Precision 3440 Small Form Factor

Setup and specifications guide

DELLTechnologies

Contents

Notes, cautions, and warnings

(i) **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.**

Set up your computer

Steps

1. Connect the keyboard and mouse.
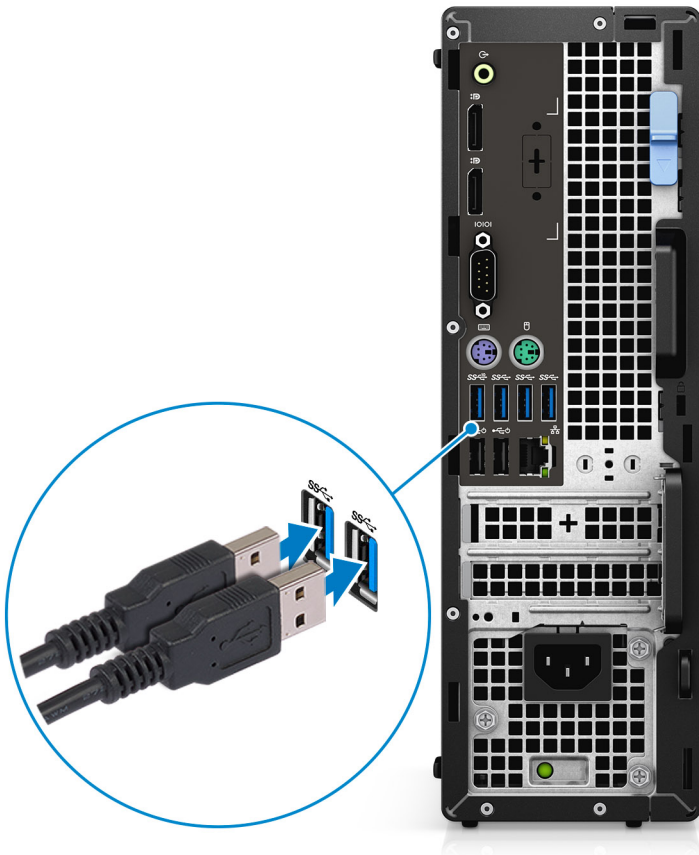
2. Connect to your network using a cable, or connect to a wireless network.
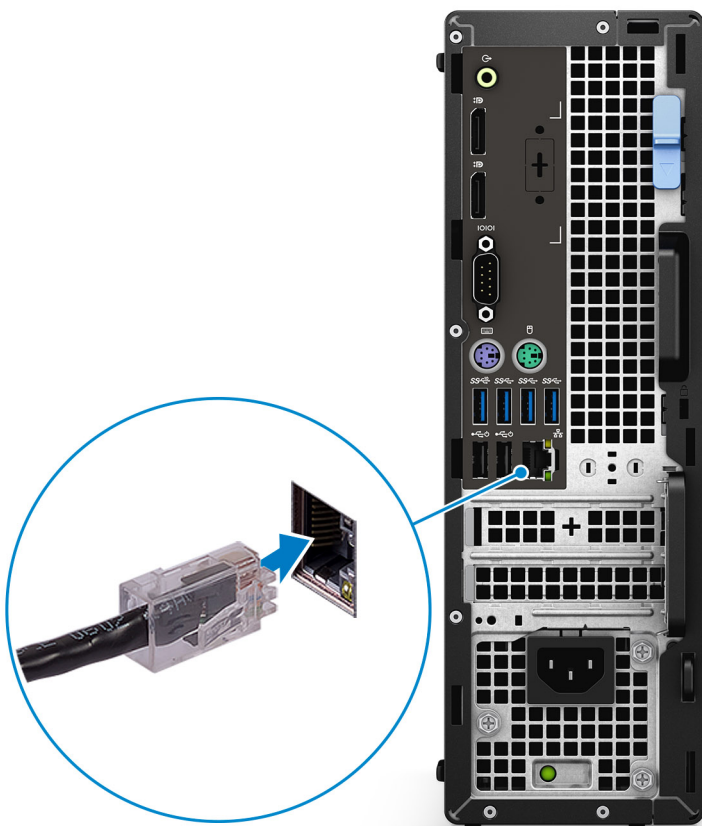
3. Connect the display.

4. Connect the power cable.
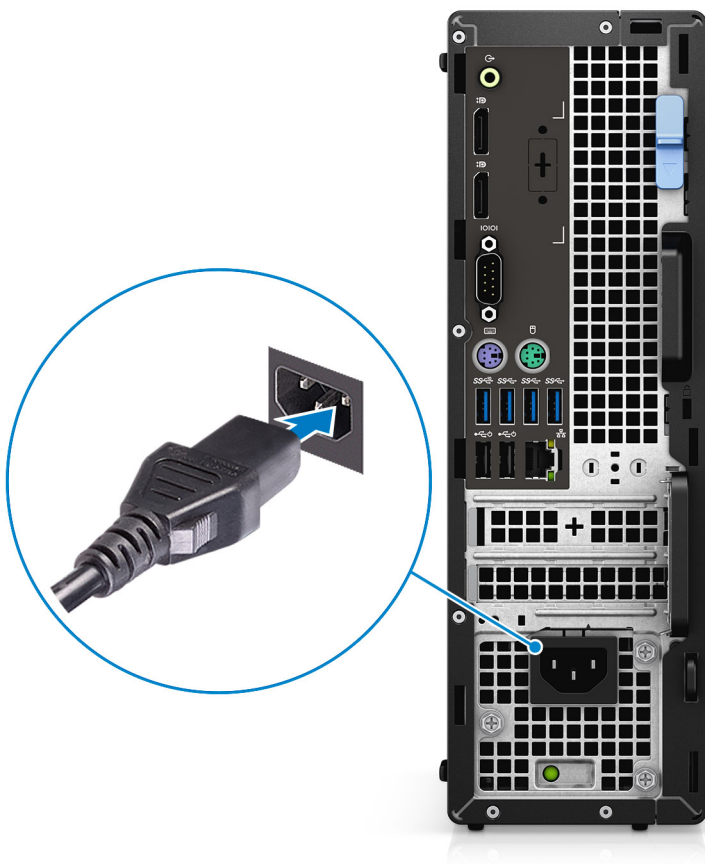
5. Press the power button.

6. Finish operating system setup.

For Ubuntu:

Follow the on-screen instructions to complete the setup. For more information about installing and configuring Ubuntu, see the knowledge base articles SLN151664 and SLN151748 at www.dell.com/support.

