Dell Precision 7540

Setup and specifications guide

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.**

Contents

Set up your computer

1. Connect the power cable and press the power button

2. Follow the instructions on the screen to finish Windows setup:

   a) Connect to a network.
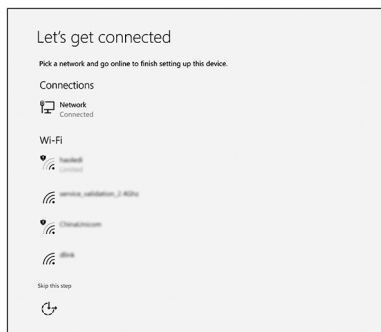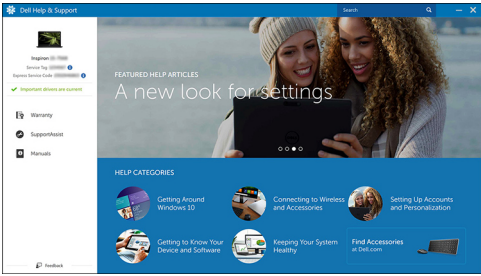
   b) Sign-in to your Microsoft account or create a new account.
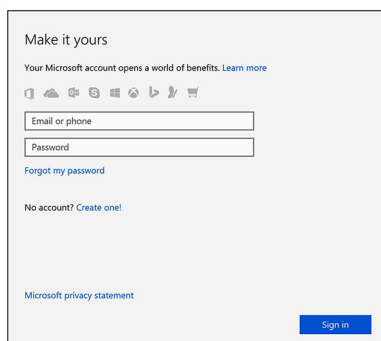
3. Locate Dell apps.

Table 1. Locate Dell apps

Features	Specifications
	Register your computer
	Dell Help & Support
	SupportAssist — Check and update your computer

2

Chassis

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

Front open view
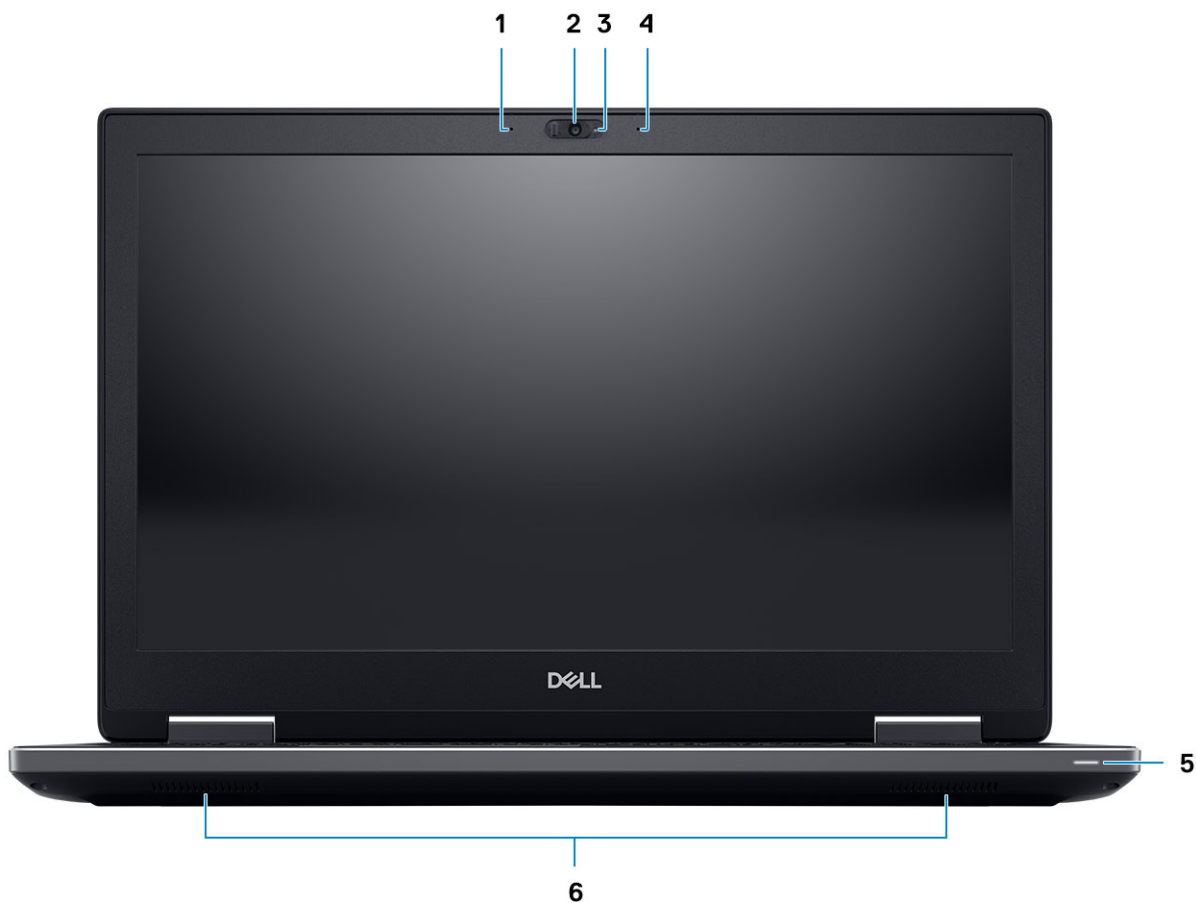
1. Microphone (Optional)
3. Camera-status light (optional)
5. Battery status light

2. Camera-with shutter (Optional)
4. Microphone (Optional)
6. Speakers

Left view

1. Thunderbolt 3 Type-C port
2. SD Card reader
3. Smartcard reader

Right view

1. Headset port
2. USB 3.1 Gen 1 ports with PowerShare
3. Security cable slot

Palmrest view

1. Power button
2. Keyboard
3. Fingerprint reader (optional)
4. Contactless Card Reader (optional)
5. Touchpad

Back view
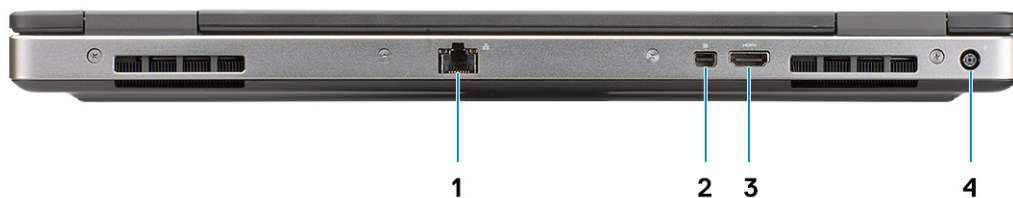
1. RJ45 Network port
2. Mini DisplayPort
3. HDMI port
4. Power connector port

