

Dell Latitude 5400

Setup and specifications guide



Notes, cautions, and warnings

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

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

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

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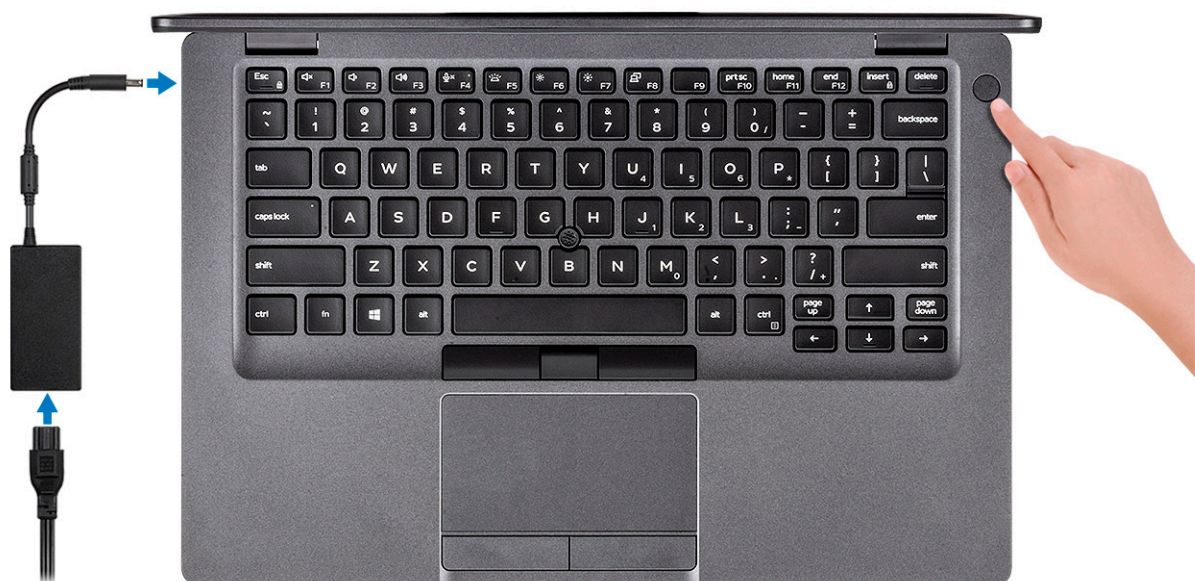
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Set up your computer

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

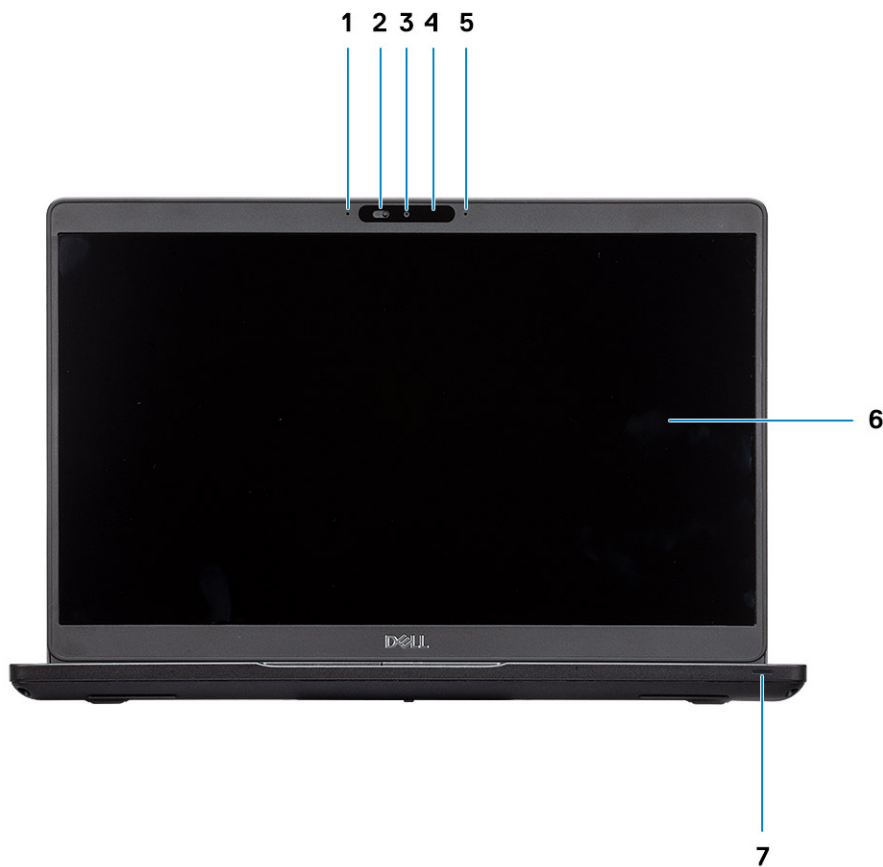
1. Connect the USB flash drive to your computer.
2. In Windows search, type **Recovery**.
3. In the search results, click **Create a recovery drive**.
The **User Account Control** window is displayed.
4. Click **Yes** to continue.
The **Recovery Drive** window is displayed.
5. Select **Back up system 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 overview

Topics:

- Display view
- Left view
- Right view
- Palmrest view
- Bottom view
- Keyboard shortcuts

Display view



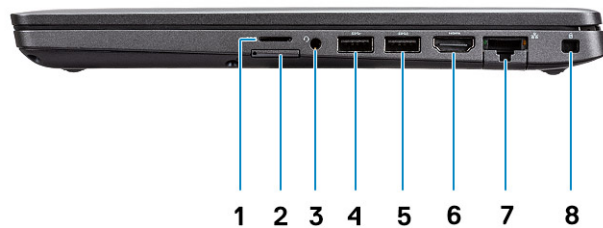
1. Array microphone
2. SafeView shutter
3. Camera (optional)
4. Camera status light
5. Array microphone
6. LCD panel
7. LED activity light