For Windows: 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.

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

Table 1. Locate Dell apps

Dell apps	Details
	Dell Product Registration Register your computer with Dell.
	Dell Help & Support Access help and support for your computer.

Table 1. Locate Dell apps (continued)

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

Chassis overview

Front view
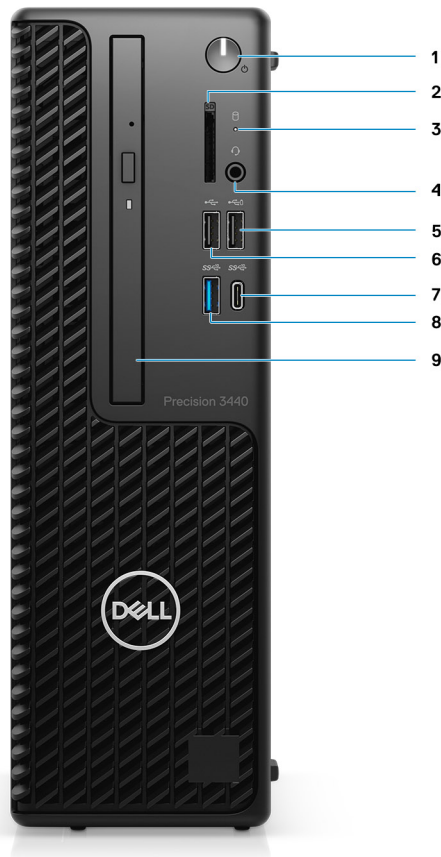
1. Power button and power light
2. SD card reader (Optional)
3. Hard drive activity light
4. Universal audio jack port
5. USB 2.0 Type-A port with PowerShare
6. USB 2.0 Type-A port
7. USB 3.2 Gen 2 Type-C port with PowerDelivery
8. USB 3.2 Gen2 Type-A port
9. Optical disk drive

Back view
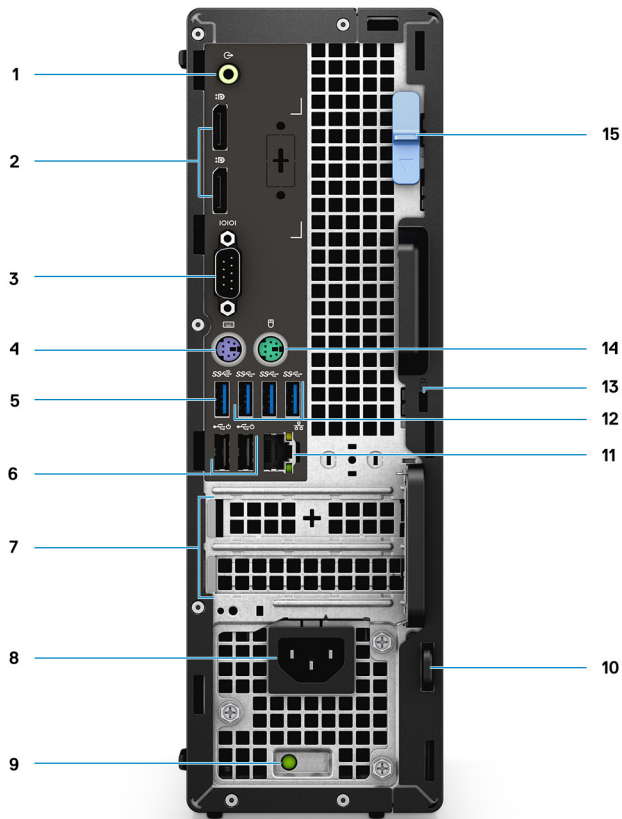
1. Line -in/out retasking
2. Two DisplayPort 1.4 ports
3. Serial Port
4. PS/2 Keyboard port
5. USB 3.2 Gen 2 Type-A port
6. Two USB 2.0 ports with Power On
7. Expansion card slots
8. Power connector port
9. Power supply diagnostic light
10. Padlock loop
11. Network port
12. Three USB 3.2 Gen 1 Type-A ports
13. Kensington security-cable slot
14. PS/2 Mouse port
15. Release latch

System board layout
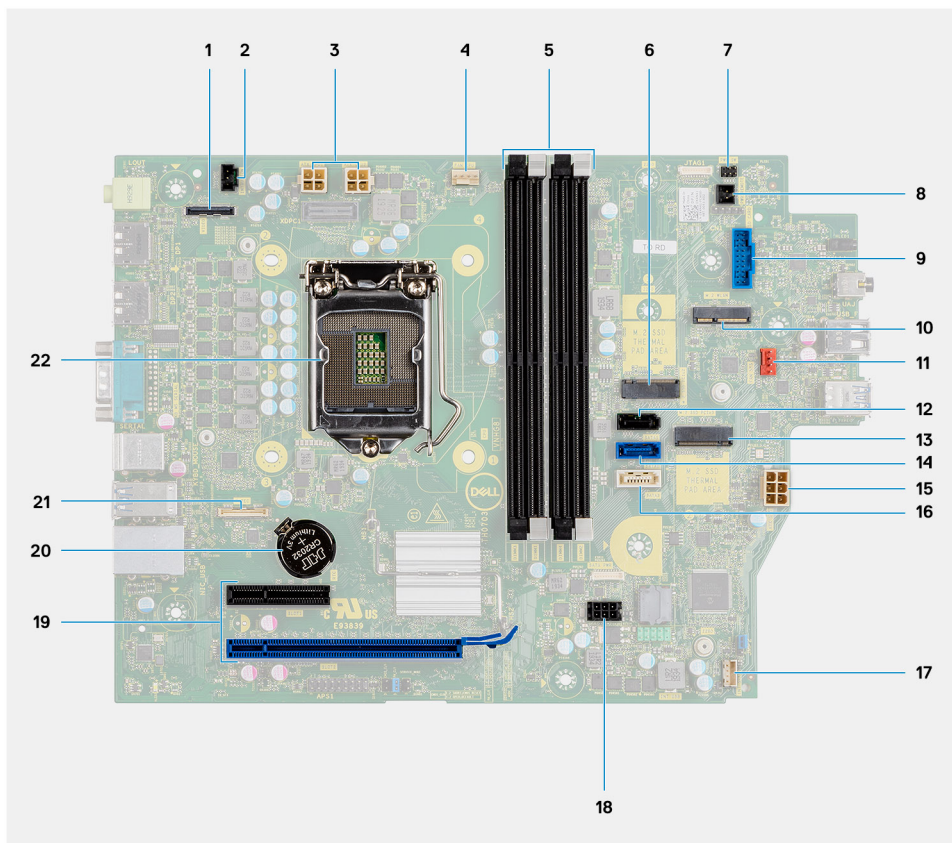
1. Video connector
3. CPU power connector (ATX_CPU)
5. Memory slots (DIMM1, DIMM2, DIMM3, DIMM4)
7. Power switch connector (PWR_SW)
9. Media card reader connector (Card_reader)
11. System fan connector
13. M.2 Soild-state drive connector
15. PSU connector
17. Internal speaker connector
19. PCI-e connectors
21. USB Type-C connector