Bottom view

1. Service tag label

Hot key definition

Table 2. Keyboard shortcut keys

Hot keys	Function
Fn+ESC - Fn Lock	Allows the user to toggle between **locked** and **unlocked** Fn keys.
Fn+F1 - Audio Volume Mute	Temporarily mutes/unmutes the audio. The audio level before muting is returned after unmuting.
Fn+F2 – Audio Volume Down/Decrease	Decreases the audio volume until minimum/off is reached.
Fn+F3 – Audio Volume Up/Increase	Increases the audio volume until maximum is reached.
Fn+F4 – Microphone Mute	Silences the on-board microphone so it cannot record audio. There is an LED on the F4 function key that notifies the user of the state of this feature: • LED off = microphone capable of recording audio • LED on = microphone muted and unable to record audio
Fn+F6—Scroll lock	Used as Scroll Lock key.
Fn+F8 – LCD and Projector display	Determines video output to LCD and external Video devices when attached and displays present.
Fn+F9 – Search	Mimics the Windows key + F keystroke to open Windows Search dialog box.
Fn+F10 – KB Illumination/Backlight	Determines the Keyboard Illumination/Backlight brightness level. The hot key cycles through the following brightness states when pressed: Disabled, Dim, Bright. For more detail, see Keyboard Illumination/Backlight section.

Hot keys	Function
Fn+F11 - Print screen	It is used as Print Screen key
Fn+F12 - Insert	It is used as Insert key
Fn+RightCtrl – Context Menu	It is used as Context Menu key. (a.k.a. Right-Click menu)
Fn+Left Cursor—Home	It is used as Home key.
Fn+Right Cursor – End	It is used as End key.
Fn+B – Pause/Break	It is used as Pause/Break key. Specifically, Fn+B = Pause and Fn+Ctrl+B = Break.
Fn+Arrow Key (Up) – Brightness Decrease	Decreases the stepping of LCD brightness for each press until minimum is reached. For details, see the LCD Brightness section.
Fn+Arrow Key (Down) – Brightness Increase	Increases the stepping of LCD brightness for each press until maximum is reached. For details, see the LCD Brightness section.
Fn+Home - Radio On/Off	Toggles all the radios on and off. For example, WLAN, WWAN, and Bluetooth.
Fn+End - Sleep	Puts the system into the ACPI S3 State and does not wake the system.

System specifications

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

Topics:

- Technical specifications
- Support policy

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.

System information

Table 3. System information

Features	Specifications
Chipset	Intel CM246 chipset
DRAM bus width	64-bit per channel (total 128 bit)
FLASH EPROM	48 kHz
PCIe bus	8 Gbps
External bus frequency	DMI 3.0-8GT/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
9th Gen Intel I5-9400H (4 core / 8 TH / 2.5 Ghz up to 4.3 GHz / 8 M cache / 45 W)	Integrated Intel UHD 630
9th Gen Intel I7-9750H (6 core / 12 TH / 2.6 Ghz up to 4.5 GHz / 12 M cache / 45 W)	Integrated Intel UHD 630
9th Gen Intel I7-9850H (6 core / 12 TH / 2.6 Ghz up to 4.6 GHz / 12 M cache / 45 W)	Integrated Intel UHD 630
9th Gen Intel I9-9880H (8 core / 16 TH / 2.3 GHz up to 4.8 GHz / 16 M cache / 45 W)	Integrated Intel UHD 630

Type	UMA Graphics
9th Gen Intel I9-9980HK (8 core / 16 TH / 2.4 GHz up to 5.0 GHz / 16 M cache / 45 W)	Integrated Intel UHD 630
9th Gen Intel Xeon E-2276M (6 core / 12 TH / 2.8 GHz up to 4.7 GHz / 12 M cache / 45 W)	Integrated Intel UHD P630
9th Gen Intel Xeon E-2286M (8 core / 16 TH / 2.4 Ghz up to 5.0 GHz / 16 M cache / 45 W)	Integrated Intel UHD P630

Memory

Table 5. Memory specifications

Feature	Specifications
Minimum memory configuration	8 GB
Maximum memory configuration	128 GB
Number of slots	4 SODIMM
Maximum memory supported per slot	32 GB
Memory options	8 GB - 1 x 8 GB 16 GB - 1 x 16 GB 16 GB - 2 x 8 GB 32 GB - 1 x 32 GB 32 GB - 2 x 16 GB 32 GB - 4 x 8 GB 64 GB - 4 x 16 GB 64 GB - 2 x 32 GB 128 GB - 4 x 32 GB
Type	DDR4 SDRAM ECC and Non-ECC memory
Speed	2666 MHz 3200 MHz

Table 6. Memory population rules

DIMM Sku	Implementation
X1	B
X2	B+D
X3	A+B+C+D

Location of channel A, B, C, D:

1. B and D under Keyboard– Slot B close to touchpad and Slot D close to LCD
2. A and C under Base– Slot C close to rear Input/Output and Slot A close to the battery

Storage

Type	Form factor	Interface	Security option	Capacity
Three Solid-State Drive (SSD)	M.2 2280	• PCIe 4x4 NVMe, Up to 32 Gbps	SED	• Up to 512 GB • Up to 2 TB
One 2.5" Hard-Disk Drive (HHD) with 4 cell battery only	Approximately (2.760 x 3.959 x 0.374 inches)	SATA AHCI, Up to 6 Gbps	SED FIPS	Up to 2 TB

Media card-reader

Features	Specifications
Type	One SD-card slot
Supported cards	• SD • SDHC • SDXC

Audio

Features	Specifications
Controller	Realtek ALC3281
Type	Four-channel high-definition audio
Speakers	Two (Directional speakers)
Interface	• Universal audio jack • Stereo headphone • Stereo headset • Stereo line in • Microphone in • Stereo line out
Internal speaker amplifier	2W (RMS) per channel