Left view



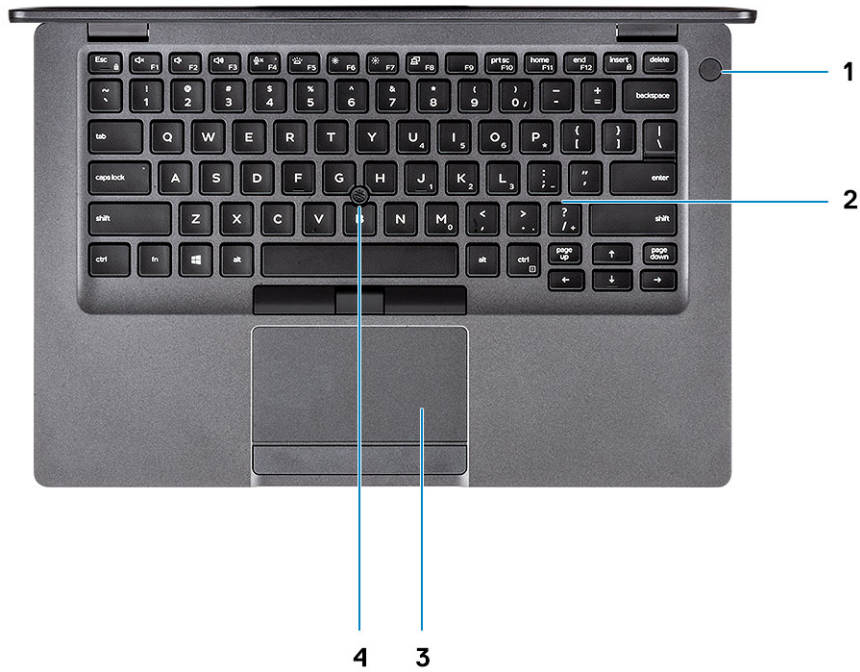
1. Power connector port
2. USB 3.1 Gen 2 (USB Type-C) port with DisplayPort/Thunderbolt (optional)
3. USB 3.1 Gen 1
4. Smart card reader (optional)

Right view



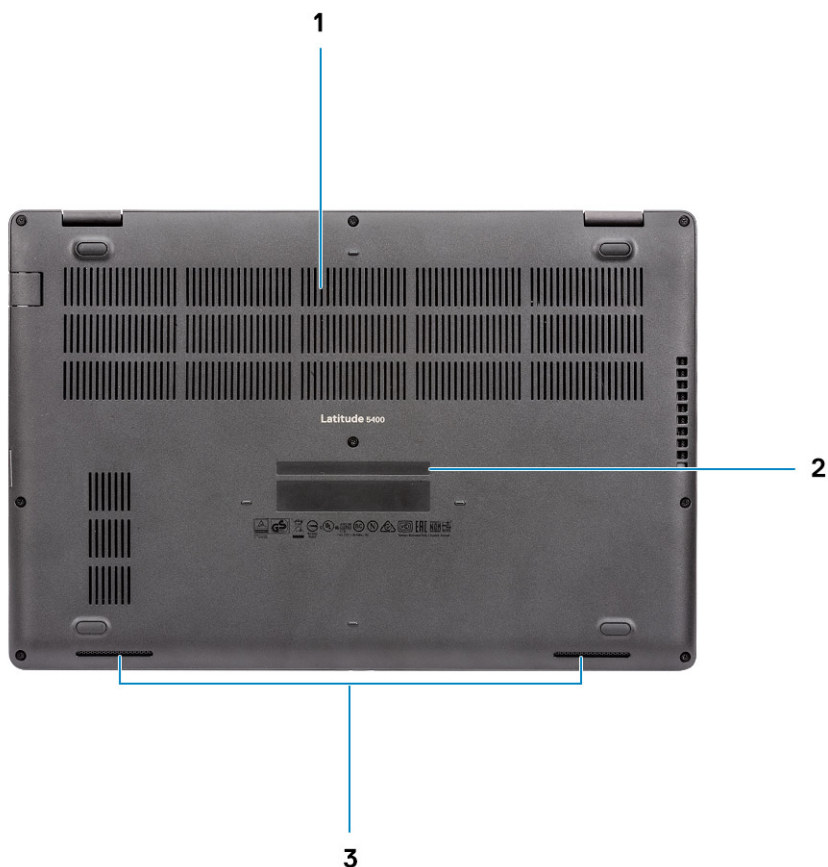
1. microSD card reader
2. micro-SIM card slot
3. Headset/ Microphone port
4. USB 3.1 Gen 1 port
5. USB 3.1 Gen 1 port with PowerShare
6. HDMI port
7. Network port
8. Wedge-shaped lock slot

Palmrest view



1. Power button with optional fingerprint
2. Keyboard
3. Touchpad
4. Trackstick (optional)

Bottom view



1. Thermal vent
2. Service tag label
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 | Secondary behavior (Fn + Key) |
|----------|------------------|-------------------------------|
| Fn + Esc | Escape | Toggle Fn-key lock |
| Fn + F1 | Mute audio | F1 behavior |
| Fn + F2 | Decrease volume | F2 behavior |
| Fn + F3 | Increase volume | F3 behavior |
| Fn + F4 | Mute microphone | F4 behavior |

Table 2. List of keyboard shortcuts (continued)

| Keys | Primary behavior | Secondary behavior (Fn + Key) |
|-------------|--------------------------------|--------------------------------------|
| Fn + F5 | Turn on/off keyboard backlight | F5 behavior |
| Fn + F6 | Decrease brightness | F6 behavior |
| Fn + F7 | Increase brightness | F7 behavior |
| Fn + F8 | Switch to external display | F8 behavior |
| Fn + F10 | Print screen | F10 behavior |
| Fn + F11 | Home | F11 behavior |
| Fn + 12 | End | F12 behavior |
| 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:

- [System information](#)
- [Processor](#)
- [Memory](#)
- [Storage](#)
- [System board connectors](#)
- [Media card-reader](#)
- [Audio](#)
- [Video card](#)
- [Camera](#)
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- [Security options—Contacted smartcard reader](#)
- [Security options—Contactless smartcard reader](#)
- [Security Software](#)

System information

Table 3. System information

| Feature | Specifications |
|------------------------|-----------------------------|
| Chipset | Integrated in the processor |
| DRAM bus width | 64-bit |
| FLASH EPROM | 32 MB |
| PCIe bus | Up to Gen3 |
| External bus frequency | Up to 8 GT/s |