2. Intrusion switch connector (Intruder)
4. CPU fan connector
6. M.2 Solid-state drive connector
8. Remote PWR switch connector
10. M.2 WLAN connector
12. SATA 1 connector
14. SATA 2 connector
16. SATA 3 connector
18. SATA power connector
20. Coin cell battery
22. Processor socket (CPU)

Specifications of Precision 3440 Small Form Factor

System specifications

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

Dimensions and weight

Table 2. Dimensions and weight

Description	Values
Height:	
Front	290 mm (11.42 in.)
Rear	290 mm (11.42 in.)
Width	92.6 mm (3.65 in.)
Depth	292.8 mm (11.53 in.)
Weight (maximum)	5.59 kg (12.32 lb) ⓘ **NOTE:** The weight of your computer depends on the configuration ordered and the manufacturing variability.

Chipset

Table 3. Chipset

Description	Values
Chipset	Intel W480
Processor	10th Generation Intel Core i3/i5/i7/i9/Xeon
DRAM bus width	Two channels, 128-bit
Flash EPROM	32 MB
PCIe bus	Upto Gen 3
Non-volatile memory	Yes
BIOS Configuration Serial Peripheral Interface (SPI)	256 Mbit (32 MB) located at SPI_FLASH on chipset
Trusted Platform Module (Discrete TPM Enabled)	24 KB located at TPM 2.0 on chipset

Table 3. Chipset (continued)

Description	Values
Firmware TPM (Discrete TPM Disabled)	By default the Platform Trust Technology feature is visible to the OS
NIC EEPROM	LOM configuration contained within SPI flash ROM instead of LOM e-fuse

Processors

The following table lists the details of the processors supported by your Precision 3440 Small Form Factor

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

Device Guard is a combination of enterprise-related hardware and software security features that, when configured together, will lock a device down so that it can only run trusted applications. If it is not a trusted application, it cannot run.

Credential Guard uses virtualization-based security to isolate secrets (credentials) so that only privileged system software can access them. Unauthorized access to these secrets can lead to credential theft attacks. Credential Guard prevents these attacks by protecting NTLM password hashes and Kerberos Ticket Granting Tickets.

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

Table 4. Processors

Processors	Wattage	Core count	Thread count	Speed	Cache	Integrated graphics	GSP	DG/CG Ready
10th Generation Intel Core i3-10100	65 W	4	8	3.6 GHz to 4.3 GHz	6 MB	Intel UHD Graphics 630	No	Yes
10th Generation Intel Core i5-10505	65 W	6	12	3.1 GHz to 4.5 GHz	12 MB	Intel UHD Graphics 630	No	Yes
10th Generation Intel Core i5-10600	65 W	6	12	3.3 GHz to 4.8 GHz	12 MB	Intel UHD Graphics 630	No	Yes
10th Generation Intel Core i7-10700	65 W	8	16	2.9 GHz to 4.8 GHz	16 MB	Intel UHD Graphics 630	No	Yes
10th Generation Intel Core i9-10900	65 W	10	20	2.8 GHz to 5.2 GHz	20 MB	Intel UHD Graphics 630	No	Yes
10th Generation Intel Core i5-10500	65 W	6	12	3.1 GHz to 4.5 GHz	12 MB	Intel UHD Graphics 630	Yes	Yes

Table 4. Processors (continued)

Processors	Wattage	Core count	Thread count	Speed	Cache	Integrated graphics	GSP	DG/CG Ready
10th Generation Intel Core i5-10600	65 W	6	12	3.3 GHz to 4.8 GHz	12 MB	Intel UHD Graphics 630	Yes	Yes
10th Generation Intel Core i7-10700	65 W	8	16	2.9 GHz to 4.7 GHz	16 MB	Intel UHD Graphics 630	Yes	Yes
10th Generation Intel Core i9-10900	65 W	10	20	2.8 GHz to 4.6 GHz	20 MB	Intel UHD Graphics 630	Yes	Yes
Intel Xeon W-1250	80 W	6	12	3.3 GHz to 4.4 GHz	12 MB	Intel UHD Graphics 630	Yes	Yes
Intel Xeon W-1270	80 W	8	16	3.2 GHz to 4.7 GHz	16 MB	Intel UHD Graphics 630	Yes	Yes
Intel Xeon W-1290	80 W	10	20	3.7 GHz to 4.9 GHz	20 MB	Intel UHD Graphics 630	Yes	Yes
Intel Xeon W-1250	80 W	6	12	3.3 GHz to 4.4 GHz	12 MB	Intel UHD Graphics 630	Yes	Yes
Intel Xeon W-1270	80 W	8	16	3.2 GHz to 4.7 GHz	16 MB	Intel UHD Graphics 630	Yes	Yes
Intel Xeon W-1290	80 W	10	20	3.7 GHz to 4.9 GHz	20 MB	Intel UHD Graphics 630	Yes	Yes

Operating system

Your Precision 3440 Small Form Factor supports the following operating systems:

- Windows 11 Home, 64-bit
- Windows 11 Pro, 64-bit
- Windows 11 Pro National Academic, 64-bit
- Windows 11 Pro for Workstations, 64-bit
- Windows 10 Home, 64-bit
- Windows 10 Pro, 64-bit
- Windows 10 Pro Education, 64-bit
- Windows 10 IoT Enterprise 2019 LTSC (OEM only)
- Windows 10 Enterprise, 64-bit
- Ubuntu 18.04 LTS, 64-bit

Memory

The following table lists the memory specifications of your Precision 3440 Small Form Factor:

Table 5. Memory specifications

Description	Values
Slots	4 DIMM slots
Type	DDR4
Speed	● 2666 MHz for Intel Core i3/i5/Xeon W-1250 processors, 2933 MHz for Intel Core i7/i9/Xeon W-1270/W-1290 processors
Maximum memory	128 GB
Minimum memory	4 GB
Memory size per slot	4 GB, 8 GB, 16 GB, 32 GB
Configurations supported	● 4 GB, 1 x 4 GB, DDR4, 2666 MHz for Intel Core i3/i5/Xeon W-1250 processors, 2933 MHz for Intel Core i7/i9/Xeon W-1270/W-1290 processors ● 8 GB, 2 x 4 GB, DDR4, 2666 MHz for Intel Core i3/i5/Xeon W-1250 processors, 2933 MHz for Intel Core i7/i9/Xeon W-1270/W-1290 processors ● 8 GB, 1 x 8 GB, DDR4, 2666 MHz for Intel Core i3/i5/Xeon W-1250 processors, 2933 MHz for Intel Core i7/i9/Xeon W-1270/W-1290 processors ● 16 GB, 2 x 8 GB, DDR4, 2666 MHz for Intel Core i3/i5/Xeon W-1250 processors, 2933 MHz for Intel Core i7/i9/Xeon W-1270/W-1290 processors ● 32 GB, 4 x 8 GB, DDR4, 2666 MHz for Intel Core i3/i5/Xeon W-1250 processors, 2933 MHz for Intel Core i7/i9/Xeon W-1270/W-1290 processors ● 32 GB, 2 x 16 GB, DDR4, 2666 MHz for Intel Core i3/i5/Xeon W-1250 processors, 2933 MHz for Intel Core i7/i9/Xeon W-1270/W-1290 processors ● 64 GB, 4 x 16 GB, DDR4, 2666 MHz for Intel Core i3/i5/Xeon W-1250 processors, 2933 MHz for Intel Core i7/i9/Xeon W-1270/W-1290 processors ● 128 GB, 4 x 32 GB, DDR4, 2666 MHz for Intel Core i3/i5/Xeon W-1250 processors, 2933 MHz for Intel Core i7/i9/Xeon W-1270/W-1290 processors

Storage

Your computer supports one of the following configurations:
● One 2.5-inch hard-disk drive
● Two 2.5-inch hard-disk drives
● One 3.5-inch hard-disk drive
● One 2.5-inch hard-disk drive and one 3.5-inch hard-disk drive
● One 2280 solid-state drive (class 40)
● One M.2 2280 solid-state drive (class 40) and one 3.5-inch hard-disk drive
● One M.2 2280 solid-state drive (class 40) and one 2.5-inch hard-disk drive
● One M.2 2280 solid-state drive (class 40) and two 2.5-inch hard-disk drives

Table 6. Storage specifications

Storage type	Interface type	Capacity
2.5 in. hard-disk drive, 5400 RPM	SATA	Upto 2 TB
2.5 in. hard-disk drive, 7200 RPM	SATA	Upto 1 TB
2.5 in. hard-disk drive, 7200 RPM, FIPS Self Encrypting Opal 2.0	SATA	Upto 500 GB
3.5 in, hard-disk drive, 5400 RPM	SATA	Upto 4 TB
3.5 in, hard-disk drive, 7200 RPM	SATA	Upto 2 TB
M.2 2280 solid-state drive	Gen 3 PCIe x4 NVMe, Class 40	Upto 2 TB
M.2 2280 Opal Self-Encrypting solid-state drive	Gen 3 PCIe x4 NVMe, Class 40	Upto 1 TB

Audio and Speaker

The following table lists the audio specifications of your Precision 3440 Small Form Factor.

Table 7. Audio specifications

Description	Values
Type	4 Channel High Definition Audio
Controller	Realtek ALC3246
Stereo conversion	Supported
Internal interface	High definition audio interface
External interface	Universal Audio Jack
Speakers	2
Internal speaker amplifier	Integrated in ALC3246 (Class-D 2 W)
External volume controls	Keyboard shortcut controls
Speaker output average	2 W
Speaker output peak	2.5 W
Subwoofer output	Not Supported
Microphone	Not Supported

Video

Table 8. Discrete graphics specifications

Discrete graphics			
Controller	**External display support**	**Memory size**	**Memory Type**
AMD Radeon R5 430	● Two DisplayPort 1.2	2 GB	DDR3

Table 8. Discrete graphics specifications (continued)

Discrete graphics			
Controller	External display support	Memory size	Memory Type
AMD Radeon Pro WX 2100	● One DisplayPort 1.4 ● Two Mini DisplayPort 1.4	2 GB	GDDR5
AMD Radeon Pro WX 3200	● Four Mini DisplayPort 1.4	4 GB	GDDR5
NVIDIA Quadro P400	● Three Mini DisplayPort 1.4	2 GB	GDDR5
NVIDIA Quadro P620	● Four Mini DisplayPort 1.4	2 GB	GDDR5

Table 9. Integrated graphics specifications

Integrated graphics			
Controller	External display support	Memory size	Processor
Intel UHD Graphics 630	Two DisplayPort 1.4	Shared system memory	10th Generation Intel Core i3/i5/i7/i9

Communications

Ethernet

Table 10. Ethernet specifications

Description	Values
Model number	Intel i219-LM
Transfer rate	10/100/1000 Mbps

Wireless module

Table 11. Wireless module specifications

Description	Values	
Model number	Qualcomm QCA61x4a (DW1820)	Intel AX201
Transfer rate	Up to 867 Mbps	Up to 2400 Mbps
Frequency bands supported	2.4 GHz/5 GHz	2.4 GHz/5 GHz
Wireless standards	● WiFi 802.11a/b/g ● Wi-Fi 4 (WiFi 802.11n) ● Wi-Fi 5 (WiFi 802.11ac)	● 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)
Encryption	● 64-bit/128-bit WEP ● AES-CCMP ● TKIP	● 64-bit/128-bit WEP ● AES-CCMP ● TKIP
Bluetooth	Bluetooth 5.0	Bluetooth 5.1

