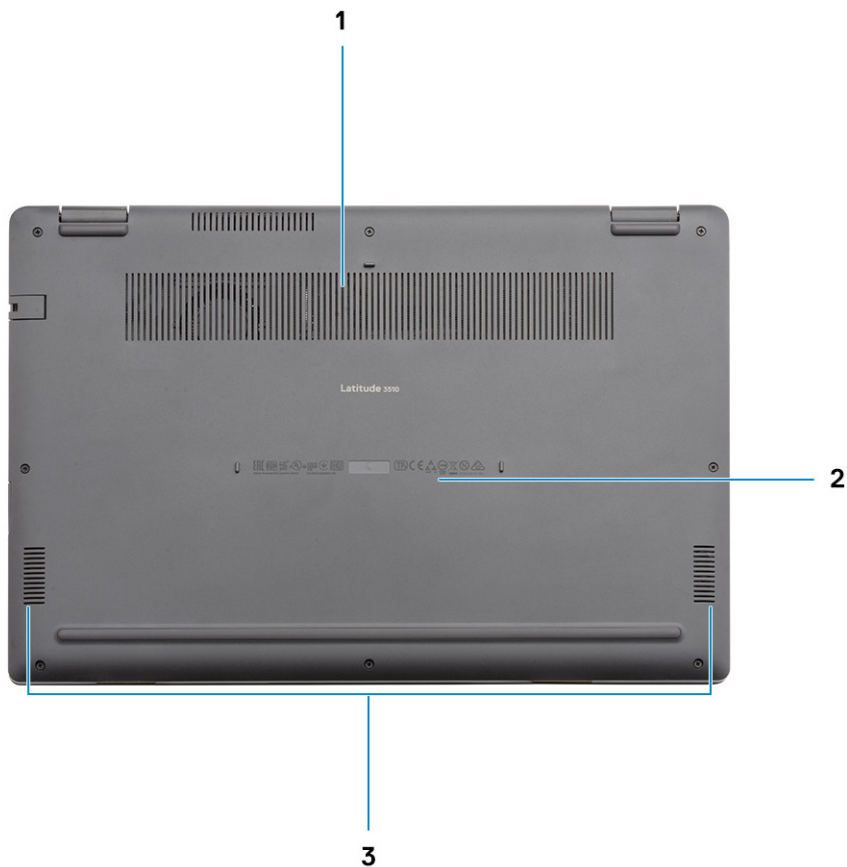
Palmrest view



1. Power button with optional fingerprint reader
2. Keyboard
3. Touchpad

i **NOTE:** There is no LED on the power button. The power and battery status LED is located next to the charging port.

Bottom view



1. Air vent
2. Service tag location
3. Speakers

Keyboard shortcuts

NOTE: Keyboard characters may differ depending on the keyboard language configuration. Keys that are used for shortcuts remain the same across all language configurations.

Table 2. List of keyboard shortcuts

| Keys | Primary behavior |
|----------|--------------------------------|
| Fn + Esc | Toggle Fn-key lock |
| Fn + F1 | Mute audio |
| Fn + F2 | Decrease volume |
| Fn + F3 | Increase volume |
| Fn + F4 | Play/Pause |
| Fn + F5 | Turn on/off keyboard backlight |

Table 2. List of keyboard shortcuts (continued)

| Keys | Primary behavior |
|-------------|----------------------------|
| Fn + F6 | Decrease brightness |
| Fn + F7 | Increase brightness |
| Fn + F8 | Switch to external display |
| Fn + F10 | Print screen |
| Fn + F11 | Home |
| Fn + 12 | End |
| Fn + Ctrl | Open application menu |

Technical 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:

- [Processors](#)
- [Chipset](#)
- [Operating system](#)
- [Memory](#)
- [Storage](#)
- [Intel UHD Graphics](#)
- [Ports and connectors](#)
- [Audio](#)
- [Video](#)
- [Camera](#)
- [Communications](#)
- [Media-card reader](#)
- [Power adapter](#)
- [Battery](#)
- [Dimensions and weight](#)
- [Display](#)
- [Fingerprint reader](#)
- [Security](#)
- [Security Software](#)
- [Computer environment](#)
- [Support policy](#)

Processors

Table 3. Processors

| Description | Values | | | | |
|---------------------|--------------------------------|---|---|---|---|
| Processors | Intel Celeron 5205U Processors | 10th Generation Intel Core i3 Processors, i3-10110U | 10th Generation Intel Core i5 Processors, i5-10210U | 10th Generation Intel Core i5 Processors, i5-10310U | 10th Generation Intel Core i7 Processors, i7-10510U |
| Wattage | 15 W | 15 W | 15 W | 15 W | 15 W |
| Core count | 2 | 2 | 4 | 4 | 4 |
| Thread count | 2 | 4 | 8 | 8 | 8 |
| Speed | Up to 1.9 GHz | Up to 4.1 GHz | Up to 4.2 GHz | Up to 4.4 GHz | Up to 4.9 GHz |
| Cache | 2 MB | 4 MB | 6 MB | 6 MB | 8 MB |
| Integrated graphics | Intel UHD Graphics | Intel UHD Graphics | Intel UHD Graphics | Intel UHD Graphics | Intel UHD Graphics |

Chipset

Table 4. Chipset

| Description | Values | |
|----------------|---|---------------------------|
| Processor | Intel 10th Generation Core i3 / i5 / i7 | Intel Celeron 5000 series |
| Chipset | Intel | Intel |
| DRAM bus width | Two channels, 64-bit | Two channels, 64-bit |
| PCIe bus | Up to Gen 3 | Up to Gen 2 |

Operating system

- Windows 10 Professional (64-bit)
- Ubuntu 18.04
- Neokylin 7.0 (PRTS)

Memory

Table 5. Memory specifications

| Description | Values |
|--------------------------|--|
| Slots | Two SODIMM |
| Type | DDR4 |
| Speed | <ul style="list-style-type: none">• 2400 MHz (Intel Celeron)• 2667 MHz (Intel Core i3 / i5 / i7) |
| Maximum memory | 32 GB |
| Minimum memory | 4 GB |
| Configurations supported | <ul style="list-style-type: none">• 4 GB DDR4 at 2400 MHz/2667 MHz (1x4 GB)• 8 GB DDR4 at 2400 MHz/2667 MHz (2 x 4 GB)• 8 GB DDR4 at 2400 MHz/2667 MHz (1 x 8 GB)• 16 GB DDR4 at 2400 MHz/2667 MHz (1 x 16 GB)• 16 GB DDR4 at 2400 MHz/2667 MHz (2 x 8 GB)• 32 GB DDR4, 2400 MHz/2667 MHz (2 x 16 GB) |