Video

Controller	Type	CPU Dependency	Graphics memory type	Capacity	External display support	Maximum resolution
Intel UHD Graphics 630	UMA	• Intel Core Processor i5 • Intel Core Processor i7	Integrated	Shared system memory	mDP/HDMI/ Type-C	4096 × 2304

Controller	Type	CPU Dependency	Graphics memory type	Capacity	External display support	Maximum resolution
		• Intel Core Processor i9				
Intel UHD Graphics P630	UMA	Intel Xeon	Integrated	Shared system memory	mDP/HDMI/ Type-C	4096 × 2304
Radeon Pro WX 3200	Discrete	NA	GDDR5	4 GB	HDMI/mDP/USB-C	• Single DisplayPort 1.4 - 7680 x 4320 (8k) @ 30 Hz • Dual DisplayPort 1.4 - 7680 x 4320 (8k) @ 60 Hz • HDMI 2.0 - 4096 x 2160 (4K) @ 60 Hz
NVIDIA Quadro T1000	Discrete	NA	GDDR5	4 GB	mDP/HDMI/Type-C	Maximum digital: • Single DisplayPort 1.4 - 7680 x 4320 (8k) @ 30 Hz (mDP/Type-C to DisplayPort) • Dual DisplayPort 1.4 - 7680 x 4320 (8k) @ 60 Hz (mDP/Type-C to DisplayPort) • HDMI 2.0, 4096 x 2160 (4K) @ 60 Hz
NVIDIA Quadro T2000	Discrete	NA	GDDR5	4 GB	mDP/HDMI/Type-C	Maximum digital: • Single DisplayPort 1.4 - 7680 x 4320 (8k) @ 30 Hz (mDP/Type-C to DisplayPort) • Dual DisplayPort 1.4 - 7680 x 4320 (8k) @ 60 Hz (mDP/Type-C to DisplayPort) • HDMI 2.0, 4096 x 2160 (4K) @ 60 Hz
NVIDIA Quadro RTX3000	Discrete	NA	GDDR6	6 GB	mDP/HDMI/Type-C	Maximum digital: • Single DisplayPort 1.4 - 7680 x 4320 (8k) @ 30 Hz

Controller	Type	CPU Dependency	Graphics memory type	Capacity	External display support	Maximum resolution
						(mDP/Type-C to DisplayPort) · Dual DisplayPort 1.4 - 7680 x 4320 (8k) @ 60 Hz (mDP/Type-C to DisplayPort) · HDMI 2.0, 4096 x 2160 (4K) @ 60 Hz
NVIDIA Quadro RTX4000	Discrete	NA	GDDR6	8 GB	mDP/HDMI/Type-C	Maximum digital: · Single DisplayPort 1.4 - 7680 x 4320 (8k) @ 30 Hz (mDP/Type-C to DisplayPort) · Dual DisplayPort 1.4 - 7680 x 4320 (8k) @ 60 Hz (mDP/Type-C to DisplayPort) · HDMI 2.0b, 4096 x 2160 (4K) @ 60 Hz
NVIDIA Quadro RTX5000	Discrete	NA	GDDR6	16 GB	mDP/HDMI/Type-C	Maximum digital: · Single DisplayPort 1.4 - 7680 x 4320 (8k) @ 30 Hz (mDP/Type-C to DisplayPort) · Dual DisplayPort 1.4 - 7680 x 4320 (8k) @ 60 Hz (mDP/Type-C to DisplayPort) · HDMI 2.0b, 4096 x 2160 (4K) @ 60 Hz

Camera

Features	Specifications
Resolution	Camera: · Still image: 0.92 megapixels · Video: 1280x720 at 30 fps Infrared camera (optional on FHD non-touch):

Features	Specifications
	• Still image: 0.30 megapixels
	• Video: 340x340 at 60 fps
Diagonal viewing angle	• Camera - 86.7 degrees
	• Infrared camera - 70 degrees

Communications

Table 12. Communications

Features	Specifications
Network adapter	Integrated Intel i219LM10/100/1000 Mb/s Ethernet (RJ-45) with Intel Remote Wake UP and PXE
Wireless	• Wi-Fi 802.11n/ac via M.2
	• Bluetooth

Ports and connectors

Table 13. Ports and connectors

Features	Specifications
Memory card reader	SD 4.0 memory card reader
Smart card reader	Standard
USB	Two USB 3.1 Gen 1 ports
Security	Noble wedge lock slot
Docking port	Cable dock support
Audio	• Headset port
	• Noise reduction array microphones
Video	• Mini DisplayPort 1.4
	• HDMI 2.0
Network adapter	One RJ-45 connector
Thunderbolt	Two thunderbolt 3 Type-C ports

Contactless smart card

Table 14. Contactless smartcard

Title	Description	Dell ControlVault 3 Contactless Smartcard reader with NFC
Felica Card Support	Reader and software capable of supporting Felica contactless cards	Yes
Prox (Proximity) (125kHz) Card support	Reader and software capable of supporting Prox/Proximity/125kHz contactless cards	No
ISO 14443 Type A Card Support	Reader and software capable of supporting ISO 14443 Type A contactless cards	Yes

Title	Description	Dell ControlVault 3 Contactless Smartcard reader with NFC
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
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

(i) **NOTE: 125 Khz proximity cards are not supported.**

Table 15. 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

Manufacturer	Card	Supported
	SCE6.0 FIPS 80K Dual+ 1 K Mifare	
	SCE6.0 nonFIPS 80K Dual+ 1 K Mifare	
	SCE6.0 FIPS 144K Dual + 1K Mifare	
	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	