Processor

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

Table 4. Processor specifications

| Type | UMA Graphics | Discrete Graphics |
|----------------------------------------------------------------------------------------------------------------|------------------------|-------------------|
| 8th Gen Intel Core i7-8665U processor (8 MB cache, 4 core count/8 threads, 1.9 GHz to 4.8 GHz, 15 W TDP, vPro) | Intel UHD Graphics 620 | AMD Radeon 540X |
| 8th Gen Intel Core i5-8365U processor (6 MB cache, 4 core count/8 threads, 1.6 GHz to 4.1 GHz, 15 W TDP, vPro) | Intel UHD Graphics 620 | AMD Radeon 540X |
| 8th Gen Intel Core i5-8265U processor (6 MB cache, 4 core count/8 threads, 1.6 GHz to 3.9 GHz, 15 W TDP) | Intel UHD Graphics 620 | AMD Radeon 540X |
| 8th Gen Intel Core i3-8145U processor (4 MB cache, 2 core count/4 threads, 2.1 GHz to 3.9 GHz, 15 W TDP) | Intel UHD Graphics 620 | NA |

Memory

Table 5. Memory specifications

| Feature | Specifications |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Minimum memory configuration | 4 GB |
| Maximum memory configuration | 32 GB |
| Number of slots | 2 x SoDIMM slots |
| Maximum memory supported per slot | 16 GB |
| Memory options | <ul style="list-style-type: none"> • 4 GB (1 x 4 GB) • 8 GB (2 x 4 GB) • 8 GB (1 x 8 GB) • 16 GB (2 x 8 GB) • 16 GB (1 x 16 GB) • 32 GB (2 x 16 GB) |
| Type | Dual-channel DDR4 |
| Speed | 2666 MHz Non-ECC SDRAM operates at 2400 MHz with Intel 8 th Gen processors |

Storage

Table 6. Storage specifications

| Type | Form factor | Interface | Capacity |
|----------------------------|--------------|----------------------------------|----------------------------------------------------------------------------------------------------|
| PCIe Solid-State Drive | M.2 2230 SSD | PCIe Gen 3x2 NVMe, up to 32 Gbps | Upto 512 GB |
| PCIe Solid-State Drive | M.2 2280 SSD | PCIe Gen 3x4 NVMe, up to 32 Gbps | Upto 1 TB |
| SATA Solid-State Drive | M.2 2280 SSD | SATA Class 20 | Upto 512 GB |
| SED PCIe Solid-State Drive | M.2 2280 SSD | SED PCIe | Upto 512 GB |
| HDD | 2.5 in. | SATA | <ul style="list-style-type: none"> Upto 1 TB; 5400 RPM Upto 1 TB; 7200 RPM |

System board connectors

Table 7. System board connectors

| Feature | Specifications |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| M.2 Connectors | <ul style="list-style-type: none"> One M.2 2230 Key-E connector One M.2 2280 Key-E connector One M.2 3042 Key-B connector |

Media card-reader

Table 8. Media-card reader specifications

| Feature | Specifications |
|---------|------------------------------------|
| Type | MicroSD Card - supports up to 2 TB |

Audio

Table 9. Audio specifications

| Feature | Specifications |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Controller | Realtek ALC3204 with Waves MaxxAudio Pro |
| Stereo conversion | 24-bit DAC (Digital-to-Analog) and ADC (Analog-to-Digital) |
| Type | HD Audio |
| Speakers | Two |
| Interface | Internal: <ul style="list-style-type: none"> Intel HDA (high-definition audio) External: <ul style="list-style-type: none"> 7.1 channel output via HDMI Digital microphone input on camera module Headset combo jack (stereo headphones/microphone-in) |

Table 9. Audio specifications (continued)

| Feature | Specifications |
|----------------------------|-------------------------------------|
| Internal speaker amplifier | Integrated in ALC3204 (Class-D 2 W) |
| External volume controls | Media-control shortcut keys |
| Speaker output: | Average: 2 W Peak: 2.5 W |
| Microphone | Digital-array microphones |

Video card

Table 10. Video card specifications

| Controller | Type | CPU Dependency | Graphics memory type | Capacity | External display support | Maximum resolution |
|------------------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------------------|--------------------------|--------------------|
| Intel UHD Graphics 620 | UMA | <ul style="list-style-type: none"> Intel Core i7-8665U CPU (vPro) Intel Core i5-8365U CPU Intel Core i5-8265U CPU Intel Core i3-8145U CPU | Integrated | Shared system memory | HDMI 1.4b port | 4096 x 2304 @24 Hz |
| AMD Radeon 540X | Discrete | NA | GDDR5 | 2 GB | N/A | N/A |

Camera

Table 11. Camera specifications

| Feature | Specifications |
|------------------------|----------------------------------------------------------------------------------------|
| Camera Type | RGB, HD fixed focus |
| IR Camera | 6 mm IR camera (optional) |
| Resolution | Still image: HD resolution (1280 x 720) Video: HD resolution (1280 x 720) at 30 fps |
| Diagonal viewing angle | IR: 87 degree RGB: 78.6 degree |
| Sensor type | CMOS sensor technology |

 **NOTE:** The RGB + IR camera is for Windows Hello application only and other applications cannot use it.

Communication

Table 12. Communication specifications

| Feature | Specifications |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Network adapter | Integrated Connection I219-V 10/100/1000 Mb/s Ethernet (RJ-45) <ul style="list-style-type: none"> • 8th Generation Intel® Core i5-8365U • 8th Generation Intel® Core i7-8665U Integrated Connection I217-LM 10/100/1000 Mb/s Ethernet (RJ-45) <ul style="list-style-type: none"> • 8th Generation Intel® Core i3-8145U • 8th Generation Intel® Core i5-8265U |

Mobile Broadband

Table 13. Mobile Broadband

| Specifications |
|------------------------------------|
| Intel XMM 7360 Global LTE-Advanced |

Wireless

Table 14. Wireless specifications

| Specifications |
|-----------------------------------------------------------------------------|
| Intel Dual Band Wireless AC 9560 (802.11ac) 2x2 + Bluetooth 5.0 |
| Qualcomm QCA61x4A 802.11ac Dual Band (2x2) Wireless Adapter + Bluetooth 4.2 |
| Intel Wi-Fi 6 AX200 2x2 .11ax 160 MHz + Bluetooth 5.0 (Optional) |

Ports and connectors

Table 15. Ports and connectors

| Feature | Specifications |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Memory card reader | <ul style="list-style-type: none"> • One MicroSD card reader |
| SIM card reader | One micro SIM card slot |
| USB | <ul style="list-style-type: none"> • Three USB 3.1 Gen 1 (Type-A) ports • One USB Type-C 3.1 Gen 2 port with DisplayPort/Thunderbolt 3(optional) |
| Security | Noble wedge lock slot |
| Audio | One headset (headphone and microphone combo) port |
| Video | One HDMI 1.4b port (supports up to 4k @30 Hz) |

