

# ChengMing 3980

Setup and specification guide



## Notes, cautions, and warnings

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

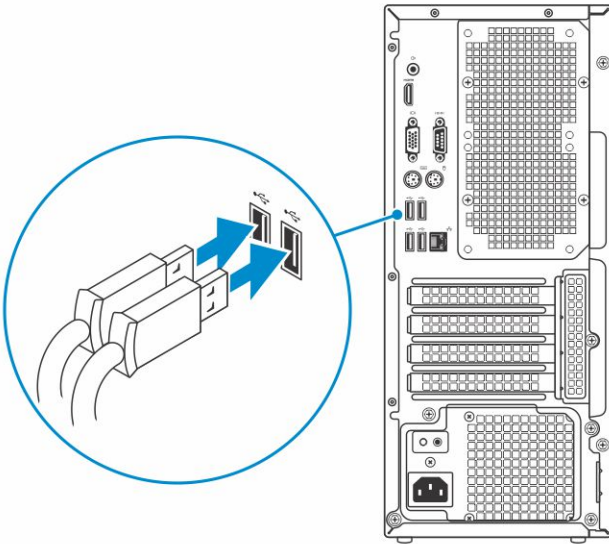
 | **CAUTION:** A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

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

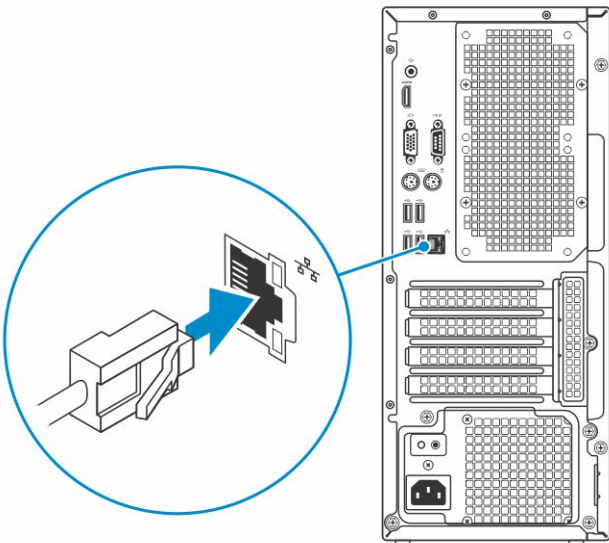
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# Set up your computer

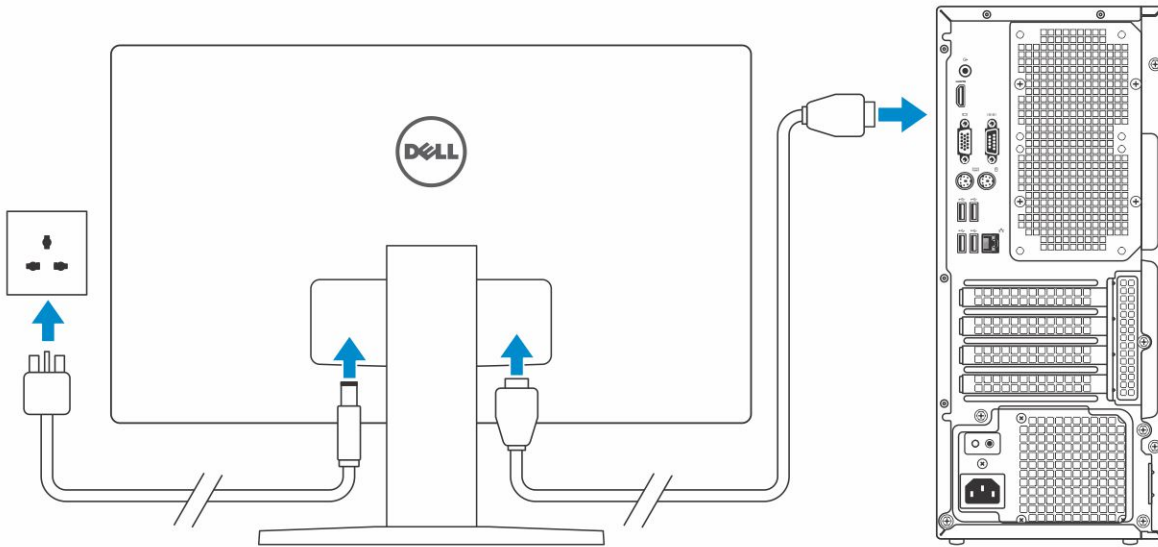
- 1 Connect the keyboard and mouse.



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

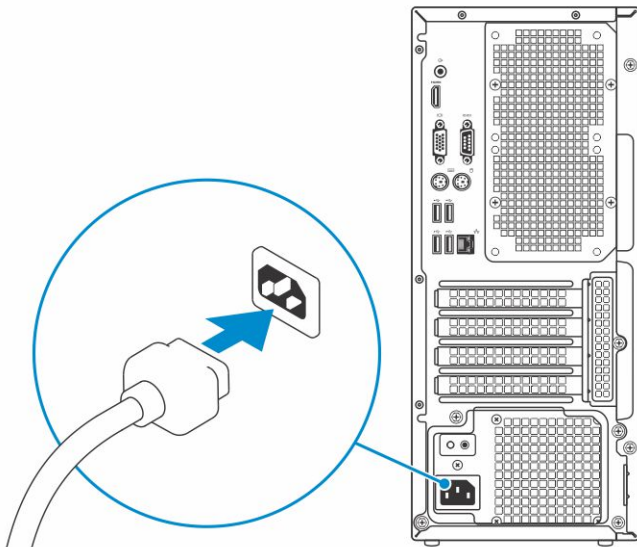


- 3 Connect the display.