Ports and connectors

Table 12. Ports and connectors

Description	Values
External:	
Network	1 RJ-45
USB	- One USB 2.0 Type-A port (front) - One USB 2.0 Type-A with PowerShare (front) - One USB 3.2 Gen 2 Type-A (front) - One USB 3.2 Gen 2 Type-C port with PowerDelivery (front) - Two USB 2.0 ports with Power On (rear) - One USB 2.0 header for Comon Access Card (CAC) - Three USB 3.2 Gen 1 Type-A ports (rear) - One USB 3.2 Gen 2 Type-A ports (rear)
Audio	- One Universal Audio Jack (front) - One Line -in/out retasking (rear)
Video	- Two DisplayPort 1.4 port (rear) - One HDMI 2.0 port (rear, optional) - One VGA port (rear, optional) - One Type-C w/DP-Alt mode (rear optional)
Memory card reader	One SD-card 4.0 slot
Power port	AC-in
Security	- One Wedge-shaped lock - One Padlock Loop - One Lockable Port Cover - One Intrusion switch
Antenna	Two SMA connectors (optional)
Internal:	
SATA	One SATA slots for 2.5-inch Hard-disk drive
M.2	- One half-height Gen3 PCIe x16 slot (discrete graphics) - One half-height Gen3 PCIe x4 slot - Three SATA 3.0 for Hard-disk drive/Solid-state drive - One M.2 2230 slot for WiFi/Bluetooth card - One M.2 2280 slot for solid-state drive **NOTE:** To learn more about the features of different types of M.2 cards, see the knowledge base article SLN301626.

Power supply

Table 13. Power supply

Feature	Specifications
Input voltage	100–240 VAC, 50–60 Hz

Table 13. Power supply (continued)

Feature	Specifications
Wattage	200 W 100V-240V Full range 260 W 100V-240V Full range

Security

Table 14. Security

Feature	Description
Trusted Platform Module (TPM) 2.0	Integrated on the system board
Firmware TPM	Optional
Windows Hello Support	Optional via security input device
Cable cover	Optional
Chassis intrusion switch	Standard
Dell Smartcard Keyboard	Optional
Chassis lock slot and loop support	Standard

Security Software

Table 15. Security Software

Features	Description
Dell Endpoint Security Suite Enterprise	Optional
Dell Data Guardian	Optional
Dell Encryption (Enterprise or Personal)	Optional
Dell Threat Defense	Optional
RSA SecurID Access	Optional
RSA NetWitness Endpoint	Optional
MozyPro or MozyEnterprise	Optional
VMware Airwatch/WorkspaceONE	Optional
Absolute Data & Device Security	Optional

CAC/PIV Module

Table 16. CAC/PIV Module

Features	Tower/Small Form Factor/Micro
Connector Type	ISO 7816 compliant contact smart card NFC forum 2.0

Table 16. CAC/PIV Module (continued)

Features	Tower/Small Form Factor/Micro
PCB	
Dimensions (W x L x T)	74.5 mm x 45.7 mm
Layer	6
Controller Details	
Controller bus architecture (example PCIe 1.0a x1)	USB 2.0
Data transfer mode (example Bus-Master DMA)	USB 2.0
Power consumption (full operation per data rate connection speed)	288.08 mA x 3.3 V
Power consumption (standby operation)	8.9 mA x 3.3 V
Standard compliance (example 802.1P)	NFC Forum 2.0, ISO7816
Hardware Certifications (example FCC, B, GS mark…)	FIPS201, FIPS140-2
Boot ROM Support	Integrated inside Lynx SoC
Processor/Chipset	
NFC	Broadcom Cortex-M3 BC58102
Card reader driver	NXP TDA8034HN/C2
USB 2.0 Hub	GENESYS GL850G-OHY50
PROM	WINBOND W25Q32JVSSIQ 32M/bit
Power IC	RICHTEK RT5796AHGJ5
Power LDO (NFC VBAT)	GMT G9141T11U
Environmental	
Operating System Driver Support	Dell ControlVault2 Driver
Manageability (examples WOL, PXE)	No, this is not a LAN controller chipset.
Management Capabilities Alerting (example ASF 2.0)	No, this is not a LAN controller chipset.
Add-in Slots	
Card reader connector	1 (10 PIN)
USB 2.0 header	1 (5 PIN)
NFC header	1 (6 PIN)

Out of Band Systems Management Intel Standard Manageability

Intel Standard Manageability (ISM) must be configured in our factory at the time of purchase, as it is NOT field upgradable. ISM offers out-of-band management and DASH compliance https://registry.dmtf.org/registry/results/

field_initiative_name%3A%22DASH%201.0%22. ISM offers a limited set of out-of-band features like remote power on/off, Serial-over-LAN redirect, Wake-on-LAN, etc. ISM leverages the same capabilities that were available with Intel's Active Management Technology (AMT) version 5.0.

To learn more about Intel ISM, visit Intel's website at: https://software.intel.com/en-us/blogs/2009/03/27/what-is-standard-manageability

Computer environment

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

Table 17. Computer environment

Description	Operating	Storage
Temperature range	10°C–35°C (50°F–95°F)	-40°C-65°C (-40°F-149°F)
Relative humidity (maximum)	20% to 85% (non-condensing)	5% to 95% (non-condensing)
Vibration (maximum)*	0.52 GRMS random at 5 Hz to 350 Hz	2.0 GRMS random at 5 Hz to 350 Hz
Shock (maximum)	Bottom half-sine pulse with a change in velocity of 50.8 cm/sec (20 in./sec)	105G half-sine pulse with a change in velocity of 133 cm/sec (52.5 in./sec)
Altitude (maximum)	3048 m (10,000 ft)	10,668 m (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.

Service and support

(i) **NOTE:** For more details on Dell Service Plans, see Support Services & Warranty.