Table 15. Ports and connectors (continued)

| Feature | Specifications |
|-----------------|----------------------------------------|
| Network adapter | RJ-45, 10/100/1000, with LED indicator |

Display

Table 16. Display specifications

| Feature | Specifications |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type | <ul style="list-style-type: none"> 14 in. HD (1366 x 768), antiglare (16:9), WLED, non-touch, 220 nits 14 in. FHD Wide viewing angle (1920 x 1080), antiglare (16:9) WLED, non-touch, 220 nits 14 in. FHD Wide viewing angle (1920 x 1080), Embedded touch display with antiglare, 220 nits (optional) |
| Height (Active area) | 173.95 mm (6.84 in.) |
| Width (Active area) | 309.4 mm (12.18 in.) |
| Diagonal | 355.6 mm (14 in.) |
| Pixels Per Inch (PPI) | 112 (HD) 157 (FHD) |
| Contrast ratio | 400:1 (HD) 700:1 (FHD) |
| Luminance/Brightness (typical) | 220 Nits |
| Refresh rate | 60 Hz |
| Horizontal viewing angle (min) | +/- 40 degrees (HD) +/- 80 degrees (FHD) (optional) |
| Vertical viewing angle (min) | 10/30 degrees U/D (HD) +/- 80 degrees (FHD)(optional) |
| Power consumption (max) | 2.4 W (HD) 2.8 W (FHD) 3.15 W (FHD touch panel) |

Keyboard

Table 17. Keyboard specifications


| Feature | Specifications |
|----------------|--------------------------------------------------------------------------------------------------------------------|
| Number of keys | <ul style="list-style-type: none"> 81 (U.S. and Canada) 82 (UK/Brazil) 85 (Japan) |
| Size | Full sized |

Table 17. Keyboard specifications (continued)

| Feature | Specifications |
|------------------|----------------------------------------------------------------------------------------------------------------------------------|
| | <ul style="list-style-type: none"> • X= 19.05 mm (0.75 in.) key pitch • Y= 19.05 mm (0.75 in.) key pitch |
| Backlit keyboard | Optional (backlit and Non-backlit) |
| Layout | QWERTY |

Touchpad

Table 18. Touchpad specifications

| Feature | Specifications |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Resolution | 1221 x 661 |
| Dimensions | <ul style="list-style-type: none"> • Width: 101.7 mm (4.00 in.) • Height: 55.2 mm (2.17 in.) |
| Multi-touch | Supports 5-finger multi-touch  NOTE: For more information about touchpad gestures for Windows 10, see the Microsoft knowledge base article 4027871 at support.microsoft.com . |

Fingerprint reader—optional

Table 19. Fingerprint reader specifications

| Feature | Specifications |
|-------------------|---------------------|
| Type | FPR in power button |
| Sensor technology | Capacitive |
| Sensor resolution | 363 PPI |
| Sensor area | Diameter: 10 mm |

Operating system

Table 20. Operating system

| Feature | Specifications |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating systems supported | <ul style="list-style-type: none"> • Windows 10 Home (64 bit) • Windows 10 Professional (64bit) • Ubuntu 18.04 LTS (64 bit) • NeoKylin 6.0 SP4 (PRTS) |

Battery

Table 21. Battery

| Feature | Specifications | | | | | |
|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| Type | 3-cell lithium-ion (42 WHr) ExpressCharge | | 3-cell lithium-ion (51 WHr) ExpressCharge | | 4-cell lithium-ion (68 WHr) ExpressCharge | |
| Dimension | Width | 95.9 mm (3.78 in.) | Width | 95.9 mm (3.78 in.) | Width | 95.9 mm (3.78 in.) |
| | Depth | 181 mm (7.13 in.) | Depth | 181 mm (7.13 in.) | Depth | 233 mm (9.17 in.) |
| | Height | 7.05 mm (0.28 in.) | Height | 7.05 mm (0.28 in.) | Height | 7.05 mm (0.28 in.) |
| Weight (maximum) | 200 g (0.44 lb) | | 250 g (0.55 lb) | | 340 g (0.75 lb) | |
| Voltage | 11.40 VDC | | 11.40 VDC | | 7.6 VDC | |
| Life span | 300 discharge/charge cycles | | 300 discharge/charge cycles | | 300 discharge/charge cycles (standard pack) 1000 discharge/charge cycles (LCL pack) | |
| Charging time when the computer is off (approximate) | Standard charge | 0°C to 50°C: 4 hours | Standard charge | 0°C to 50°C: 4 hours | Standard charge | 0°C to 50°C: 4 hours |
| | Express Charge | 0°C to 15°C: 4 hours 16°C to 45°C: 2 hours 46°C to 50°C: 3 hours | Express Charge | 0°C to 15°C: 4 hours 16°C to 45°C: 2 hours 46°C to 50°C: 3 hours | Express Charge | 0°C to 15°C: 4 hours 16°C to 45°C: 2 hours 46°C to 50°C: 3 hours |
| 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. | | Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions. | |
| Temperature range: Operating | Charge: 0°C to 50°C, 32°F to 122°F Discharge: 0°C to 60°C, 32°F to 139°F | | Charge: 0°C to 50°C (32°F to 122°F) Discharge: -20°C to 60°C (-40°F to 139°F) | | Charge: 0°C to 50°C, 32°F to 122°F Discharge: 0°C to 60°C, 32°F to 139°F | |
| Temperature range: Storage | -20°C to 60°C (-4°F to 140°F) | | -20°C to 60°C (-40°F to 140°F) | | -20°C to 60°C (-4°F to 140°F) | |
| Coin-cell battery | CR-2032 | | CR-2032 | | CR-2032 | |

Power adapter

Table 22. Power adapter specifications

| Feature | Specifications | |
|---------|----------------|---------|
| Type | E5 65 W | E5 90 W |

Table 22. Power adapter specifications (continued)

| Feature | Specifications | |
|-----------------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------|
| Input Voltage | 100 VAC - 240 VAC | 100 VAC - 240 VAC |
| Input current (maximum) | 1.5 A | 1.6 A |
| Adapter size | Dimensions In Inches: 0.87 x 2.60 x 4.17 In mm: 22 x 66 x 106 | Dimensions In Inches: 0.87 x 2.60 x 5.12 In mm: 22 x 66 x 130 |
| Barrel | 7.4 mm | 7.4 mm |
| Weight | 0.23 kg (0.51 lb) | 0.32 kg (0.70 lb) |
| Input frequency | 50 Hz to 60 Hz | 50 Hz to 60 Hz |
| Output current | 3.34 A (continuous) | 4.62 A (continuous) |
| Rated output voltage | 19.5 VDC | 19.5 VDC |
| Temperature range (Operating) | 0°C to 40°C (32°F to 104°F) | 0°C to 40°C (32°F to 104°F) |
| Temperature range (Non-Operating) | -40°C to 70°C (-40°F to 158°F) | -40°C to 70°C (-40°F to 158°F) |