Storage

Your computer supports one of the following configurations:

- 2.5-in. 5400/7200 RPM, SATA hard drive
- M.2 2230/2280 for solid-state drive

The primary drive of your computer varies with the storage configuration. For computers:

- 2.5-in. 5400/7200 RPM, SATA hard drive
- M.2 2230/2280 for solid-state drive



 **NOTE:** System's configured with 53 Whr battery would only support M.2 solid-state drives for storage.

Table 6. Storage specifications

| Form factor | Interface type | Capacity |
|--|----------------|-------------|
| 2.5-in. 5400 rpm, hard drive | SATA | 1 TB |
| 2.5-in. 7200 rpm, hard drive | SATA | 500 GB |
| M.2 2230/2280 solid-state drive | PCIe NVMe 3x4 | Upto 512 GB |
| M.2 2280 Intel Optane Memory (10th Gen Processors) | PCIe NVMe 3x4 | 512 GB |

 **NOTE:** Intel Celeron 5000 Series Processors would support PCIe Gen 2 speeds only.

Intel UHD Graphics

Table 7. Intel UHD Graphics specifications

| Intel UHD Graphics | |
|---|---|
| Bus Type | Integrated |
| Memory Type | UMA |
| Graphics Level | i3/i5/i7: GT2 (UHD) |
| Estimated Maximum Power Consumption (TDP) | 15 W (included in the CPU power) |
| Overlay Planes | Yes |
| Operating Systems Graphics/ Video API Support | DirectX 12, OpenGL (4.5 from Intel CML POR) |
| Maximum Vertical Refresh Rate | <ul style="list-style-type: none"> HDMI 1.4: 4096 x 2160 @ 60 Hz, 24bpp, Via optional USB Type-C to HDMI dongle Max Digital: (DP 1.2 over Type-C Port) 4096 x 2304 @ 60 Hz, 24bpp |
| Number of display supported | Up to three displays supported via DisplayPort Multi-Streaming Technology (MST) |
| Multiple Display Support | Via Type-C: HDMI 1.4 (via optional USB-C cable to HDMI cable); DisplayPort 1.2 (via optional USB-C cable or USB-C to DP cable); |
| External Connectors | <ul style="list-style-type: none"> USB Type-C port HDMI 1.4 port |

Ports and connectors

Table 8. External ports and connectors

| Description | Values |
|------------------|---|
| External: | |
| Network | One Flip-down RJ 45 10/100/1000 Mbps |
| USB | <ul style="list-style-type: none"> One USB 3.2 Gen 1 Type-C port with DisplayPort alt mode/Power Delivery One USB 3.2 Gen 1 Type-A port with PowerShare |

Table 8. External ports and connectors (continued)

| Description | Values |
|--------------------|--|
| | <ul style="list-style-type: none"> One USB 3.2 Gen 1 Type-A port One USB 2.0 Type-A port |
| Audio | One Universal Audio Jack |
| Video | One HDMI 1.4 port |
| Power adapter port | 4.5 mm barrel-type |
| Security | One Wedge shaped lock slot |
| Card slot | One microSD 3.0 card slot |

Table 9. Internal ports and connectors

| Description | Values |
|--|--|
| Internal: | |
| One M.2 Key-M (2280 or 2230) for solid-state drive One M.2 3042 Key-B for WWAN One M.2 2230 Key-E for WLAN | <ul style="list-style-type: none"> One M.2 2230 slot for Wi-Fi One M.2 slot for 2230/2280 solid-state drive One M.2 3042 slot for WWAN <p>i NOTE: To learn more about the features of different types of M.2 cards, see the knowledge base article SLN301626.</p> |
| SIM card | uSIM card slot |

Audio

Table 10. Audio specifications

| Description | Values |
|------------------------|-----------------------------------|
| Controller | Realtek ALC3204 |
| Stereo conversion | Supported |
| Internal interface | Intel HDA (High definition audio) |
| External interface | Universal Audio Jack |
| Speakers | 2 |
| Speaker Output Average | 2 W |
| Speaker Output Peak | 2.5 W |

Video

Table 11. Discrete graphics specifications

| Discrete graphics | | | |
|----------------------|--------------------------|-------------|-------------|
| Controller | External display support | Memory size | Memory type |
| NVIDIA GeForce MX230 | Not Supported | 2 GB | GDDR5 |

Table 12. Integrated graphics specifications

| Integrated graphics | | | |
|---------------------|---|----------------------|--|
| Controller | External display support | Memory size | Processor |
| Intel UHD Graphics | <ul style="list-style-type: none"> One HDMI 1.4 One USB 3.2 Gen 1 Type-C port with DisplayPort alt mode | Shared system memory | <ul style="list-style-type: none"> Intel Celeron Processor 5000 series processors Intel 10th Generation Core i3 / i5 / i7 processors |

Camera

Table 13. Camera specifications

| Standard Webcam | |
|------------------------|---------------------------|
| Description | Values |
| Number of cameras | One |
| Type | HD RGB camera |
| Location | Front Camera |
| Sensor type | CMOS sensor technology |
| Resolution: | |
| Still image | 0.92 megapixel |
| Video | 1280 x 720 (HD) at 30 fps |
| Diagonal viewing angle | 87 degrees |

Table 14. IR Webcam specifications

| IR Webcam | |
|-------------------|------------------------|
| Description | Values |
| Number of cameras | One |
| Type | HD RGB-IR camera |
| Location | Front Camera |
| Sensor type | CMOS sensor technology |
| Resolution | |
| Camera | |

Table 14. IR Webcam specifications (continued)

| IR Webcam | | |
|-------------------------|-----------------|---------------------------|
| Description | | |
| Still image (megapixel) | | 0.92 |
| | Video | 1280 x 720 (HD) at 30 fps |
| | Infrared camera | |
| Still image | | 0.23 megapixel |
| Video | | 640 x 360 at 30 fps |
| Diagonal viewing angle | | |
| | Camera | 87 degree |
| | Infrared camera | 87 degree |

Communications

Ethernet

Table 15. Ethernet specifications

| Description | Values |
|---------------|-----------------------------|
| Model number | Integrated Realtek RTL8111H |
| Transfer rate | e.g. 10/100/1000 Mbps |