Table 18. Warranty

Warranty
1 Year Basic Warranty with Hardware Service on site service after remote diagnosis
2 Years Basic Warranty Extension
3 Years Basic Warranty Extension
4 Years Basic Warranty Extension
5 Years Basic Warranty Extension
1 Year ProSupport and Next Business Day on-site service
2 Years ProSupport and Next Business Day on-site service
3 Years ProSupport and Next Business Day on-site service
4 Years ProSupport and Next Business Day on-site service
5 Years ProSupport and Next Business Day on-site service
1 Year ProSupport Plus for Client with Next Business Day on-site service
2 Years ProSupport Plus for Client with Next Business Day on-site service
3 Years ProSupport Plus for Client with Next Business Day on-site service
4 Years ProSupport Plus for Client with Next Business Day on-site service
5 Years ProSupport Plus for Client with Next Business Day on-site service

Table 19. Accidental damage services

Accidental Damage Services
1 Year Accidental Damage Service
2 Years Accidental Damage Service
3 Years Accidental Damage Service
4 Years Accidental Damage Service
5 Years Accidental Damage Service

Dell Support policy

For information on Dell support policy, search in the Knowledge Base Resource at www.dell.com/support.

Energy Star and Trusted Platform Module (TPM)

Table 20. Energy Star and TPM

Features	Specifications
TPM (Optional)	HW/FW Trusted Platform Module support
Energy Star 8.0	Compliant configurations available

Accessories

Table 21. Accessories

Accessories	
Audio	● Dell Pro Stereo Headset - UC350
Keyboard and Mice	● Dell Wireless Keyboard and Mouse, KM636, Black
Monitors	● Dell 24 Monitor - E2420HS
Stands and Mounts	● Dell Dual Monitor Arm - MDA20 ● Dell Dual Monitor Stand - MDS19 ● Dell Single Monitor Arm - MSA20

Add-in cards

Table 22. Add-in cards

Add-in cards
Serial and parallel port PCIe card

4

System setup

System setup enables you to manage your desktop hardware and specify BIOS level options. From the System setup, you can:
- Change the NVRAM settings after you add or remove hardware
- View the system hardware configuration
- Enable or disable integrated devices
- Set performance and power management thresholds
- Manage your computer security

Accessing System Setup

Steps

1. Turn on (or restart) your computer.
2. After the white Dell logo appears, press F2 immediately.

   The System Setup page is displayed.

   (i) **NOTE:** If you wait too long and the operating system logo appears, wait until you see the desktop. Then, shut down or restart your computer and try again.

   (i) **NOTE:** After the Dell logo appears, you can also press F12 and then select **BIOS setup**.

Navigation Keys

The following table displays the system setup navigation keys.

(i) **NOTE:** For most of the system setup options, changes that you make are recorded but do not take effect until you re-start the system.

Table 23. Navigation Keys

Keys	Navigation
Up arrow	Moves to the previous field.
Down arrow	Moves to the next field.
<Enter>	Allows you to select 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. (i) **NOTE:** For the standard graphics browser only.
<Esc>	Moves to the previous page till 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.
<F1>	Displays the System Setup help file.

General screen options

This section lists the primary hardware features of your computer.

Option	Description
System Information	- System Information: Displays BIOS Version, Service Tag, Asset Tag, Ownership Tag, Ownership Date, Manufacture Date, and the Express Service Code. - Memory Information: Displays Memory Installed, Memory Available, Memory Speed, Memory Channels Mode, Memory Technology, DIMM A1 Size, DIMM B 2Size. - 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 Hard Drive, SATA-0SATA-0, SATA-1, SATA-2, SATA-3, LOM MAC Address, Video Controller, Audio Controller. WiFi Device, M.2PCIe SSD-0, Bluetooth Device.
Boot Sequence	**Boot Sequence** Allows you to change the order in which the computer attempts to find an operating system. The options are: - Windows Boot Manager - Onboard NIC(IPV4) - Oboard NIC(IPV6) By default, all the options are checked. You can also deselect any option or change the boot order.
UEFI Boot Path Security	This options control whether or not the system will prompt the user to enter the Admin password (if set) when booting a UEFI boot path from the F12 Boot Menu **Always Except Internal HDD** (default) - Always - Never
Date/Time	Allows you to change the date and time.

System Configuration screen options

Option	Description
Integrated NIC	Allows you to configure the integrated network controller. The options are: - Disabled - Enabled - Enabled w/PXE: This option is enabled by default.
SATA Operation	Allows you to configure the internal SATA hard-drive controller. The options are: - Disabled **AHCI** **RAID On**(default)
Drives	Allows you to configure the SATA drives on board. All drives are enabled by default. The options are: - SATA-0 - SATA-1 - SATA-2 - SATA-3 - M.2 PCIe SSD-2
SMART Reporting	This field controls whether hard drive errors for integrated drives are reported during system startup. This technology is part of the SMART (Self-Monitoring Analysis and Reporting Technology) specification. This option is disabled by default. Enable SMART Reporting
USB Configuration	This field configures the integrated USB controller. If Boot Support is enabled, the system is allowed to boot any type of USB Mass Storage Devices (HDD, memory key, floppy).

Option	Description
	If USB port is enabled, device attached to this port is enabled and available for OS.
	If USB port is disabled, the OS cannot see any device attached to this port.
	• **Enable USB Boot Support** (default) • **Enable Front USB Ports**(default) • **Enable Rear USB Ports** (default)
	(i) **NOTE:** USB keyboard and mouse always work in the BIOS setup irrespective of these settings.
Front USB Configuration	This field enables or disables the front USB configuration • Front Port 1 (Bottom Right)*: This option is enabled by default. • Front Port 2 (Bottom Left)*: This option is enabled by default. • Front Port 1 with Power Share (Top Right) • Front Port 2 (Top Left) * denotes a USB 3.0-capable port
Rear USB Configuration	This field enables or disables the rear USB configuration • Rear Port 1 (Bottom Right) • Rear Port 2 (Bottom Left) • Rear Port 3 (Top Left) • Rear Port 4 (Top Right) * denotes a USB 3.0-capable port
Audio	This field enables or disables the integrated audio controller. By default, the **Enable Audio** option is selected. The options are: • Enable Microphone: This option is enabled by default.
Miscellaneous Devices	Allows you to enable or disable the following devices: • Enable PCI Slot • Enabled Secure Digital (SD) Card (default) (i) **NOTE:** All devices are enabled by default.