Sensor and control specifications

Table 23. Sensor and control specifications

| Specifications |
|--------------------------------------------------------|
| 1. Free fall sensor on motherboard |
| 2. Hall Effect Sensor (Detects when the lid is closed) |

Dimensions and weight

Table 24. Dimensions and weight

| Feature | Specifications |
|---------|--------------------------------------------------------|
| Height | Front: 19.6 mm (0.77 in.) Rear: 20.85 mm (0.82 in.) |
| Width | 323.05 mm (12.7 in.) |
| Depth | 216 mm (8.5 in.) |
| Weight | 1.48 kg (3.26 lb) |

Computer environment

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

Table 25. Computer environment

| | 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 80% (non-condensing) <i>i</i> NOTE: Maximum dew point temperature = 26°C | 0% to 95% (non-condensing) <i>i</i> NOTE: Maximum dew point temperature = 33°C |
| Vibration (maximum) | 0.26 GRMS | 1.37 GRMS |
| Shock (maximum) | 105 G † | 40 G ‡ |
| Altitude (maximum) | -15.2 m to 3048 m (-50 ft to 10,000 ft) | -15.2 m to 10,668 m (-50 ft to 35,000 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.

‡ Measured using a 2 ms half-sine pulse when the hard-drive head is in parked position.

Security

Table 26. Security

| Feature | Specifications |
|------------------------------------------------------------------------------|-----------------------------------------------------------------|
| Trusted Platform Module (TPM) 2.0 | Integrated on the system board |
| Firmware TPM | Optional |
| Windows Hello Support | Yes, optional fingerprint on power button Optional IR camera |
| Cable lock | Wedge-shaped lock |
| Dell Smartcard Keyboard | Optional |
| FIPS 140-2 certification for TPM | Yes |
| ControlVault 3 Advanced Authentication with FIPS 140-2 Level 3 Certification | Yes, for FPR, SC and CSC/NFC |
| Fingerprint Reader Only | Touch Fingerprint reader in power button tied to ControlVault 3 |
| Contacted Smart Card and ControlVault 3 | FIPS 201 Smart card reader certification/SIPR |

Security options—Contacted smartcard reader

Table 27. Contacted smartcard reader

| Title | Description | Dell ControlVault 3 Smartcard reader |
|----------------------------------|------------------------------------------------|--------------------------------------|
| ISO 7816 -3 Class A Card Support | Reader capable of reading 5V powered smartcard | Yes |
| ISO 7816 -3 Class B Card Support | Reader capable of reading 3V powered smartcard | Yes |

Table 27. Contacted smartcard reader (continued)

| Title | Description | Dell ControlVault 3 Smartcard reader |
|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| ISO 7816 -3 Class C Card support | Reader capable of reading 1.8V powered smartcard | Yes |
| ISO 7816-1 Compliant | Specification for the reader | Yes |
| ISO 7816 -2 Compliant | Specification for smartcard device physical characteristics (size, location of connection points, etc.) | Yes |
| T=0 support | Cards support character level transmission | Yes |
| T=1 support | Cards support block level transmission | Yes |
| EMVCo Compliant | Compliant with EMVCo (for electronic payment standards) smartcard standards as posted to www.emvco.com | Yes |
| EMVCo Certified | Formally certified based on EMVCO smartcard standards | Yes |
| PC/SC OS interface | Personal Computer/Smart Card specification for integration of hardware readers into personal computer environments | Yes |
| CCID driver compliance | Common driver support for Integrated Circuit Card Interface Device for OS level drivers. | Yes |
| Windows Certified | Device certified by Microsoft WHCK | Yes |
| FIPS 201 (PIV/HSPD-12) Compliant via GSA | Device compliant with FIPS 201/PIV/HSPD-12 requirements | Yes |

Security options—Contactless smartcard reader

Table 28. Contactless smartcard reader

| Title | Description | Dell ControlVault 3 Contactless Smartcard reader with NFC |
|-------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| Felica Card Support | Reader and software capable of supporting Felica contactless cards | Yes |
| ISO 14443 Type A Card Support | Reader and software capable of supporting ISO 14443 Type A contactless cards | Yes |
| ISO 14443 Type B Card Support | Reader and software capable of supporting ISO 14443 Type B contactless cards | Yes |
| ISO/IEC 21481 | Reader and software capable of supporting ISO/IEC 21481 compliant contactless cards and tokens | Yes |
| ISO/IEC 18092 | Reader and software capable of supporting ISO/IEC 21481 compliant contactless cards and tokens | Yes |
| ISO 15693 Card Support | Reader and software capable of supporting ISO15693 contactless cards | Yes |

Table 28. Contactless smartcard reader (continued)

| Title | Description | Dell ControlVault 3 Contactless Smartcard reader with NFC |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| NFC Tag Support | Supports reading and processing of NFC compliant tag information | Yes |
| NFC Reader Mode | Support for NFC Forum Defined Reader mode | Yes |
| NFC Writer Mode | Support for NFC Forum Defined Writer mode | Yes |
| NFC Peer-to-Peer Mode | Support for NFC Forum Defined Peer to Peer mode | Yes |
| EMVCo Compliant | Compliant with EMVCO smartcard standards as posted to www.emvco.com | Yes |
| EMVCo Certified | Formally certified based on EMVCO smartcard standards | Yes |
| NFC Proximity OS Interface | Enumerates NFP (Near Field Proximity) device for OS to utilize | Yes |
| PC/SC OS interface | Personal Computer/Smart Card specification for integration of hardware readers into personal computer environments | Yes |
| CCID driver compliance | Common driver support for Integrated Circuit Card Interface Device for OS level drivers | Yes |
| Windows Certified | Device certified by Microsoft WHCK | Yes |
| Dell ControlVault support | Device connects to Dell ControlVault for usage and processing | Yes |
| Prox (Proximity) (125kHz) Card support | Reader and software capable of supporting Prox/Proximity/125kHz contactless cards | No |