Wireless module

Table 16. Wireless module specifications

| Description | Values | |
|---------------------------|--|---|
| Model number | Intel Wi-Fi 6 AX201 | Qualcomm QCA61x4A |
| Transfer rate | Up to 2400 Mbps | Up to 867 Mbps |
| Frequency bands supported | 2.4 GHz/5 GHz | 2.4 GHz/5 GHz |
| Wireless standards | <ul style="list-style-type: none"> • Wi-Fi 802.11a/b/g • Wi-Fi 4 (Wi-Fi 802.11n) • Wi-Fi 5 (Wi-Fi 802.11ac) • Wi-Fi 6 (Wi-Fi 802.11ax) • Wi-Fi 6 (Wi-Fi 802.11ax) | <ul style="list-style-type: none"> • Wi-Fi 802.11a/b/g • Wi-Fi 4 (Wi-Fi 802.11n) • Wi-Fi 5 (Wi-Fi 802.11ac Wave 2) |
| Encryption | <ul style="list-style-type: none"> • 64-bit/128-bit WEP • AES-CCMP • TKIP | <ul style="list-style-type: none"> • 64-bit/128-bit WEP • AES-CCMP • TKIP |
| Bluetooth | Bluetooth 5.1 | Bluetooth 5.0 |

Table 17. WWAN module

| Feature | Specifications |
|---------------------------|---|
| Model number | Dell DW5820e Intel 7360 LTE-A |
| Host interface | M.2 3042 form factor |
| Network standard | LTE FDD/TDD, WCDMA/HSPA+, GNSS/Beidou |
| Transfer rate | Up to 450 Mbps DL/50 Mbps UL (Cat 9) |
| Operating Frequency Bands | (1,2,3,4,5,7,8,11,12,13,17,18,19,20,21,26,28,29,30,38,39,40,41,66), HSPA+ (1, 2, 4,5, 8) |
| Data Rate | <ul style="list-style-type: none"> • LTE FDD: 450 Mbps DL/50 Mbps UL (Cat 9) • LTE TDD: 347 Mbps DL/30 Mbps UL (Cat 9) • UMTS/HSPA+: UMTS 384 kbps DL/384 kbps UL |
| Power supply | DC 3.135 V to 4.4 V, Typical 3.3 V |
| Antenna Diversity | Supported |
| Radio On/Off | Supported |
| Wake On Wireless | Supported |
| Temperature | <ul style="list-style-type: none"> • Normal operating temperature: -10°C to + 55°C • Extended Operating temperature: -20°C to +65°C <p>NOTE: Variation in temperature can affect the performance of the WWAN card.</p> |
| Antenna connector | <ul style="list-style-type: none"> • WWAN Main Antenna X 1 • WWAN Diversity Antenna X 1 |

Media-card reader

Table 18. Media-card reader specifications

| Description | Values |
|-----------------|--|
| Type | One Micro SD 3.0 card |
| Cards supported | <ul style="list-style-type: none"> • Micro Secure Digital (mSD) • Micro Secure Digital High Capacity(mSDHC) • Micro Secure Digital Extended Capacity(mSDXC) |

Power adapter

Table 19. Power adapter specifications

| Description | Values | | |
|-----------------------|-------------------|-------------------|---------------------------------|
| | 45W | 65W | 65W Type-C (Optional) |
| Type | 45W | 65W | 65W Type-C (Optional) |
| Connector dimensions: | 2.9 mm x 4.5 mm | 2.9 mm x 4.5 mm | 48.26 mm x 129.54 mm x 215.9 mm |
| Input voltage | 100 VAC x 240 VAC | 100 VAC x 240 VAC | 100 VAC x 240 VAC |
| Input frequency | 50 Hz x 60 Hz | 50 Hz x 60 Hz | 50 Hz x 60 Hz |

Table 19. Power adapter specifications (continued)

| Description | | Values | | |
|-----------------------------|-----------|--------------------------------|--------------------------------|--------------------------------|
| Input current (maximum) | | 1.30 A | 1.60 A / 1.70 A | 1.70 A |
| Output current (continuous) | | 2.31 A | 3.34 A | 3.25 A |
| Rated output voltage | | 19.50 VDC | 19.50 VDC | 20 VDC |
| Temperature range: | | | | |
| | Operating | 0°C to 40°C (32°F to 104°F) | 0°C to 40°C (32°F to 104°F) | 0°C to 40°C (32°F to 104°F) |
| | Storage | -40°C to 70°C (-40°F to 158°F) | -40°C to 70°C (-40°F to 158°F) | -40°C to 70°C (-40°F to 158°F) |

Battery

Table 20. Battery specifications


| Description | | Values | |
|-----------------------------|-----------|--|--|
| Type | | 40 Whr | 53 Whr |
| Voltage | | 11.40 VDC | 15.20 VDC |
| Weight (maximum) | | 0.18 kg (0.40 lb) | 0.24 kg (0.53 lb) |
| Dimensions: | | | |
| | Height | 184.10 mm (7.25 in.) | 239.10 mm (9.41 in.) |
| | Width | 90.73 mm (3.57 in.) | 90.73 mm (3.57 in.) |
| | Depth | 5.75 mm (0.23 in.) | 5.75 mm (0.23 in.) |
| Temperature range: | | | |
| | Operating | 0°C to 35°C (32°F to 95°F) | 0°C to 35°C (32°F to 95°F) |
| | Storage | -40°C to 65°C (-40°F to 149°F) | -40°C to 65°C (-40°F to 149°F) |
| Operating time | | Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions. | Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions. |
| Charging time (approximate) | | 4 hours (when the computer is off) i NOTE: Control the charging time, duration, start and end time, and so on using the Dell Power Manager application. For more information on the Dell Power Manager see, <i>Me and My Dell</i> on www.dell.com/ | 4 hours (when the computer is off) i NOTE: Control the charging time, duration, start and end time, and so on using the Dell Power Manager application. For more information on the Dell Power Manager see, <i>Me and My Dell</i> on www.dell.com/ |
| Life span (approximate) | | 300 discharge/charge cycles | 300 discharge/charge cycles |
| Coin-cell battery | | CR2032 | CR2032 |

Table 20. Battery specifications (continued)

| Description | Values | |
|----------------|---|---|
| Operating time | Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions. | Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions. |

Dimensions and weight

Table 21. Dimensions and weight

| Description | Values |
|-------------|---|
| Height: | |
| Front | 17.97 mm (0.71 in.) |
| Rear | 17.97 mm (0.71 in.) |
| Width | 361.40 mm (14.23 in.) |
| Depth | 247.85 mm (9.76 in.) |
| Weight | 1.79 kg (3.95 lb)  NOTE: The weight of your tablet depends on the configuration ordered and the manufacturing variability. |