Security screen options

Option	Description
Admin Password	Allows you to set, change, or delete the administrator (admin) password. (i) **NOTE:** You must set the admin password before you set the system or hard drive password. Deleting the admin password automatically deletes the system password and the hard drive password. (i) **NOTE:** Successful password changes take effect immediately. Default setting: Not set
System Password	Allows you to set, change, or delete the system password. (i) **NOTE:** Successful password changes take effect immediately. Default setting: Not set
Internal HDD-0 Password	Allows you to set, change, or delete the password on the system's internal hard-disk drive. (i) **NOTE:** Successful password changes take effect immediately. Default Setting: Not set
Internal HDD-1 Password	Allows you to set, change, or delete the password on the system's internal hard-disk drive. (i) **NOTE:** Successful password changes take effect immediately.

Option	Description
	Default Setting: Not set
Internal HDD-3 Password	Allows you to set, change, or delete the password on the system's internal hard-disk drive.
	ⓘ **NOTE:** Successful password changes take effect immediately.
	Default Setting: Not set
Password Change	Allows you to enable the disable permission to the System and Hard Drive passwords when the admin password is set.
	Default setting: **Allow Non-Admin Password Changes** is selected.
UEFI Capsule Firmware Update	This option controls whether the system allows the BIOS updates through UEFI capsule update packages. This option is enabled by default.
TPM 2.0 Security	Allows you to enable the Trusted Platform Module (TPM) during POST. The options are:
	● **TPM On** (enabled by default)
	● Clear
	● PPI Bypass for Enabled Commands
	● PPI Bypass for Disabled Commands
	● PPI Bypass for Clear Command
	● **Attestation Enable** (enabled by default)
	● **Key Storage Enable** (enabled by default)
	● **SHA-256** (enabled by default)
	● Disabled
	● Enabled (enabled by default)
PTT Security	Allows you to enable the Platform Trust Technology feature (PTT). The option is:
	● PTT On (not enabled)
Absolute(R)	Allows you to activate or disable the optional Computrace software The options are:
	● Deactivate
	● Disable
	● Permanently Disabled
	ⓘ **NOTE:** The Activate and Disable options will permanently activate or disable the feature and no further changes are allowed
	Default setting: Deactivate
Master Password Lockout	The option Enable Master Password Lockout is not selected by default.
SMM Security Mitigation	Allows you to enable or disable the additional UEFI SMM Security Mitigation protections.
	Default Setting: SMM Security Mitigation is not selected.

Video screen options

Option	Description
Multi-Display	This option enables or disables Multi-Display. It should be enables for Windows 7 or later. This feature is not applicable to other operating systems.
	● Enable Multi-Display: This option is enabled by default.
Primary Display	This option determines which video controller becomes the primary display when multiple controllers are available in the system
	● Auto: This option is enabled by default.
	● Intel HD Graphics
	● NVIDIA HD Graphics

Secure Boot screen options

Option	Description
Secure Boot Enable	This option enables or disables the **Secure Boot** feature. Default setting: Not selected
Secure Boot Mode	● **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: ● **PK** (default) ● KEK ● db ● dbx If you enable the **Custom Mode**, the relevant options for **PK, KEK, db, and dbx** appear. The options are: ● **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 (i) **NOTE:** If you disable the **Custom Mode**, all the changes made are erased and the keys restore to default settings.

Intel Software Guard Extensions screen options

Option	Description
Intel SGX Enable	This field specifies you to provide a secured environment for running code/storing sensitive information in the context of the main OS. The options are: ● Disabled ● Enabled ● **Software Controlled** (default)
Enclave Memory Size	This option sets **SGX Enclave Reserve Memory Size**. The options are: ● 32 MB ● 64 MB ● 128 MB

Performance screen options

Option	Description
Multi Core Support	This field specifies whether the process has one or all cores enabled. The performance of some applications improve with the additional cores. This option is enabled by default. Allows you to enable or disable multi-core support for the processor. The installed processor supports two cores. If you enable Multi Core Support, two cores are enabled. If you disable Multi Core Support, one core is enabled. ● All (enabled by default) ● 1 ● 2 ● 3
Intel SpeedStep	Allows you to enable or disable the Intel SpeedStep feature.

Option	Description
	Enable Intel SpeedStep
	Default setting: The option is enabled.
C-States Control	Allows you to enable or disable the additional processor sleep states.
	C states
	Default setting: The option is enabled.
Intel TurboBoost	Allows you to enable or disable the Intel TurboBoost mode of the processor.
	Enable Intel TurboBoost (default)

Power Management screen options

Option	Description
AC Recovery	Allows you to enable or disable the computer from turning on automatically when an AC adapter is restored. ● Power Off (default) ● Power On ● Last Power State
Enable Intel Speed Shift Technology	This option is used to enable or disable the Intel speed shift technology support. The option is enabled by default.
Auto On Time	Allows you to set the time at which the computer must turn on automatically. The options are: ● Disabled ● Every Day ● Weekdays ● Select Days Default setting: Disabled
Deep Sleep Control	Allows you to aggressive the system is at conserving power while Shut down (S5) or in Hibernate (S4) mode. ● Disabled ● Enabled in S5 only ● Enabled in S4 and S5 (default)
USB Wake Support	Allows you to enable USB devices to wake the system from Standby. ● Enable USB Wake Support Default setting: The option is enabled..
Wake on LAN/ WLAN	Allows you to enable or disable the feature that powers on the computer from the Off state when triggered by a LAN signal. ● **Disabled**: This option is enabled by default. ● LAN Only ● WLAN Only ● LAN or WLAN ● LAN with PXE Boot
Block Sleep	This option lets you block entering to sleep (S3 state) in operating system environment. Block Sleep (S3 state) Default setting: This option is disabled

POST Behavior screen options

Option	Description
Numlock LED	This option specifies whether the NumLock LED should be on when the system boots. ● Enable Numlock LED: The option is enabled.
Keyboard Errors	This option option specifies whether the keyboard related errors are reported when it boots. ● Enables Keyboard Error Detection: The option is enabled by default.
Fastboot	Allows you to speed up the boot process by bypassing some of the compatibility steps. The options are: ● Minimal ● **Thorough** (default) ● Auto
Extend BIOS POST Time	This option created an additional pre-boot delay. ● **0 seconds (default)** ● 5 seconds ● 10 seconds
Full Screen Logo	. This option displays full screen logo if your image match screen resolution. The option Enable Full Screen Logo is not selected by default.
Warnings and Errors	● **Prompt on Warnings and Errors** (default) ● Continue on Warnings ● Continue on Warnings and Errors

Virtualization support screen options

Option	Description
Virtualization	Allows you to enable or disable the Intel Virtualization Technology. Enable Intel Virtualization Technology (default).
VT for Direct I/O	Enables or disables the Virtual Machine Monitor (VMM) from utilizing the additional hardware capabilities provided by Intel® Virtualization technology for direct I/O. Enable VT for Direct I/O - enabled by default.