 **NOTE:** 125 KHz proximity cards are not supported.

Table 29. Supported cards

| Manufacturer | Card | Supported |
|--------------|-------------------------------------|-----------|
| HID | jCOP readertest3 A card (14443a) | Yes |
| | 1430 1L | |
| | DESFire D8H | |
| | iClass (Legacy) | |
| | iClass SEOS | |
| NXP/Mifare | Mifare DESFire 8K White PVC Cards | Yes |
| | Mifare Classic 1K White PVC Cards | |
| | NXP Mifare Classic S50 ISO Card | |
| G&D | idOnDemand - SCE3.2 144K | Yes |
| | SCE6.0 FIPS 80K Dual+ 1 K Mifare | |
| | SCE6.0 nonFIPS 80K Dual+ 1 K Mifare | |
| | SCE6.0 FIPS 144K Dual + 1K Mifare | |

Table 29. Supported cards (continued)

| Manufacturer | Card | Supported |
|--------------|---------------------------------------|-----------|
| | SCE6.0 nonFIPS 144K Dual + 1 K Mifare | |
| | SCE7.0 FIPS 144K | |
| Oberthur | idOnDemand - OCS5.2 80K | Yes |
| | ID-One Cosmo 64 RSA D V5.4 T=0 card | |

Security Software

Table 30. Security Software specifications

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

Software

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


Topics:

- [Downloading drivers](#)

Downloading 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](#)
- [Boot Sequence](#)
- [System setup options](#)
- [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 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. |
| 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. |

| Keys | Navigation |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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. |

Boot Sequence

Boot sequence enables you to bypass the System Setup–defined boot device order and boot directly to a specific device (for example: optical drive or hard drive). During the Power-on Self-Test (POST), when the Dell logo appears, you can:

- Access System Setup by pressing F2 key
- Bring up the one-time boot menu by pressing F12 key.

The one-time boot menu displays the devices that you can boot from including the diagnostic option. The boot menu options are:

- Removable Drive (if available)
- STXXXX Drive
 - **NOTE:** XXXX denotes the SATA drive number.
- Optical Drive (if available)
- SATA Hard Drive (if available)
- Diagnostics
 - **NOTE:** Choosing **Diagnostics**, displays the **ePSA diagnostics** screen.

The boot sequence screen also displays the option to access the System Setup screen.

System setup options

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

General options

Table 31. General

| Option | Description |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| System Information | Displays the following information: <ul style="list-style-type: none"> • System Information: Displays BIOS Version, Service Tag, Asset Tag, Ownership Tag, Manufacture Date, Ownership Date, and the Express Service Code. • Memory Information: Displays Memory Installed, Memory Available, Memory Speed, Memory Channel Mode, Memory Technology, DIMM A size, and DIMM B size • 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. • Device Information: Displays Primary HDD, M.2 PCIe SSD-0, LOM MAC Address, Video Controller, Video BIOS Version, Video Memory, Panel type, Native Resolution, Audio Controller, Wi-Fi Device, and Bluetooth Device. |
| Battery Information | Displays the battery status health and whether the AC adapter is installed. |
| 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. |
| 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. <ul style="list-style-type: none"> • Always, Except Internal HDD—Default • Always, Except Internal HDD&PXE |

Table 31. General (continued)

| Option | Description |
|-----------|------------------------------------------------------------------------------------------------------------|
| | <ul style="list-style-type: none"> • Always • Never |
| Date/Time | Allows you to set the date and time settings. Changes to the system date and time take effect immediately. |

System information

Table 32. System Configuration

| Option | Description |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Integrated NIC | <p>Allows you to configure the on-board LAN controller.</p> <ul style="list-style-type: none"> • Disabled = The internal LAN is off and not visible to the operating system. • Enabled = The internal LAN is enabled. • Enabled w/PXE = The internal LAN is enabled (with PXE boot) (selected by default) |
| SATA Operation | <p>Allows you to configure the operating mode of the integrated hard drive controller.</p> <ul style="list-style-type: none"> • Disabled = The SATA controllers are hidden • AHCI = SATA is configured for AHCI mode • RAID ON = SATA is configured to support RAID mode (selected by default) |
| Drives | <p>Allows you to enable or disable the various drives on-board:</p> <ul style="list-style-type: none"> • SATA-2 (enabled by default) • M.2 PCIe SSD-0 (enabled by default) |
| 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 | <p>Allows you to enable or disable the integrated USB controller for:</p> <ul style="list-style-type: none"> • Enable USB Boot Support • Enable External USB Port <p>All the options are enabled by default.</p> |
| Thunderbolt Adapter Configuration | <p>This section allows Thunderbolt Adapter Configuration.</p> <ul style="list-style-type: none"> • Thunderbolt-is enabled by default • Enable Thunderbolt Boot Support-is disabled • No security-is disabled • User configuration-enabled by default • Secure connect-is disabled • Display port and USB Only-is disabled |
| USB PowerShare | <p>This option configures the USB PowerShare feature behavior.</p> <ul style="list-style-type: none"> • Enable USB PowerShare - disabled by default <p>This feature is intended to allow users to power or charge external devices, such as phones and portable music players, using the stored system battery power through the USB PowerShare port on the notebook, while the notebook is in a sleep state.</p> |
| Audio | <p>Allows you to enable or disable the integrated audio controller. The option Enable Audio is selected by default.</p> <ul style="list-style-type: none"> • Enable Microphone • Enable Internal Speaker <p>Both the options are selected by default.</p> |


Table 32. System Configuration (continued)

| Option | Description |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Keyboard Illumination | <p>This field lets you choose the operating mode of the keyboard illumination feature. The keyboard brightness level can be set from 0% to 100%. The options are:</p> <ul style="list-style-type: none"> ● Disabled ● Dim ● Bright-enabled by default |
| Keyboard Backlight Timeout on AC | <p>The Keyboard Backlight Timeout dims out with AC option. The main keyboard illumination feature is not affected. Keyboard Illumination will continue to support the various illumination levels. This field has an effect when the backlight is enabled. The options are:</p> <ul style="list-style-type: none"> ● 5 sec ● 10 sec-enabled by default ● 15 sec ● 30 sec ● 1 min ● 5 min ● 15 min ● Never |
| Keyboard Backlight Timeout on Battery | <p>The Keyboard Backlight Timeout dims out with the Battery option. The main keyboard illumination feature is not affected. Keyboard Illumination will continue to support the various illumination levels. This field has an effect when the backlight is enabled. The options are:</p> <ul style="list-style-type: none"> ● 5 sec ● 10 sec-enabled by default ● 15 sec ● 30 sec ● 1 min ● 5 min ● 15 min ● Never |
| Unobtrusive Mode | <ul style="list-style-type: none"> ● Enable Unobtrusive Mode (disabled by default) <p>When enabled pressing Fn+Shift+B will turn off all light and sound emissions in the system. Press Fn+Shift+B to resume normal operation.</p> |
| Miscellaneous Devices | <p>Allows you to enable or disable the following devices:</p> <ul style="list-style-type: none"> ● Enable Camera (enabled by default) ● Enable Hard Drive Free Fall Protection(enabled by default) ● Enable Secure Digital (SD) Card (enabled by default) ● Secure Digital (SD) Card Boot ● Secure Digital (SD) Card Read-Only Mode |
| MAC Address Pass-Through | <ul style="list-style-type: none"> ● System Unique MAC Address (disabled by default) ● Integrated NIC 1 MAC Address ● Disabled <p>The feature replaces the external NIC MAC address (in a supported dock or dongle) with the selected MAC address from the system. The default option is to use the Passthrough MAC address.</p> |