Display

Table 22. Display specifications

| Description | Values | | |
|---------------------------|-----------------------|----------------------------|----------------------------|
| Type | High Definition (HD) | Full High Definition (FHD) | Full High Definition (FHD) |
| Panel technology | TN | WVA | WVA |
| Luminance (typical) | 220 nits | 220 nits | 220 nits |
| Dimensions (active area): | | | |
| Height | 193.60 mm (7.62 in.) | 193.60 mm (7.62 in.) | 193.60 mm (7.62 in.) |
| Width | 344.20 mm (13.55 in.) | 344.20 mm (13.55 in.) | 344.20 mm (13.55 in.) |
| Diagonal | 394.90 mm (15.54 in.) | 394.90 mm (15.54 in.) | 394.90 mm (15.54 in.) |
| Native resolution | 1366 x 768 | 1920 x 1080 | 1920 x 1080 |
| Megapixels | 1.05M | 2.07M | 2.07M |
| Color gamut | NTSC 45% Typ. | NTSC 45% Typ. | NTSC 45% Typ. |
| Pixels per inch (PPI) | 100 | 141 | 141 |
| Contrast ratio (min) | 500:1 | 700:1 | 700:1 |
| Response time (max) | 25 ms | 25 ms | 25 ms |

Table 22. Display specifications (continued)

| Description | Values | | |
|-----------------------------|-------------------------------------|-------------------------|-------------------------|
| Refresh rate | 60 Hz | 60 Hz | 60 Hz |
| Horizontal view angle | 40 degrees (Left/Right) | 80 degrees (Left/Right) | 80 degrees (Left/Right) |
| Vertical view angle | 10 degrees (Up) / 30 degrees (Down) | 80 degrees (Up/Down) | 80 degrees (Up/Down) |
| Pixel pitch | 0.252 mm | 0.179 mm | 0.179 mm |
| Power consumption (maximum) | 4.2 W | 4.2 W | 4.2 W |
| Anti-glare vs glossy finish | Anti-glare | Anti-glare | Anti-glare |
| Touch options | No | No | Yes |

Fingerprint reader


Table 23. Fingerprint reader specifications

| Description | Values |
|--------------------|------------------|
| Sensor technology | Capacitive |
| Sensor resolution | 500 dpi |
| Sensor area | 4.06mm x 3.25 mm |
| Sensor pixel size | 80 x 64 |

Security

Table 24. Security specifications

| Features | Specifications |
|-----------------------------------|----------------------------|
| Trusted Platform Module (TPM) 2.0 | Integrated on system board |
| Fingerprint reader | Optional |
| Wedge-shaped lock slot | Standard |

 **NOTE:** Systems with Intel Celeron 5000 series processors ship with firmware TPM only.

Security Software

Table 25. Security Software specifications

| Specifications |
|--|
| Dell Client Command Suite |
| Optional Dell Data Security and Management Software Dell Client Command Suite |

Table 25. Security Software specifications (continued)

| Specifications |
|---|
| Dell BIOS Verification |
| Optional Dell Endpoint Security and Management Software |
| VMware Carbon Black Endpoint Standard |
| VMware Carbon Black Endpoint Standard + Secureworks Threat Detection and Response |
| Dell Encryption Enterprise |
| Dell Encryption Personal |
| Carbonite |
| VMware Workspace ONE |
| Absolute® Endpoint Visibility and Control |
| Netskope |
| Dell Supply Chain Defense |

Computer environment

Airborne contaminant level: G1 as defined by ISA-S71.04-1985

Table 26. Computer environment

| Description | Operating | Storage |
|-----------------------------|--|--|
| Temperature range | 0°C to 35°C (32°F to 95°F) | -40°C to 65°C (-40°F to 149°F) |
| Relative humidity (maximum) | 10% to 90% (non-condensing) | 0% to 95% (non-condensing) |
| Vibration (maximum)* | 0.66 GRMS | 1.30 GRMS |
| Shock (maximum) | 110 G† | 160 G† |
| Altitude (maximum) | -15.2 m to 3048 m (4.64 ft to 5518.4 ft) | -15.2 m to 10668 m (4.64 ft to 19234.4 ft) |

* Measured using a random vibration spectrum that simulates user environment.

† Measured using a 2 ms half-sine pulse when the hard drive is in use.

Support policy

For more information on support policy, see the knowledge base articles [PNP13290](#), [PNP18925](#), and [PNP18955](#).

Software

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


Topics:

- [Downloading Windows drivers](#)

Downloading Windows drivers

Steps

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

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

4. Click **Drivers and Downloads**.
5. Select the operating system installed on your notebook.
6. Scroll down the page and select the driver to install.
7. Click **Download File** to download the driver for your notebook.
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 setup

CAUTION: Unless you are an expert computer user, do not change the settings in the BIOS Setup program. Certain changes can make your computer work incorrectly.

NOTE: Before you change BIOS Setup program, it is recommended that you write down the BIOS Setup program screen information for future reference.

Use the BIOS Setup program for the following purposes:

- Get information about the hardware installed in your computer, such as the amount of RAM and the size of the hard drive.
- Change the system configuration information.
- Set or change a user-selectable option, such as the user password, type of hard drive installed, and enabling or disabling base devices.

Topics:

- [Boot menu](#)
- [Navigation keys](#)
- [Overview](#)
- [Boot Configuration](#)
- [Integrated Devices](#)
- [Storage](#)
- [Connection](#)
- [Power](#)
- [Security](#)
- [Passwords](#)
- [Update Recovery](#)
- [System Management](#)
- [Keyboard](#)
- [Pre-boot Behavior](#)
- [Virtualization](#)
- [Performance](#)
- [System Logs](#)
- [Updating the BIOS in Windows](#)
- [System and setup password](#)

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 that are 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.

Table 27. UEFI Boot options

| Options |
|----------------------|
| Windows Boot Manager |
| UEFI hard drive |

Table 28. Other Options

| Options | Description |
|----------------------------|---|
| BIOS SETUP | Allows the user to configure the BIOS and control system functions |
| Diagnostics | Allows the user to run system tests to identify issues |
| BIOS Update | Allows the user to search and install the latest BIOS updates |
| SupportAssist OS Recovery | Used to analyze, repair, and restore the operating system on the system |
| BIOS Flash Update - Remote | |
| Device Configuration | |

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. |
| 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. |
| 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. |

Overview

This section provides hardware specification for the system and contains no modifiable settings.