Display

Table 16. Display specifications

Features	Specifications
Type	• 15.6 in. FHD WVA, 1920x1080 AG, NT, 45% color NTSC gamut • 15.6 in. FHD WVA, 1920x1080 AG, NT, 72% color NTSC gamut • 15.6 in. FHD WVA, 1920x1080 TL, Touch, 72% NTSC color gamut • 15.6 in. UHD WVA, 3840x2160 AG, NT, 100% Adobe color gamut
Luminance/Brightness (typical)	• 220 nits (FHD 45% color gamut) • 300 nits (FHD 72% color gamut) • 500 nits (UHD Adobe 100% color gamut)
Height (Active area)	• FHD - 193.59 mm (7.62 in.) • UHD - 194.40 mm (7.65 in.)
Width (Active area)	• FHD - 344.16 mm (13.55 in.) • UHD - 345.60 mm (13.61 in.)
Diagonal	• FHD - 394.87 mm (15.60 in.) • UHD - 396.52 mm (15.60 in.)
Megapixels	• FHD - 2.07 • UHD - 8.29
Pixels Per Inch (PPI)	• FHD - 141 • UHD - 282
Contrast ratio	• FHD - 700:1 • UHD - 1200:1
Refresh rate	60 Hz
Horizontal viewing angle (min)	80/80 degrees
Vertical viewing angle (min)	80/80 degrees
Pixel pitch	• FHD - 0.179 mm • UHD - 0.090 mm
Power consumption (max)	• 4.2 W (FHD 45% color gamut) • 6.2 W (FHD 72% color gamut) • 10 W (UHD Adobe 100% colour gamut)

Keyboard

Table 17. Keyboard specifications

Features	Specifications
Number of keys	• 103 (U.S. and Canada) • 104 (Europe) • 106 (Brazil) • 107 (Japan)
Size	Full sized • X= 19.00 mm key pitch • Y= 19.00 mm key pitch
Backlit keyboard	Optional
Layout	QWERTY/AZERTY/Kanji

Touchpad

Table 18. Touchpad specifications

Features	Specifications
Resolution	• Horizontal: 1048 • Vertical: 984
Dimensions	• Width: 3.92 inches (99.50 mm) • Height: 2.09 inches (53 mm)
Multi-touch	Configurable single finger and multi-finger gestures

Battery

Table 19. Battery

Features	Specifications
Type	• 64 WHr Lithium ion Polymer 4 cell battery with ExpressCharge • 97 WHr Lithium ion Polymer 6 cell battery with ExpressCharge • 97 WHr Lithium ion Polymer 6 cell battery with three year warranty

Dimension	1. 64 WHr "smart" lithium-ion
	
	  • Length - 222.40 mm (8.76 in)
	  • Width - 73.80 mm (2.90 in)
	  • Height - 11.15 mm (0.44 in)
	  • Weight - 298.00 g
	2. 97 WHr "smart" lithium-ion
	
	  • Length - 332.00 mm (13.07 in)
	  • Width - 73.80 mm (2.90 in)
	  • Height - 11.15 mm (0.439 in)
	  • Weight - 445.00 g

Weight (maximum)	• 64 WHr - 2.98 kg (0.66 lb) • 97 WHr - 4.45 kg (0.98 lb)

Features	Specifications
Voltage	• 64 WHr - 7.8 VDC • 97 WHr - 11.4 VDC
Life span	300 discharge/recharge cycles
Charging time when the computer is off (approximate)	4 hours
Operating time	Varies depending on operating conditions and can significantly reduce under certain power-intensive conditions
Temperature range: Operating	0°C to 35°C (32°F to 95°F)
Temperature range: Storage	-40°C to 65°C (-40°F to 149°F)
Coin-cell battery	ML1220

Power adapter

Table 20. Power adapter specifications

Features	Specifications
Type	180 W adapter
Input Voltage	100 to 240 VAC
Input current (maximum)	180 W - 2.34 A
Input frequency	50 Hz to 60 Hz
Output current	180 W - 9.23 A (continuous)
Rated output voltage	19.5 VDC
Temperature range (Operating)	0º to 40º C (32º to 104º F)
Temperature range (Non-Operating)	40º to 70º C (-40º to 158º F)

Dimensions and weight

Table 21. Dimensions and weight

Features	Specifications
Height	Front height (Touch) - 1.02 inches (25.9 mm) Rear height (Touch) - 1.21 inches (30.85 mm) Front height (Non-touch) - 0.98 inches (25.0 mm) Rear height (Non-touch) - 1.18 inches (29.97 mm) Front height (AI Cover) - 0.94 inches (24.0 mm) Rear height (AI Cover) - 1.19 inches (30.4 mm)
Width	14.87 inches (377.60 mm)
Depth	9.89 inches (251.30 mm)
Weight	Starting 5.57 lbs (2.52 kg)

Operating system

Table 22. Operating system

Features	Specifications
Operating systems supported	• Windows 10 Home (64 bit) • Windows 10 Professional (64 bit) • Windows 10 Pro for Workstations (64 bit) • Ubuntu 18.04 LTS (64bit) • Red Hat Linux Enterprise 8.0

Computer environment

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

Table 23. 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)	20% to 80% (non-condensing) ⓘ NOTE: **Maximum dew point temperature = 26°C**	20% to 95% (non-condensing) ⓘ 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.

Support policy

For more information on support policy, see the knowledge base articles PNP13290, PNP18925, and PNP18955.

System setup

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

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

Topics:

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.

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.
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 and its installed devices, the items listed in this section may or may not appear.**

General options

Table 24. General

Option	Description
System Information	This section lists the primary hardware features of your computer.
	The options are:
	· **System Information**
	· **Memory Configuration**
	· **Processor Information**
	· **Device Information**
Battery Information	Displays the battery status and the type of AC adapter connected to the computer.

Option	Description
Boot Sequence	Allows you to change the order in which the computer attempts to find an operating system.
	The options are:
	· **Windows Boot Manager**
	· **Boot List Option:**
	Allows you to change the boot list options.
	Click one of the following options:
	·
	· **UEFI**—Default
UEFI Boot Path Security	Allows you to control whether the system prompts the user to enter the Admin password when booting to a UEFI boot path.
	Click one of the following options:
	· **Always, Except Internal HDD**—Default
	· **Always**
	· **Never**
Date/Time	Allows you to set the date and time. The change to the system date and time takes effect immediately.