Video

Option Description

LCD Brightness Allows you to set the display brightness depending up on the power source—On Battery and On AC. The LCD brightness is independent for battery and AC adapter. It can be set using the slider.

 **NOTE:** The video setting is visible only when a video card is installed into the system.

Security

Table 33. Security


| Option | Description |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Admin Password | Allows you to set, change, and delete the admin password. |
| System Password | Allows you to set, change, and delete the system password. |
| Internal HDD-2 Password | This option lets you set, change, or delete the password on the system's internal hard disk drive (HDD). |
| Strong Password | This option lets you enable or disable strong passwords for the system. |
| 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 | <p>This option lets you bypass the System (Boot) Password and the internal HDD password prompts during a system restart.</p> <ul style="list-style-type: none"> Disabled — Always prompt for the system and internal HDD password when they are set. This option is enabled by default. Reboot Bypass — Bypass the password prompts on Restarts (warm boots). <p> 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.</p> |
| Password Change | <p>This option lets you determine whether changes to the System and Hard Disk passwords are permitted when an administrator password is set.</p> <p>Allow Non-Admin Password Changes - This option is enabled by default.</p> |
| 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 | <p>Allows you to control whether the Trusted Platform Module (TPM) is visible to the operating system.</p> <ul style="list-style-type: none"> TPM On (default) Clear PPI Bypass for Enable Commands PPI Bypass for Disable Commands PPI Bypass for Clear Commands Attestation Enable (default) Key Storage Enable (default) SHA-256 (default) <p>Choose any one option:</p> <ul style="list-style-type: none"> Disabled Enabled (default) |

Table 33. Security (continued)

| Option | Description |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Absolute | This field lets you Enable, Disable or Permanently Disable the BIOS module interface of the optional Absolute Persistence Module service from Absolute Software. <ul style="list-style-type: none"> • Enabled - This option is selected by default. • Disabled • Permanently Disabled |
| OROM Keyboard Access | This option determines whether users are able to enter Option ROM configuration screen via hotkeys during boot. <ul style="list-style-type: none"> • Enabled (default) • Disabled • 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. |
| Master Password Lockout | Allows you to disable master password support Hard Disk passwords need to be cleared before the settings can be changed. 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

Table 34. Secure Boot

| Option | Description |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Secure Boot Enable | Allows you to enable or disable Secure Boot feature <ul style="list-style-type: none"> • Secure Boot Enable Option is not selected. |
| Secure Boot Mode | Allows you to modify the behavior of Secure Boot to allow evaluation or enforcement of UEFI driver signatures. <ul style="list-style-type: none"> • Deployed Mode (default) • 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: <ul style="list-style-type: none"> • PK (default) • KEK • db • dbx If you enable the Custom Mode , the relevant options for PK, KEK, db, and dbx appear. The options are: <ul style="list-style-type: none"> • Save to File- Saves the key to a user-selected file • Replace from File- Replaces the current key with a key from a user-selected file • Append from File- Adds a key to the current database from a user-selected file • Delete- Deletes the selected key • Reset All Keys- Resets to default setting • Delete All Keys- Deletes all the keys ⓘ 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

Table 35. Intel Software Guard Extensions



| Option | Description |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Intel SGX Enable | <p>This field specifies you to provide a secured environment for running code/storing sensitive information in the context of the main OS.</p> <p>Click one of the following options:</p> <ul style="list-style-type: none"> ● Disabled ● Enabled ● Software controlled—Default |
| Enclave Memory Size | <p>This option sets SGX Enclave Reserve Memory Size</p> <p>Click one of the following options:</p> <ul style="list-style-type: none"> ● 32 MB ● 64 MB ● 128 MB—Default |

Performance

Table 36. Performance

| Option | Description |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Multi Core Support | <p>This field specifies whether the process has one or all cores enabled. The performance of some applications improves with the additional cores.</p> <ul style="list-style-type: none"> ● All—Default ● 1 ● 2 ● 3 |
| Intel SpeedStep | <p>Allows you to enable or disable the Intel SpeedStep mode of processor.</p> <ul style="list-style-type: none"> ● Enable Intel SpeedStep <p>This option is set by default.</p> |
| C-States Control | <p>Allows you to enable or disable the additional processor sleep states.</p> <ul style="list-style-type: none"> ● C states <p>This option is set by default.</p> |
| Intel TurboBoost | <p>Allows you to enable or disable the Intel TurboBoost mode of the processor.</p> <ul style="list-style-type: none"> ● Enable Intel TurboBoost <p>This option is set by default.</p> |
| Hyper-Thread Control | <p>Allows you to enable or disable the HyperThreading in the processor.</p> <ul style="list-style-type: none"> ● Disabled ● Enabled—Default |