Table 29. BIOS Overview Page

| Options | Description |
|--------------------------------|--|
| Series and system model number | This field shows the following information: <ul style="list-style-type: none">• BIOS Version - The version of the BIOS installed on the computer.• Service tag - The unique 7 digit hexadecimal identification number for the computer.• Asset tag• Manufacture Date - The date for when the unit was manufactured.• Ownership Date - The date for when the unit's ownership was transferred to the end user.• Express Service Code - An alternative to Service Tag, 11-digit numerical identification number for the computer.• Ownership Tag• Signed Firmware Update - This helps to verify that only Dell Signed and released BIOS can be installed on the computer. |

Table 29. BIOS Overview Page (continued)

| Options | Description |
|-----------|---|
| Battery | <p>The Battery field provides battery and adapter related information:</p> <ul style="list-style-type: none"> ● Primary battery - This helps identify if the system is running on the primary battery. ● Battery level - This gives the percentage of battery backup remaining for the computer. ● Battery state - This helps identify if the battery is in charging or active use state. ● Health - This helps identify the health of the battery. It would show one of the following states based on the battery life remaining: <ul style="list-style-type: none"> ○ Excellent ○ Good ○ Fair ○ Poor ● AC Adapter - This helps identify if the charger is plugged in and mentions the wattage of the charger connected. |
| Processor | <p>The Processor field provides information related to the CPU on the computer:</p> <ul style="list-style-type: none"> ● Processor Type - This field mentions the CPU model and generation information. ● Maximum Clock Speed - This field mentions the maximum clock speed that the CPU is capable of reaching. ● Minimum Clock Speed - This field mentions the minimum clock speed that the CPU is capable of reaching. ● Current Clock Speed - This field mentions the clock speed that the CPU is running at currently. ● Core Count - This field gives the count of the physical cores on the CPU. ● Processor ID ● Processor L3 Cache - This field gives mentions the amount of cache storage available on the CPU. ● Microcode Version ● Intel Hyper-Threading Capable - This field helps identify if the CPU is capable of Hyper-Threading. ● 64-bit Technology - This field helps identify the CPU architecture. |
| Memory | <p>The Memory field provides information related to the memory on the computer:</p> <ul style="list-style-type: none"> ● Memory Installed - This field gives the amount of memory installed available on the computer. ● Memory Available - This field gives the amount of memory available for use on the computer. ● Memory Speed - This field mentions the speed at which the memory runs on the computer. ● Memory Channel Mode - This field helps us identify if the computer has Dual-Channel memory utilization capability. ● DIMM_SLOT 1 - This field shows the capacity of the memory installed in the first DIMM slot. ● DIMM_SLOT 2 - This field shows the capacity of the memory installed in the second DIMM slot. |
| Devices | <p>The Devices field provides information related to the memory on the computer:</p> |

Table 29. BIOS Overview Page (continued)

| Options | Description |
|---------|---|
| | <ul style="list-style-type: none"> ● Panel Type - This field mentions the type of display panel used on the computer. ● Video controller - This field mentions the type of video controller used on the computer. ● Video Memory - This field gives the capacity of the video memory available for use on the computer. ● Wi-Fi Device - This field mentions the type wireless device available for use on the computer. ● Native Resolution - This field mentions the native video resolution supported on the computer. ● Video BIOS Version - The version of the BIOS installed on the computer. ● Audio Controller - This field mentions the type of audio controller used on the computer. ● Bluetooth Device - This field mentions the type Bluetooth device available for use on the computer. ● LOM MAC Address - This field provides the unique MAC address for the computer. ● Pass Through MAC Address - This field provides the MAC address used to override the dock or dongle MAC address every time it's connected to the network. |

Boot Configuration

This section provides Boot Configuration related details and settings.

Table 30. Boot Configuration:

| Options | Description |
|------------------------------|--|
| Boot Sequence | |
| Boot Mode: UEFI only | <p>This section allows the user to choose the first bootable device that the computer should use to boot the system. It lists all potential bootable devices.</p> <ul style="list-style-type: none"> ● Windows Boot Manager ● UEFI Boot Drive ● Add Boot option - Allows the user to manually add a Boot path. |
| Secure Digital(SD) Card Boot | <p>This section contains a toggle switch that allows the user to enable or disable the option to allow the computer to boot from an SD Card.</p> |
| Secure Boot | |
| Enable Secure Boot | <p>This section contains a toggle switch that allows the user to enable or disable Secure Boot.</p> |
| Secure Boot Mode | <p>This section allows the user to select one of the two Secure Boot options available on the computer:</p> <ul style="list-style-type: none"> ● Deployed Mode - This mode checks the integrity of UEFI drivers and bootloaders before allowing execution. This option allows for full Secure Boot protections. ● Audit Mode - This mode performs a signature check but never does a block execution of all UEFI drivers and |

Table 30. Boot Configuration: (continued)

| Options | Description |
|----------------------------|--|
| | bootloaders. This mode is only used when making changes to Secure Boot Keys. |
| Expert Key Management | |
| Enable Custom Mode | This section contains a toggle switch that allows the user to enable or disable Custom Mode. This mode allows the PK, KEK, db and dbx security key databases to be manipulated. |
| Custom Mode Key Management | This section helps the user to select the Key Database to allow modification. The options available are as below: <ul style="list-style-type: none"> ● PK ● KEK ● db ● dbx |

Integrated Devices

This section provides Integrated Devices details and settings.

Table 31. Integrated Devices

| Options | Description |
|-------------------|--|
| Date/Time | |
| Date | This section allows the user to change the date which takes effect immediately. The format used is MM/DD/YYYY |
| Time | This section allows the user to change the time which takes effect immediately. The format used is HH/MM/SS in 24 hour format. The user also has an option to switch between 12-hours or 24-hours clock. |
| Camera | |
| Enable Camera | This section contains a toggle switch that allows the internal webcam. |
| Audio | |
| Enable Audio | This section contains a toggle switch that allows the user to enable or disable the audio on the computer. It also allows the user to: <ul style="list-style-type: none"> ● Enable Microphone ● Enable Internal Speakers |
| USB Configuration | This section helps the user to make changes to the USB settings on the computer. The options available are as follows: <ul style="list-style-type: none"> ● Enable USB Boot Support - Allows the system to boot from an external USB device. ● Enable External USB Ports - Allows the user to enable or disable the USB ports on the computer. |

Storage

This section provides Storage details and settings.