System configuration

Table 25. System Configuration

Option	Description
Integrated NIC	Allows you to configure the integrated network controller.
	Click one of the following options:
	· **Disabled**
	· **Enabled**
	· **Enabled w/PXE**—Default
SATA Operation	Allows you to configure the operating mode of the integrated SATA hard-drive controller.
	Click one of the following options:
	· **Disabled**
	· **AHCI**
	· **RAID On**—Default
	ⓘ **NOTE: SATA is configured to support RAID mode.**
Drives	Allows you to enable or disable various drives on board.
	The options are:
	· **SATA-1**
	· **SATA–4**
	· **M.2 PCIe SSD-0**
	· **M.2 PCIe SSD-1**
	All the options are set by default.
SMART Reporting	This field controls whether hard drive errors for integrated drives are reported during system startup. This technology is part of the

Option	Description
	SMART (Self Monitoring Analysis and Reporting Technology) specification. This option is disabled by default.
	· **Enable SMART Reporting**
USB Configuration	Allows you to enable or disable the internal/integrated USB configuration.
	The options are:
	· **Enable USB Boot Support**
	· **Enable External USB Ports**
	All the options are set by default.
	ⓘ **NOTE: USB keyboard and mouse always work in the BIOS setup irrespective of these settings.**
Dell Type-C Dock Configuration	Always allow Dell docks. This setting affects only the Type-C ports connected to a Dell WD or TB dock.
Thunderbolt Adapter Configuration	Allows you to configure the Thunderbolt adapter security settings within the operating system.
	The options are:
	· **Enable Thunderbolt Technology Support**—Default
	· **Enable Thunderbolt Adapter Boot Support**
	· **Enable Thunderbolt Adapter Pre-boot Modules**
	Choose any one option:
	· **Security level - No Security**
	· **Security level - User Authorization**—Default
	· **Security level - Secure Connect**
	· **Security level - Display Port Only**
Thunderbolt Auto Switch	Allows auto switch the thunderbolt option.
USB PowerShare	This field configures the USB PowerShare feature behavior. This option allows you to charge external devices using the stored system battery power through the USB PowerShare port (disabled by default).
	· **Enable USB PowerShare**
Audio	Allows you to enable or disable the integrated audio controller. By default, the **Enable Audio** option is selected.
	The options are:
	· **Enable Microphone**
	· **Enable Internal Speaker**
	This option is set by default.
Keyboard Illumination	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:
	· **Disabled**
	· **Dim**
	· **Bright**—Default
Keyboard Backlight Tmeout on AC	Allows to define the timeout value for the keyboard backlight when an AC adapter is plugged in the system. The Keyboard Backlight tiemout value is only in effect when the backlight is enabled.

Option	Description
	· **5 seconds** · **10 seconds**—Default · **15 seconds** · **30 seconds** · **1 minute** · **5 minutes** · **15 minutes** · **Never**
Keyboard Backlight Tmeout on Battery	Allows to define the timeout value for the keyboard backlight when the system is running only on battery power. The Keyboard Backlight tiemout value is only in effect when the backlight is enabled. · **5 seconds** · **10 seconds**—Default · **15 seconds** · **30 seconds** · **1 minute** · **5 minutes** · **15 minutes** · **Never**
Touchscreen	This field controls whether the touchscreen is enabled or disabled.
Unobtrusive Mode	Allows you to turn off all light and sound emissions in the system when you press Fn+F7. This option is disabled by default.
Miscellaneous devices	Allows you to enable or disable various on board devices. · **Enable Camera**—Default · **Enable Hard Drive Free Fall Protection**—Default · **Enable Secure Digital (SD) Card**—Default · **Secure Digital (SD) Card Boot** · **Secure Digital Card (SD) Read-Only Mode**
MAC Address Pass-Through	This 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. When the Integrated NIC option is selected, we recommend one of the following: · Disable the integrated NIC in the BIOS to prevent any issues from multiple NICs on the network with identical MAC addresses. · If the Integrated NIC cannot be disabled, do not connect it to the same network as your dock or USB Ethernet dongle.

Video screen options

Table 26. Video

Option	Description
LCD Brightness	Allows you to set the display brightness depending upon the power source. On Battery (50% is default) and On AC (100% default).
Switchable Graphics	This option enables or disables switchable graphics technologies such as NVIDIA Optimus and SMD PowerExpress.

Option	Description
	It should only be enabled for Windows 7 and later versions of Windows or the Ubuntu OS. This feature is not applicable to other operating systems.

Security

Table 27. Security

Option	Description
Admin Password	Allows you to set, change, or delete the administrator(admin) password. The entries to set password are: · **Enter the old password:** · **Enter the new password:** · **Confirm new password:** Click **OK** once you set the password. ⓘ NOTE: **For the first time login, "Enter the old password:" field is marked to "Not set". Hence, password has to be set for the first time you login and then you can change or delete the password.**
System Password	Allows you to set, change, or delete the System password. The entries to set password are: · **Enter the old password:** · **Enter the new password:** · **Confirm new password:** Click **OK** once you set the password. ⓘ NOTE: **For the first time login, "Enter the old password:" field is marked to "Not set". Hence, password has to be set for the first time you login and then you can change or delete the password.**
Strong Password	Allows you to enforce the option to always set strong password. · **Enable Strong Password** This option is not set by default.
Password Configuration	You can define the length of your password. Min = 4, Max = 32
Password Bypass	Allows you to bypass the System password and the Internal HDD password, when it is set, during a system restart. Click one of the options: · **Disabled**—Default · **Reboot bypass**
Password Change	Allows you to change the System password when the administrator password is set. · **Allow Non-Admin Password Changes** This option is set by default.
Non-Admin Setup Changes	Allows you to determine whether changes to the setup options are allowed when an Administrator Password is set. If disabled the setup options are locked by the admin password. · **Allow Wireless Switch Changes** This option is not set by default.