Power management

| Option | Description |
|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AC Behavior | <p>Allows you to enable or disable the computer from turning on automatically when an AC adapter is connected.</p> <p>Default setting: Wake on AC is not selected.</p> |
| Enable Intel Speed Shift Technology | <ul style="list-style-type: none">• Enable Intel Speed Shift Technology <p>Default setting: Enabled</p> |
| Auto On Time | <p>Allows you to set the time at which the computer must turn on automatically. The options are:</p> <ul style="list-style-type: none">• Disabled• Every Day• Weekdays• Select Days <p>Default setting: Disabled</p> |
| USB Wake Support | <p>Allows you to enable USB devices to wake the system from Standby.</p> <p> NOTE: This feature is only functional when the AC power adapter is connected. If the AC power adapter is removed during Standby, the system setup removes power from all the USB ports to conserve battery power.</p> <ul style="list-style-type: none">• Enable USB Wake Support |
| Wireless Radio Control | <p>If Enabled, this feature will sense the connection of the system to a wired network and subsequently disable the selected wireless radios (WLAN and/ or WWAN).</p> <ul style="list-style-type: none">• Control WLAN radio - is disabled |
| Wake on LAN | <p>Allows you to enable or disable the feature that powers on the computer from the Off state when triggered by a LAN signal.</p> <ul style="list-style-type: none">• Disabled• LAN Only• LAN with PXE Boot <p>Default setting: Disabled</p> |
| Block Sleep | <p>This option lets you to block entering to sleep in OS environment. When enabled system won't go to sleep.</p> <p>Block Sleep - is disabled</p> |
| Peak Shift | <p>This option enables you to minimize the AC power consumption during the peak power times of day. After you enable this option, your system runs only in battery even if the AC is attached.</p> <ul style="list-style-type: none">• Enable peak shift—is disabled• Set battery threshold (15% to 100%) - 15 % (enabled by default) |
| Advanced Battery Charge Configuration | <p>This option enables you to maximize the battery health. By enabling this option, your system uses the standard charging algorithm and other techniques, during the non work hours to improve the battery health.</p> <p>Enable Advanced Battery Charge Mode- is disabled</p> |
| Primary Battery Charge Configuration | <p>Allows you to select the charging mode for the battery. The options are:</p> <ul style="list-style-type: none">• Adaptive—enabled by default• Standard—Fully charges your battery at a standard rate.• ExpressCharge—The battery charges over a shorter time using Dell's fast charging technology.• Primarily AC use• Custom <p>If Custom Charge is selected, you can also configure Custom Charge Start and Custom Charge Stop.</p> <p> NOTE: All charging mode may not be available for all the batteries. To enable this option, disable the Advanced Battery Charge Configuration option.</p> |

POST behavior

| Option | Description |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Adapter Warnings | <p>Allows you to enable or disable the system setup (BIOS) warning messages when you use certain power adapters.</p> <p>Default setting: Enable Adapter Warnings</p> |
| Numlock Enable | <p>Allows you to enable the Numlock option when the computer boots.</p> <p>Enable Network. This option is enabled by default.</p> |
| Fn Lock Options | <p>Allows you to let hot key combinations Fn + Esc toggle the primary behavior of F1–F12, between their standard and secondary functions. If you disable this option, you cannot toggle dynamically the primary behavior of these keys. The available options are:</p> <ul style="list-style-type: none">• Fn Lock—enabled by default• Lock Mode Disable/Standard—enabled by default• Lock Mode Enable/Secondary |
| Fastboot | <p>Allows you to speed up the boot process by bypassing some of the compatibility steps. The options are:</p> <ul style="list-style-type: none">• Minimal• Thorough—enabled by default• Auto |
| Extended BIOS POST Time | <p>Allows you to create an extra preboot delay. The options are:</p> <ul style="list-style-type: none">• 0 seconds—enabled by default.• 5 seconds• 10 seconds |
| Full Screen Log | <ul style="list-style-type: none">• Enable Full Screen Logo—not enabled |
| Warnings and errors | <ul style="list-style-type: none">• Prompt on warnings and errors—enabled by default• Continue on warnings• Continue on warnings and errors |

Manageability

| Option | Description |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Intel AMT Capability | <p>Allows you to provision AMT and MEBx Hotkey function is enabled, during the system boot.</p> <ul style="list-style-type: none">• Disabled• Enabled - by default• Restrict MEBx Access |
| MEBx Hotkey | <p>When enabled Intel AMT can be provisioned using the local provisioning file via a USB storage device.</p> <ul style="list-style-type: none">• Enable USB Provision - disabled by default |
| MEBx Hotkey | <p>Allows you to specify whether the MEBx Hotkey function should enable, during the system boot.</p> <ul style="list-style-type: none">• Enable MEBx hotkey—enabled by default |

Virtualization support

| Option | Description |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Virtualization | <p>This field specifies whether a virtual Machine Monitor (VMM) can utilize the conditional hardware capabilities provided by Intel Virtualization Technology.</p> <p>Enable Intel Virtualization Technology—enabled by default.</p> |
| VT for Direct I/O | <p>Enables or disables the Virtual Machine Monitor (VMM) from utilizing the additional hardware capabilities provided by Intel® Virtualization technology for direct I/O.</p> |

| Option | Description |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | Enable VT for Direct I/O - enabled by default. |
| Trusted Execution | This option specifies whether a Measured Virtual Machine Monitor (MVMM) can utilize the additional hardware capabilities provided by Intel Trusted Execution Technology. The TPM Virtualization Technology, and the Virtualization technology for direct I/O must be enabled to use this feature. Trusted Execution - disabled by default. |

Wireless

Option Description

| | |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wireless Device Enable | Allows you to enable or disable the internal wireless devices. <ul style="list-style-type: none"> WLAN Bluetooth All the options are enabled by default. |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Maintenance screen

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. This option is not set by default. |
| BIOS Downgrade | This controls flashing of the system firmware to previous revisions. Option 'Allow BIOS downgrade' is enabled by default. |
| Data Wipe | This field allows users to erase the data securely from all internal storage devices. Option 'Wipe on Next boot' is not enabled by default. The following is list of devices affected: <ul style="list-style-type: none"> Internal SATA HDD/SSD Internal M.2 SATA SDD Internal M.2 PCIe SSD Internal eMMC |
| BIOS Recovery | This field allows you to recover from certain corrupted BIOS conditions from a recover file on the user primary hard drive or an external USB key. <ul style="list-style-type: none"> BIOS Recovery from Hard Drive—enabled by default Always perform integrity check—disabled by default |
| First Power On Date | This option lets you set Ownership date. <ul style="list-style-type: none"> Set Ownership Date—disabled by default |

System logs

Option Description


| | |
|-----------------------|-------------------------------------------------------------------|
| BIOS Events | Allows you to view and clear the System Setup (BIOS) POST events. |
| Thermal Events | Allows you to view and clear the System Setup (Thermal) events. |
| Power Events | Allows you to view and clear the System Setup (Power) events. |

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 outlet.

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: <https://www.dell.com/support/article/sln153694>

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: <https://www.dell.com/support/article/sln143196/>

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 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

System and setup password

Table 37. 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 re-boot.

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/or 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/or 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 reboot.


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.