Table 32. Storage

| Options | Description |
|------------------------|---|
| SATA Operation | |
| SATA Operation | This section allows the user to select the operating mode of the integrated SATA hard drive controller. The following options are available here: <ul style="list-style-type: none"> • Disabled - SATA controllers are disabled. • AHCI - SATA is configured in AHCI mode. • RAID On - SATA is setup to support RAID (Intel Rapid Storage Technology). |
| Storage Interface | |
| Port Enablement | This section allows the user to enable or disable the onboard drives on the computer. The following options are available here: <ul style="list-style-type: none"> • SATA-0 • M.2 PCIe SSD-0 |
| SMART Reporting | |
| Enable SMART Reporting | This section contains a toggle switch that allows the user to enable or disable the S.M.A.R.T(Self-Monitoring, Analysis, and Reporting Technology) option on the system. |
| Drive Information | This section provides information about the connected and active drives on the computer. The following options are available here: <ul style="list-style-type: none"> • SATA-0 <ul style="list-style-type: none"> ○ Type ○ Device • M.2 PCIe SSD-0 <ul style="list-style-type: none"> ○ Type ○ Device |
| Enable MediaCard | This section allows the user to switch all media cards On/Off, or enable/disable the media card in read-state only. The options seen are as below <ul style="list-style-type: none"> • Secure Digital(SD) Card • Secure Digital(SD) Card Read-Only Mode |

Connection

This section provides connection details and settings.

Table 33. Connection

| Options | Description |
|---------------------------|---|
| Wireless Device Enable | This section contains a toggle switch that allows the user to enable or disable WLAN and Bluetooth on the computer. The options are as follows: <ul style="list-style-type: none"> • WLAN • Bluetooth |
| Enable UEFI Network Stack | This section contains a toggle switch that allows the user to enable or disable installation of UEFI networking protocols. |

Table 33. Connection (continued)

| Options | Description |
|------------------------|--|
| Wireless Radio Control | This section contains a toggle switch that allows the user to enable or disable a feature where the system will sense a connection to a wired network and disable the WLAN or WWAN connection. |

Power

This section provides power details and settings.

Table 34. Power

| Options | Description |
|--|--|
| Battery configuration | <p>This section provides options to enable different power modes on the computer. The options are as follows:</p> <ul style="list-style-type: none"> ● Adaptive - battery settings are adaptively optimized based on the users typical battery usage patterns. ● Standard - Fully charge the battery at a standard rate. ● ExpressCharge - The battery may be charged over a shorter period using Dell's fast charging technology. ● Primarily AC use - The battery lifespan for users who primarily operate their system while plugged in to an external power source. ● Custom - Custom select when the battery starts and stops charging. <ul style="list-style-type: none"> ○ Custom Charge Start ○ Custom Charge Stop |
| Advanced Configuration | |
| Enable Advanced Battery Charge Configuration | This feature maximizes battery health while still supporting heavy use during the work day. The section contains a toggle switch that allows the user to enable or disable this feature and set the daily times and work time periods. |
| Peak Shift | This feature allows the computer to run on battery during peak usage hours. The section contains a toggle switch that allows the user to enable or disable this feature and set the Peak Shift Start/End times and Peak Shift Charge Start/End. |
| USB PowerShare | This setting contains a toggle witch which allows the user to enable or disable this feature. It allows for any external USB devices to charge via the designated USB PowerShare port, even when the computer is on sleep mode. |
| Thermal Management | <p>This setting allows for cooling fan and processor heat management to adjust system performance, noise and temperature. The options available are as below:</p> <ul style="list-style-type: none"> ● Optimized - Standard setting for cooling fan and processor heat management. ● Cool - Processor and cooling fan speed are adjusted for a cooler system surface temperature. ● Quiet - Processor and cooling fan speed are adjusted to reduce fan noise. ● Ultra Performance - Processor and cooling fan speed are increased for more performance. |

Security

This section provides security details and settings.

Table 35. Security

| Options | Description |
|----------------------------------|--|
| TPM 2.0 Security | |
| TPM 2.0 Security On | This section contains a toggle switch to select whether Trusted Platform Module(TPM) is visible to the Operating System(OS). |
| PPI Bypass for Enabled Commands | This section contains a toggle switch which controls the TPM Physical Presence Interface(PPI). When enabled, this setting allows the OS to skip BIOS PPI user prompts when issuing TPM PPI enable and activate commands. |
| PPI Bypass for Disabled Commands | This section contains a toggle switch which controls the TPM Physical Presence Interface(PPI). When enabled, this setting will allow the OS to skip BIOS PPI user prompts when issuing TPM PPI disable and deactivate commands(#2, 4, 7, 9, & 11). |
| PPI Bypass for Clear Commands | This section contains a toggle switch which controls the TPM Physical Presence Interface(PPI). When enabled, this setting will allow the OS to skip BIOS PPI user prompts when issuing the clear command. |
| Attestation Enable | This section contains toggle switch which lets the user control whether the TPM Endorsement Hierarchy is available to the OS. |
| Key Storage Enable | This sections contains a toggle switch that allows the user to control whether TPM Storage Hierarchy is available to the operating system. |
| SHA-256 | This sections contains a toggle switch that when enabled, allows the BIOS and the TPM to use the SHA-256 hash algorithm to extend measurements into the TPM PCRs during BIOS boot. |
| Clear | This section contains toggle switch which clears the TPM owner information, and returns the TPM to the default state. |
| TPM State | This section allows the user to enable or disable the TPM. this is the normal operating state for the TPM when you want to use its complete arrays of capabilities. |
| Intel Software Guard Extension | |
| Intel SGX | This sections allows the user to select the Intel Software Guard Extension Enclave Reserve Memory Size. The options are as follows: <ul style="list-style-type: none"> • Disabled • Enabled • Software Control |
| SMM Security Mitigation | This section allows the user to enable or disable UEFI SMM security Mitigation protections. |
| Data Wipe on Next Boot | |

Table 35. Security (continued)

| Options | Description |
|-------------------------|---|
| Start Data Wipe | This section contains toggle switch which when enabled ensures that the BIOS will queue up a data wipe cycle for storage device(s) connected to the motherboard on the next reboot. |
| Absolute | |
| Absolute | This section lets the user enable, disable or permanently disable the BIOS module interface of the optional Absolute Persistence Module service from Absolute Software. The options available are as follows: <ul style="list-style-type: none"> • Enable Absolute - Enables Absolute Persistence and load the firmware Persistence Module • Disable Absolute - Disables Absolute Persistence. The firmware Persistence Module is not installed. • Permanently Disable Absolute - Permanently disables Absolute Persistence module interface from further use. |
| UEFI Boot Path Security | |
| UEFI Boot Path Security | This section lets the user control whether or not the system will prompt the user to enter the admin password(if set) when booting to a UEFI boot path device from F12 boot menu. The options available are as below: <ul style="list-style-type: none"> • Never • Always • Always Except Internal HDD • Always Except Internal HDD&PXE |

Passwords

This section provides details on password settings.