Option	Description
UEFI Capsule Firmware Updates	Allows you to update the system BIOS via UEFI capsule update packages.
	· **Enable UEFI Capsule Firmware Updates**
	This option is set by default.
TPM 2.0 Security	Allows you to enable or disable the Trusted Platform Module (TPM) during POST.
	The options are:
	· **TPM On**—Default
	· **Clear**
	· **PPI Bypass for Enable Command**—Default
	· **PPI Bypass for Disbale Command**
	· **PPI Bypass for Clear Command**
	· **Attestation Enable**—Default
	· **Key Storage Enable**—Default
	· **SHA-256**—Default
Absolute (R)	Allows you to activate or disable the optional Computrace software.
	The options are:
	· **Deactivate**
	· **Disable**
	· **Activate**—Default
OROM keyboard Access	Allows you to enable or disable Option ROM configuration screens via hotkeys during boot.
	· **Enable**—Default
	· **Disable**
	· **One Time Enable**
Admin Setup Lockout	Allows you to prevent users from entering Setup when an administrator password is set.
	· **Enable Admin Setup Lockout**
	This option is not set by default.
Master Password Lockout	Allows you to disable master password support.
	· **Enable Master Password Lockout**
	This option is not set by default.
	ⓘ **NOTE: Hard Disk password should be cleared before the settings can be changed.**
SMM Security Mitigation	Allows you to enable or disable additional UEFI SMM Security Mitigation protection.
	· **SMM Security Mitigation**
	This option is not set by default.

Secure boot

Table 28. Secure Boot

Option	Description
Secure Boot Enable	Allows you to enable or disable the Secure Boot Feature.
	· **Secure Boot Enable**—Default
Secure Boot Mode	Changes to the Secure Boot operation mode modifies the behaviour of Secure Boot to allow evaluation of UEFI driver signatures.

Option	Description
	Choose one of the option:
	· **Deployed Mode**—Default
	· **Audit Mode**
Expert Key Management	Allows you to enable or disable Expert Key Management.
	· **Enable Custom Mode**
	This option is not set by default.
	The Custom Mode Key Management options are:
	· **PK**—Default
	· **KEK**
	· **db**
	· **dbx**

Intel Software Guard Extensions options

Table 29. Intel Software Guard Extensions

Option	Description
Intel SGX Enable	This field specifies you to provide a secured environment for running code/storing sensitive information in the context of the main operating systems.
	Click one of the following options:
	· **Disabled**
	· **Enabled**
	· **Software controlled**—Default
Enclave Memory Size	This option sets **SGX Enclave Reserve Memory Size**
	Click one of the following options:
	· **32 MB**
	· **64 MB**
	· **128 MB**—Default

Performance

Table 30. Performance

Option	Description
Multi Core Support	This field specifies whether the process has one or all cores enabled. The performance of some applications improves with the additional cores.
	· **All**—Default
	· **1**
	· **2**
	· **3**
Intel SpeedStep	Allows you to enable or disable the Intel SpeedStep mode of processor.
	· **Enable Intel SpeedStep**
	This option is set by default.

Option	Description
C-States Control	Allows you to enable or disable the additional processor sleep states. · **C states** This option is set by default.
Intel TurboBoost	Allows you to enable or disable the Intel TurboBoost mode of the processor. · **Enable Intel TurboBoost** This option is set by default.
Hyper-Thread Control	Allows you to enable or disable the HyperThreading in the processor. · **Disabled** · **Enabled**—Default

Power management

Table 31. Power Management

Option	Description
AC Behavior	Allows you to enable or disable the computer from turning on automatically when an AC adapter is connected. · **Wake on AC** This option is not set by default.
Enable Intel Speed Shift Technology	Allows you to enable or disable the Intel Speed Shift Technology. · **Enabled**—Default
Auto On Time	Allows you to set the time at which the computer must turn on automatically. The options are: · **Disabled**—Default · **Every Day** · **Weekdays** · **Select Days** This option is not set by default.
USB Wake Support	Allows you to enable USB devices to wake the system from standby. · **Enable USB Wake Support** This option is not set by default.
Wireless Radio Control	This option if enabled, will sense the connection of the system to a wired network and subsequently disable the selected wireless radios (WLAN and/or WWAN). Upon disconnection from the wired network the selected wireless radio will ne enabled. · **Control WLAN radio** · **Control WWAN radio** This option is not set by default.
Wake on LAN	This option allows the computer to power up from the off state when triggered by a special LAN signal. Wake-up from the Standby state is unaffected by this setting and must be enabled in the operating system. This feature only works when the computer is connected to AC power supply.

Option	Description
	• **Disabled**—Default - Does not allow the system to power on by special LAN signals when it receives a wake-up signal from the LAN or wireless LAN. • **LAN Only** - Allows the system to be powered on by special LAN signals. • **WLAN Only** - Allows the system to be powered on by special WLAN signals. • **LAN or WLAN** - Allows the system to be powered on by special LAN or WLAN signals.
Block Sleep	Allows you to block entering to sleep in OS environment.
Advanced Battery Charge Configuration	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.
Primary Battery Charge Configuration	Allows you to select the charging mode for the battery. The options are: • **Adaptive**—Default • **Standard** - Fully charges your battery at a standard rate. • **ExpressCharge**- The battery charges over a shorter period of time using Dell's fast charging technology. • **Primarily AC use** • **Custom** If Custom Charge is selected, you can also configure Custom Charge Start and Custom Charge Stop. ⓘ **NOTE: All charging mode may not be available for all the batteries. To enable this option, disable the Advanced Battery Charge Configuration option.**

Post behavior

Table 32. POST Behavior

Option	Description
Adapter Warnings	Allows you to enable or disable the system setup (BIOS) warning messages when you use certain power adapters. • **Enable Adapter Warnings**—Default
Numlock Enable	Allows you to enable or disable the Numlock function when the system boots. • **Enable Numlock**—Default
Fn Lock Options	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. • **Fn Lock**—Default Click one of the following options: • **Lock Mode Disable/Standard** • **Lock Mode Enable/Secondary**—Default
Fastboot	Allows you to speed up the boot process by bypassing some of the compatibility steps. Click one of the following options: • **Minimal** • **Thorough**—Default • **Auto**
Extended BIOS POST Time	Allows you to create an additional preboot delay. Click one of the following options:

Option	Description
	· **0 seconds**—Default · **5 seconds** · **10 seconds**
Full Screen Logo	Allows you to display full screen logo, if your image matches screen resolution. · **Enable Full Screen Logo** This option is not set by default.
Sign of Life Indication	Allows the system to indicate during POST that the power button press has been acknowledged by turning on the keyboard backlight.
Warnings and Errors	Allows you to select different options to either stop, prompt and wait for user input, continue when warnings are detected but pause on errors, or continue when either warnings or errors are detected during the POST process. Click one of the following options: · **Prompt on Warnings and Errors**—Default · **Continue on Warnings** · **Continue on Warnings and Errors**

Virtualization support

Table 33. Virtualization Support

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

Wireless options

Table 34. Wireless

Option	Description
Wireless Switch	Allows to set the wireless devices that can be controlled by the wireless switch. The options are: · **WWAN** · **GPS (on WWAN Module)** · **WLAN** · **Bluetooth** All the options are enabled by default.
Wireless Device Enable	Allows you to enable or disable the internal wireless devices. The options are:

Option	Description
	· **WWAN/GPS** · **WLAN** · **Bluetooth** All the options are enabled by default.