Wireless screen options

Option	Description
Wireless Device Enable	Allows you to enable or disable internal wireless devices. ● **WLAN/WiGig** (default) ● **Bluetooth** (default)

Advanced configuration options

Option	Description
ASPM	Allows you to set the ASPM level. ● **Auto** (default) ● Disabled ● L1 Only

Maintenance screen options

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.
SERR Messages	This field controls the SERR message mechanism. Some graphic card required the SERR message. ● Enable SERR Messages (default)
BIOS Downgrade	This field controls flashing of the system firmware to pervious revisions. Allows BIOS Downgrade (Enabled by default)
Data Wipe	This field enables user to erase data from all internal storage device.
BIOS Recovery	Allows you to recover from certain corrupted BIOS conditions from a recover file on the user primary hard drive. Enabled by default.

System Log screen options

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

SupportAssist System Resolution

Option	Description
Auto OS Recovery Threshold	Allows you to control the automatic boot flow for SupportAssist System. Options are: ● Off ● 1 ● 2 (Enabled by default) ● 3
SupportAssist OS Recovery	Allows you to recover the SupportAssist OS Recovery (Disabled by default)

Updating the BIOS

Updating the BIOS in Windows

About this task

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

Steps

1. Go to www.dell.com/support.
2. Click **Product support**. In the **Search support** box, enter the Service Tag of your computer, and then click **Search**.

> (i) **NOTE:** If you do not have the Service Tag, use the SupportAssist feature to automatically identify your computer. You can also use the product ID or manually browse for your computer model.

3. Click **Drivers & Downloads**. Expand **Find drivers**.
4. Select the operating system installed on your computer.
5. In the **Category** drop-down list, select **BIOS**.
6. Select the latest version of BIOS, and click **Download** to download the BIOS file for your computer.
7. After the download is complete, browse the folder where you saved the BIOS update file.
8. Double-click the BIOS update file icon and follow the on-screen instructions.
   For more information, search in the Knowledge Base Resource at www.dell.com/support.

Updating the BIOS in Linux and Ubuntu

To update the system BIOS on a computer that is installed with Linux or Ubuntu, see the knowledge base article 000131486 at www.dell.com/support.

Updating the BIOS using the USB drive in Windows

About this task

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

Steps

1. Follow the procedure from step 1 to step 6 in Updating the BIOS in Windows to download the latest BIOS setup program file.
2. Create a bootable USB drive. For more information, search in the Knowledge Base Resource at www.dell.com/support.
3. Copy the BIOS setup program file to the bootable USB drive.
4. Connect the bootable USB drive to the computer that needs the BIOS update.
5. Restart the computer and press **F12** .
6. Select the USB drive from the **One Time Boot Menu**.
7. Type the BIOS setup program filename and press **Enter**.
   The **BIOS Update Utility** appears.
8. Follow the on-screen instructions to complete the BIOS update.

Updating the BIOS from the F12 One-Time boot menu

Update your computer BIOS using the BIOS update.exe file that is copied to a FAT32 USB drive and booting from the F12 One-Time boot menu.

About this task

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

BIOS Update

You can run the BIOS update file from Windows using a bootable USB drive or you can also update the BIOS from the F12 One-Time boot menu on the computer.

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

ⓘ **NOTE:** Only computers with BIOS Flash Update option in the F12 One-Time boot menu can use this function.

Updating from the One-Time boot menu

To update your BIOS from the F12 One-Time boot menu, you need the following:

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

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

⚠️ **CAUTION: Do not turn off the computer during the BIOS update process. The computer may not boot if you turn off your computer.**

Steps

1. From a turn off state, insert the USB drive where you copied the flash into a USB port of the computer.
2. Turn on the computer and press F12 to access the One-Time Boot Menu, select BIOS Update using the mouse or arrow keys then press Enter.
   The flash BIOS menu is displayed.
3. Click **Flash from file**.
4. Select external USB device.
5. Select the file and double-click the flash target file, and then click **Submit**.
6. Click **Update BIOS**. The computer restarts to flash the BIOS.
7. The computer will restart after the BIOS update is completed.

System and setup password

Table 24. 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**.

   (i) **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 and contacting Dell

Self-help resources

You can get information and help on Dell products and services using these self-help resources:

Table 25. Self-help resources

Self-help resources	Resource location
Information about Dell products and services	www.dell.com
My Dell	
Tips	
Contact Support	In Windows search, type `Contact Support`, and press Enter.
Online help for operating system	www.dell.com/support/windows www.dell.com/support/linux
Troubleshooting information, user manuals, setup instructions, product specifications, technical help blogs, drivers, software updates, and so on.	www.dell.com/support
Dell knowledge base articles for a variety of computer concerns.	1. Go to https://www.dell.com/support/home/?app=knowledgebase. 2. Type the subject or keyword in the **Search** box. 3. Click **Search** to retrieve the related articles.
Learn and know the following information about your product: ● Product specifications ● Operating system ● Setting up and using your product ● Data backup ● Troubleshooting and diagnostics ● Factory and system restore ● BIOS information	See *Me and My Dell* at www.dell.com/support/manuals. To locate the *Me and My Dell* relevant to your product, identify your product through one of the following: ● Select **Detect Product**. ● Locate your product through the drop-down menu under **View Products**. ● Enter the **Service Tag number** or **Product ID** in the search bar.

Contacting Dell

To contact Dell for sales, technical support, or customer service issues, see www.dell.com/contactdell.

ⓘ **NOTE:** Availability varies by country and product, and some services may not be available in your country.

ⓘ **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.