Table 36. Passwords

| Options | Description |
|-------------------------|--|
| Admin Password | This field allows the user to set, change, or delete the administrator password. |
| System Password | This field allows the user to set, change, or delete the system password. |
| Internal HDD-0 Password | This field allows the user to set, change, or delete the Hard Drive password. |
| Password Configurator | |
| Upper Case Letter | Enable or disable reinforced use of upper case letters. |
| Lower Case Letter | Enable or disable reinforced use of lower case letters. |
| Digit | Enable or disable reinforced use of at least one digit. |
| Special Character | Enable or disable reinforced use of at least one special character. |

Table 36. Passwords (continued)

| Options | Description |
|-----------------------------------|--|
| Minimum Character | Allows the user to select the number of characters allowed for a password. |
| Password Bypass | |
| Password Bypass | When enabled, this always prompts for system and internal hard drive passwords when powered on from Off state. Options available are as below: <ul style="list-style-type: none"> • Disabled • Reboot Bypass |
| Password Changes | |
| Enable Non-Admin Password Changes | This section contains a toggle switch which when on, user can change system and hard drive password without the need for admin password. |
| Password Changes | |
| Enable Non-Admin Password Changes | This section contains a toggle switch which when on, user can change system and hard drive password without the need for admin password. |
| Admin Setup Lockout | |
| Enable Admin Setup Lockout | This section contains a toggle switch which allows the administrator to control how users can or cannot access BIOS setup. |
| Master Password Lockout | |
| Enable Master Password Lockout | This section contains a toggle switch which allows the user to disable master password support. |

Update Recovery

This section provides details on Update Recovery settings.

Table 37. Update Recovery

| Options | Description |
|--------------------------------------|--|
| UEFI capsule Firmware Updates | |
| Enable UEFI Capsule Firmware Updates | This field contains a toggle switch which allows the user to enable or disable BIOS updates via UEFI capsule update packages. |
| BIOS Recovery from Hard Drive | |
| BIOS Recovery from Hard Drive | This field contains a toggle switch which allows the user to enable or disable recovery from certain corrupted BIOS conditions from a recovery file on the user's primary hard drive or an external USB key. |
| BIOS Downgrade | |
| Allow BIOS Downgrade | This field contains a toggle switch which allows the user to enable or disable flashing of the system firmware to previous revisions. |

Table 37. Update Recovery (continued)

| Options | Description |
|---------------------------------|--|
| SupportAssist OS Recovery | |
| SupportAssist OS Recovery | This field contains a toggle switch which allows the user to enable or disable the boot flow for SupportAssist OS Recovery tool in the events of certain system errors. |
| BIOSConnect | |
| BIOSConnect | This field contains a toggle switch which allows the user to enable or disable BIOSConnect setup to attempt cloud Service OS recovery if the main operating system fails to boot with a set number of failures. |
| Dell Auto OS Recovery Threshold | |
| Dell Auto OS Recovery Threshold | This field allows the user to select and number of failed boot attempts by the system before SupportAssist OS Recovery is triggered. The options here are as below: <ul style="list-style-type: none"> • Off • 1 • 2 • 3 |

System Management

This section provides System Management settings.

Table 38. System Management

| Options | Description |
|--------------|---|
| Service Tag | |
| Service Tag | This field provides the unique Service Tag of the computer. |
| Asset Tag | |
| Asset Tag | This field provides the unique up to 64 character identification that can be set by the IT administrator. |
| AC Behaviour | |
| Wake on AC | This field contains a toggle switch which allows the user to enable or disable the feature where the system boots when charger is detected. |
| Wake on LAN | |
| Wake on LAN | This field allows the user to select if and how the system should boot when connected to LAN. The options here are as follows: <ul style="list-style-type: none"> • Disabled - The system will not boot with any special LAN signals. • LAN only - Allows the system to be powered on by a special LAN signal from a network computer. • LAN with PXE Boot - Allows the system to wake-up from S4 or S5 state and boot to PXE. |
| Auto On Time | |

Table 38. System Management (continued)

| Options | Description |
|--------------|---|
| Auto On Time | <p>This field allows the user to set defined days/time when the system can automatically power on. The options here are as follows:</p> <ul style="list-style-type: none"> • Disabled • Everyday • Weekdays • Select Days |

Keyboard

This section provides keyboard settings.

Table 39. Keyboard

| Options | Description |
|---------------------------------------|---|
| Numlock Enable | |
| Enable Numlock | This field contains a toggle switch to enable or disable Numlock function on boot. |
| Fn Lock Options | |
| Fn Lock Options | <p>This field contains a toggle switch to change the mode of the function keys. The options are as follows:</p> <ul style="list-style-type: none"> • Lock Mode Standard - Traditional F1-F12 functions • Lock Mode Secondary - Enables secondary functions on the Fn keys. |
| Keyboard Illumination | |
| Keyboard Illumination | <p>This field allows the user to set the keyboard illumination settings. The options available are as follows:</p> <ul style="list-style-type: none"> • Disabled - The keyboard illumination will be off • Dim - Enable the keyboard illumination feature at 50% brightness level • Bright - Enable the keyboard illumination feature at 100% brightness level |
| Keyboard Backlight Timeout on AC | |
| Keyboard Backlight Timeout on AC | <p>This field allows the user to define the timeout value for the backlight when the AC adapter is connected to the computer. The options here are as follows:</p> <ul style="list-style-type: none"> • 5 seconds • 10 seconds • 15 seconds • 30 seconds • 1 minute • 5 minute • 15 minute • Never |
| Keyboard Backlight Timeout on Battery | |

Table 39. Keyboard (continued)

| Options | Description |
|---------------------------------------|--|
| Keyboard Backlight Timeout on Battery | <p>This field allows the user to define the timeout value for the backlight when the battery is powering to the computer. The options here are as follows:</p> <ul style="list-style-type: none"> • 5 seconds • 10 seconds • 15 seconds • 30 seconds • 1 minute • 5 minute • 15 minute • Never |

Pre-boot Behavior

This section provides Pre-boot Behavior details and settings.