Maintenance

Table 35. Maintenance

Option	Description
Service Tag	Displays the service tag of your computer.
Asset Tag	Allows you to create a system asset tag if an asset tag is not already set. This option is not set by default.
BIOS Downgrade	Allows you to flash previous revisions of the system firmware. · **Allow BIOS Downgrade** This option is set by default.
Data Wipe	Allows you to securely erase data from all internal storage devices. · **Wipe on Next Boot** This option is not set by default.
Bios Recovery	**BIOS Recovery from Hard Drive**—This option is set by default. Allows you to recover the corrupted BIOS from a recovery file on the HDD or an external USB drive. **BIOS Auto-Recovery**— Allows you to recover the BIOS automatically. ⓘ NOTE: **BIOS Recovery from Hard Drive field should be enabled.** **Always Perform Integrity Check**—Performs integrity check on every boot.

System logs

Table 36. 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

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

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

1. Restart the computer.
2. Go to **Dell.com/support**.

   · Enter the **Service Tag** or **Express Service Code** and click **Submit**.
   · Click **Detect Product** and follow the instructions on screen.

3.   If you are unable to detect or find the Service Tag, click **Choose from all products**.

4.   Choose the **Products** category from the list.

> (i) **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

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.

> (i) **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/**

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

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

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

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

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

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

7.   Run the file by typing the full filename, for example, O9010A12.exe and press **Enter**.

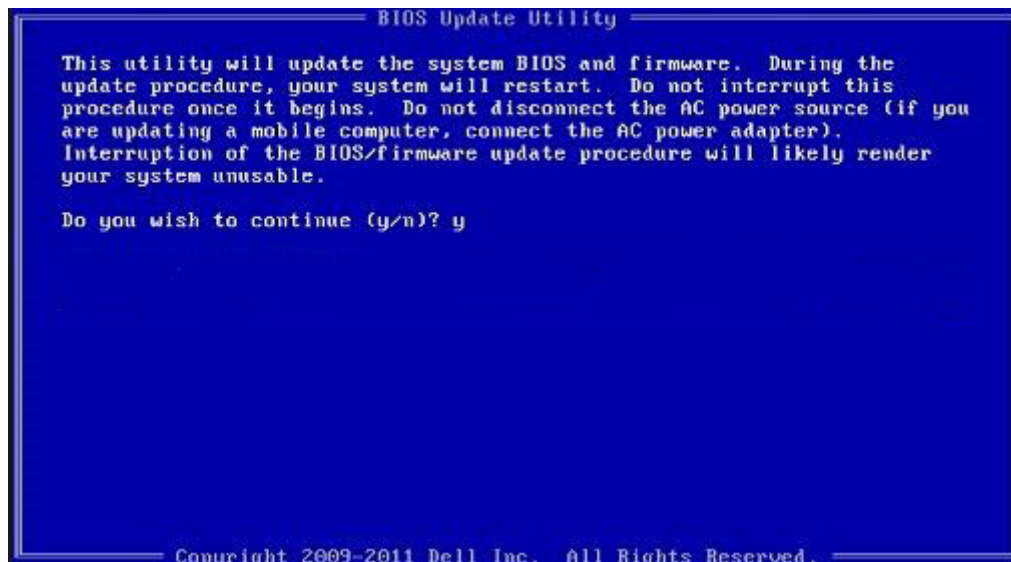8.   The BIOS Update Utility will load. Follow the instructions on screen.

Figure 1. DOS BIOS Update Screen

Updating the Dell BIOS in Linux and Ubuntu environments

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

Flashing the BIOS from the F12 One-Time boot menu

Updating your system BIOS using a BIOS update .exe file copied to a FAT32 USB key and booting from the F12 one time boot menu.