Table 40. Pre-boot Behavior

| Options | Description |
|------------------------------|---|
| Adapter Warnings | |
| Enable Adapter Warnings | This field contains a toggle switch to enable or disable warning messages during boot when adapters with low power capacity are detected. |
| Warning and Errors | |
| Warning and Errors | <p>This field allows the user to enable or disable boot process to be paused only when warnings or errors are detected. The options are as follows:</p> <ul style="list-style-type: none"> • Prompt on Warnings and Errors - Stop, prompt and wait for user input when warnings or errors are detected • Continue on Warnings - Continue when warnings are detected but pause on errors • Continue on Warnings and Errors - Continue when either warnings or errors are detected during POST |
| USB-C Warnings | |
| Enable Dock Warning Messages | This field contains a toggle switch to enable or disable dock warning messages. |
| Fastboot | |
| Fastboot | <p>This field allows the user to configure the speed of the UEFI boot process. The options here are as follows:</p> <ul style="list-style-type: none"> • Minimal - reduces boot time by skipping certain hardware and configuration initialization during boot • Thorough - Performs complete hardware and configuration initialization during boot • Auto - Allows the BIOS to decide configuration initialization performed during boot |
| Extend BIOS POST Time | |
| Extend BIOS POST Time | This field allows the user to configure the BIOS POST load time. The options are as follows: |

Table 40. Pre-boot Behavior (continued)

| Options | Description |
|--------------------------|--|
| | <ul style="list-style-type: none"> • 0 seconds • 5 seconds • 10 seconds |
| MAC Address Pass-Through | |
| MAC Address Pass-Through | <p>This field allows the user to configure the MAC address pass-through replacing the external NIC MAC address.:</p> <ul style="list-style-type: none"> • System Unique MAC Address • Integrated NIC 1 MAC Address • Disabled |

Virtualization

This section provides details on Virtualization settings.

Table 41. Virtualization

| Options | Description |
|--|--|
| Intel Virtualization Technology | |
| Enable Intel Virtualization Technology(VT) | This field contains a toggle switch to enable or disable Virtualization to run Virtual machine monitor(VMM). |
| VT for Direct I/O | |
| Enable Intel VT for Direct I/O | This field allows the user to enable or disable the system from being able to perform VT for Direct I/O. |
| Intel Trusted Execution Technology(TXT) | |
| Enable Intel Trusted Execution Technology(TXT) | <p>This field contains a toggle switch to enable or disable the option to allow a Measured VMM to utilize the additional hardware capabilities provided by Intel TXT. The following must be enabled to configure Intel TXT:</p> <ul style="list-style-type: none"> • Trusted Platform Module(TPM) • Intel Hyper-Threading • All CPU cores(Multi-Core Support) • Intel Virtualization technology • Intel VT for Direct I/O |

Performance

This section provides Performance settings.

Table 42. Performance

| | |
|--------------------|--|
| Multi-Core Support | |
| Active Cores | <p>This field allows the user to configure the number of active cores on the computer. The options are as follows:</p> <ul style="list-style-type: none"> • All Cores • 1 • 2 |

Table 42. Performance (continued)

| | |
|---|--|
| | <ul style="list-style-type: none"> • 3 |
| Intel SpeedStep | |
| Enable Intel SpeedStep Technology | This field contains a toggle switch to enable or disable Intel SpeedStep Technology which allows the computer to dynamically adjust processor voltage and core frequency, decreasing average power consumption and heat production. |
| C-States Control | |
| Enable C-States Control | This field contains a toggle switch to enable or disable C-States Control that configures the CPU's ability to enter and exit low power states. When off, it disables all C-States. |
| Intel Turbo Boost Technology | |
| Enable Intel Turbo Boost Technology | <p>This field allows the user to enable or disable Intel Turbo Boost Technology.</p> <ul style="list-style-type: none"> • Disabled - Does not allow the Intel Turbo Boost Technology driver to increase the performance state of the processor above the standard performance. • Enabled - Allows the Intel Turbo Boost Technology to increase the performance of the CPU or graphics processor. |
| Intel Hyper-Threading Technology | |
| Enable Intel Hyper-Threading Technology | This field allows the user to configure this feature where the processor resources are used more effectively, enabling multiple threads to run on each core. |

System Logs

This section contains BIOS, Thermal and Power event logs.

Table 43. System Logs


| Options | Description |
|-------------------------|---|
| BIOS Event Log | |
| Clear BIOS Event log | This field contains a toggle switch to Keep or Clear BIOS Event logs. It also lists all saved events(Date, Time, Message). |
| Thermal Event Log | |
| Clear Thermal Event Log | This field contains a toggle switch to Keep or Clear Thermal Event logs. It also lists all saved events(Date, Time, Message). |
| Power Event Log | |
| Clear Power Event Log | This field contains a toggle switch to Keep or Clear Power Event logs. It also lists all saved events(Date, Time, Message). |

Updating the BIOS in Windows

Prerequisites


It is recommended to update your BIOS (System Setup) when you replace the system board or if an update is available. For laptops, ensure that your computer battery is fully charged and connected to a power before initiating a BIOS update.

About this task


 **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.

Steps

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 reinstall. For more information about this subject, see Knowledge Article: [Updating the BIOS on Dell Systems With BitLocker Enabled](#)

Updating your system BIOS using a USB flash drive

About this task

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 [How to Create a Bootable USB Flash Drive using Dell Diagnostic Deployment Package \(DDDP\)](#)

Steps

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 **Enter**.
6. The system will boot to a Diag C:\> prompt.
7. Run the file by typing the full filename, for example, O9010A12.exe and press **Enter**.
8. The BIOS Update Utility will load. Follow the instructions on screen.



Figure 1. DOS BIOS Update Screen

System and setup password

Table 44. 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 setup password

Prerequisites

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

About this task

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

Steps

1. In the **System BIOS** or **System Setup** screen, select **Security** and press **Enter**.
The **Security** screen is displayed.
2. Select **System/Admin 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


Prerequisites

Ensure that the **Password Status** is Unlocked (in the System Setup) before attempting to delete or change the existing System and Setup password. You cannot delete or change an existing System or Setup password, if the **Password Status** is Locked.

About this task

To enter the System Setup, press **F2** immediately after a power-on or reboot.

Steps

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 prompted. If you delete the System and Setup password, confirm the deletion when prompted.
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 restarts.


Getting help

Topics:

- [Contacting Dell](#)

Contacting Dell

Prerequisites

 **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.

About this task

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:

Steps

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.