BIOS Update

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

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

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

Updating from the One-Time Boot Menu

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

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

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

⚠️ **CAUTION: Do not power off the system during the BIOS update process. Powering off the system could make the system fail to boot.**
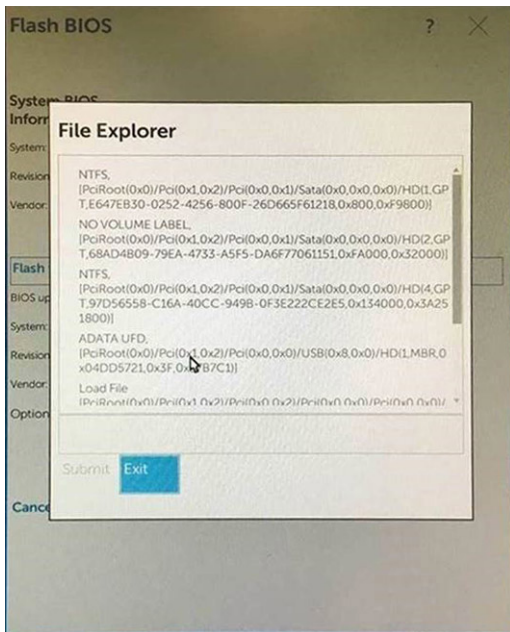
1. From a power off state, insert the USB key where you copied the flash into a USB port of the system .
2. Power on the system and press the F12 key to access the One-Time Boot Menu, Highlight BIOS Update using the mouse or arrow keys then press **Enter**.
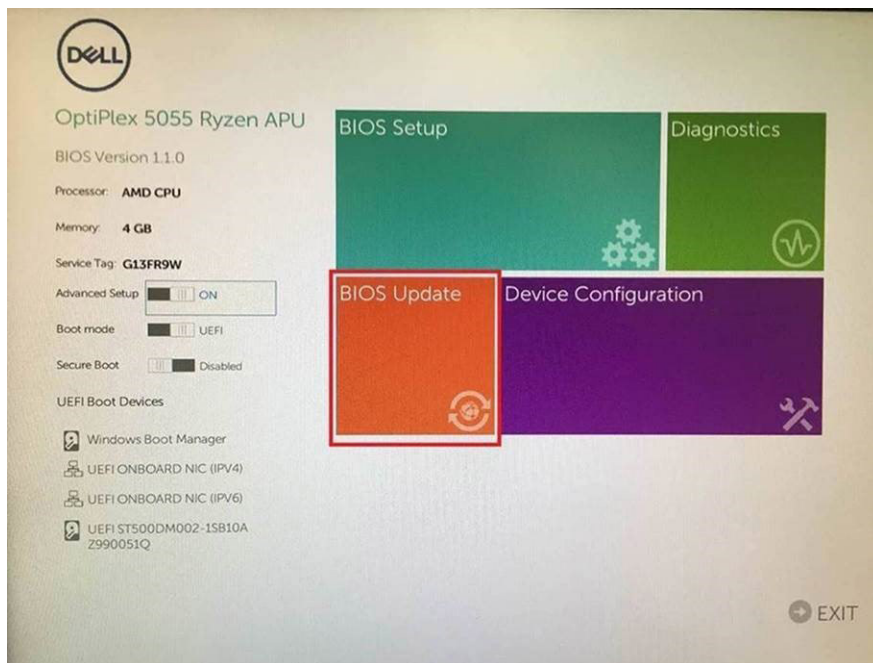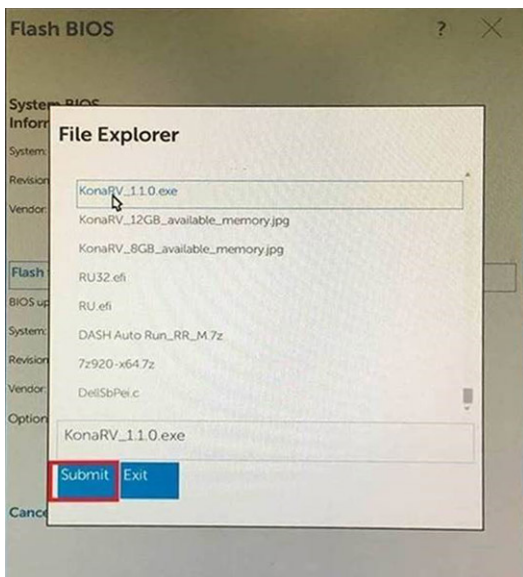
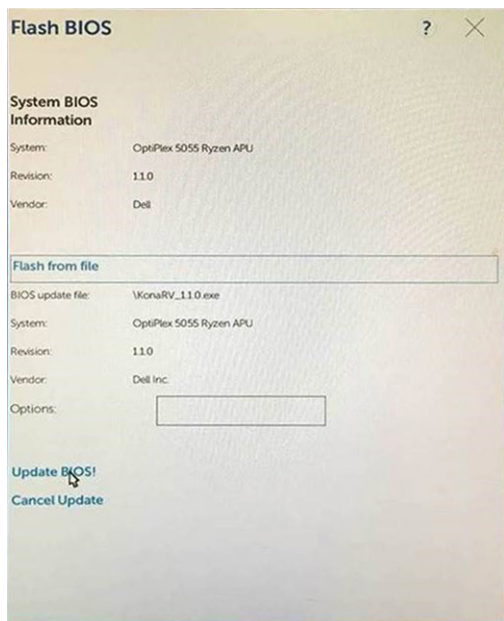3. The Bios flash menu will open then click the **Flash from file**.
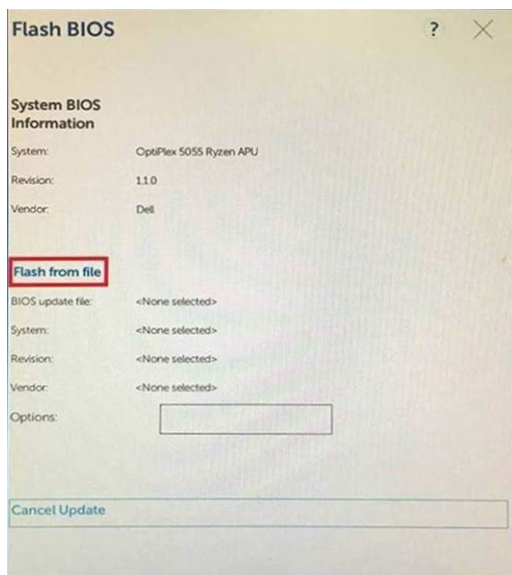
4. Select external USB device

5. Once the file is selected, Double click the flash target file, then press submit .

6. Click the **Update BIOS** then system will reboot to flash the BIOS.

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

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

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

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

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

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.

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

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

   (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.

Software

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

Topics:

- Operating system
- Downloading drivers
- Identifying Windows 10 OS version

Operating system

Table 38. Operating system

Features	Specifications
Operating systems supported	• Windows 10 Home (64 bit) • Windows 10 Professional (64 bit) • Windows 10 Pro for Workstations (64 bit) • Ubuntu 18.04 LTS (64bit) • Red Hat Linux Enterprise 8.0

Downloading drivers

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

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

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

Identifying Windows 10 OS version

Run dialog box with the Windows Key + R keyboard shortcut. Once that box shows up, enter winver (it stands for Windows version).

Table 39. Identifying Windows 10 OS version

OS Version	Code name	Version	Latest build
Windows 10	Threshold 1	1507	10240
Windows 10	Threshold 2	1511	10586
Windows 10	Redstone 1	1607	14393
Windows 10	Redstone 2	1703	15063
Windows 10	Redstone 3	1709	16299
Windows 10	Redstone 4	1803	17134

OS Version	Code name	Version	Latest build
Windows 10	Redstone 5	1809	17763
Windows 10	19H1	1903	18362

6

Getting help

Topics:

-

Contacting Dell

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

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

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