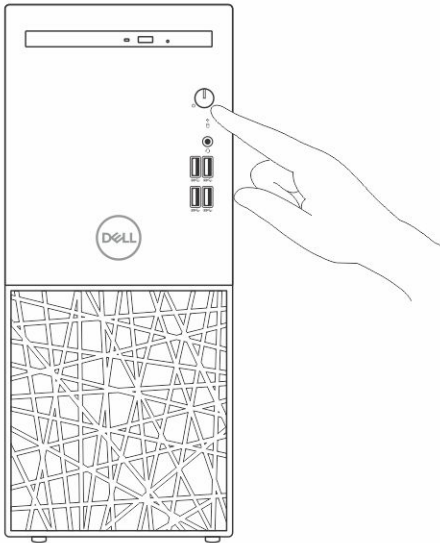


**① NOTE:** If you ordered your computer with a discrete graphics card, the HDMI and the display ports on the back panel of your computer are covered. Connect the display to the discrete graphics card.

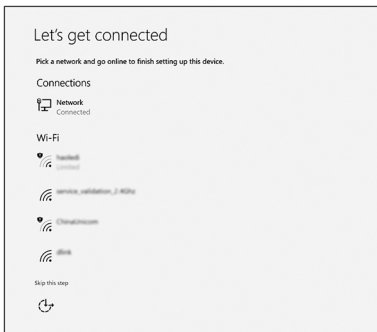
4 Connect the power cable.



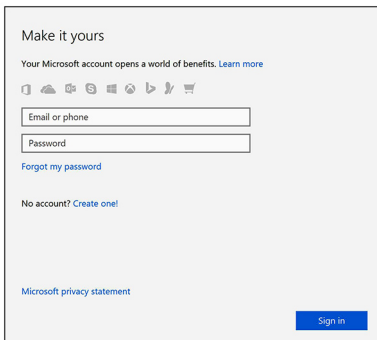
5 Press the power button.



- 6 Follow the instructions on the screen to finish Windows setup:
  - a Connect to a network.



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



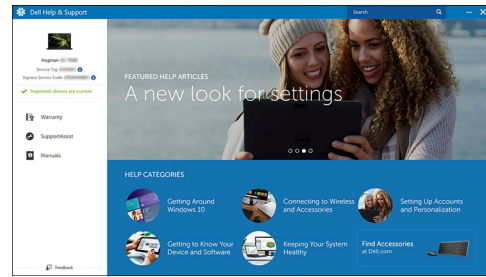
- 7 Locate Dell apps.

Table 1. Locate Dell apps



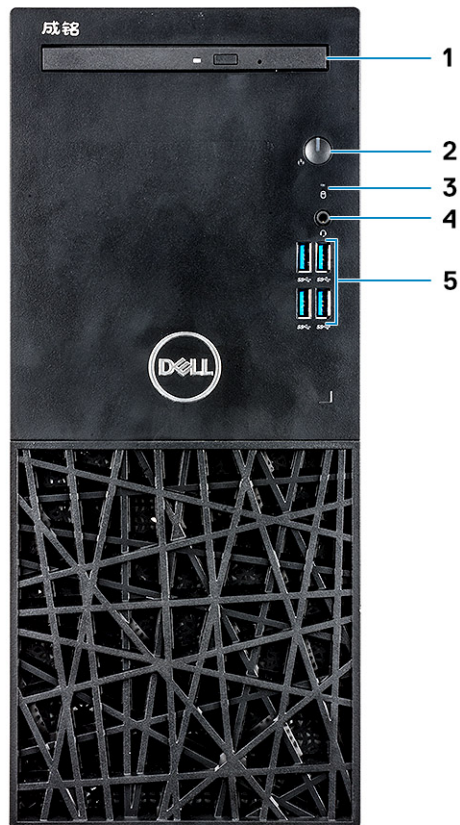
Register your computer

Dell Help & Support



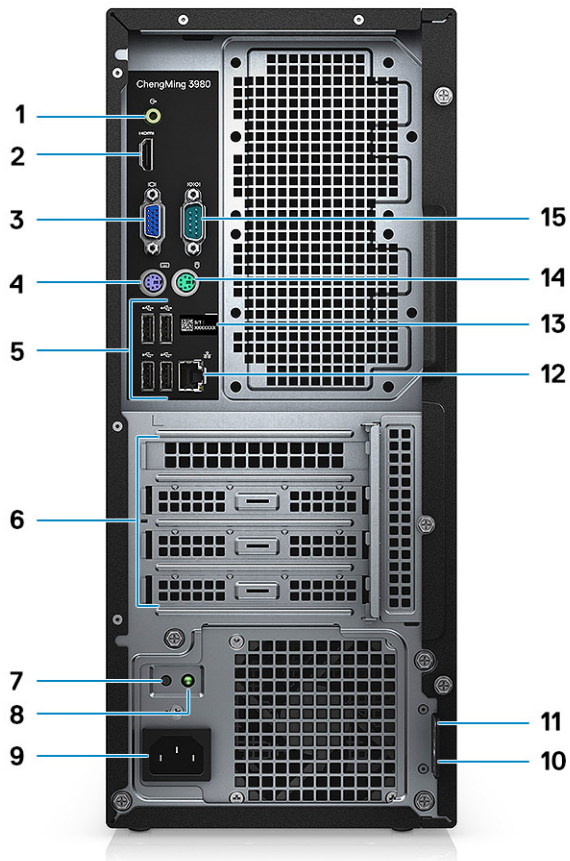
SupportAssist — Check and update your computer

## System front view

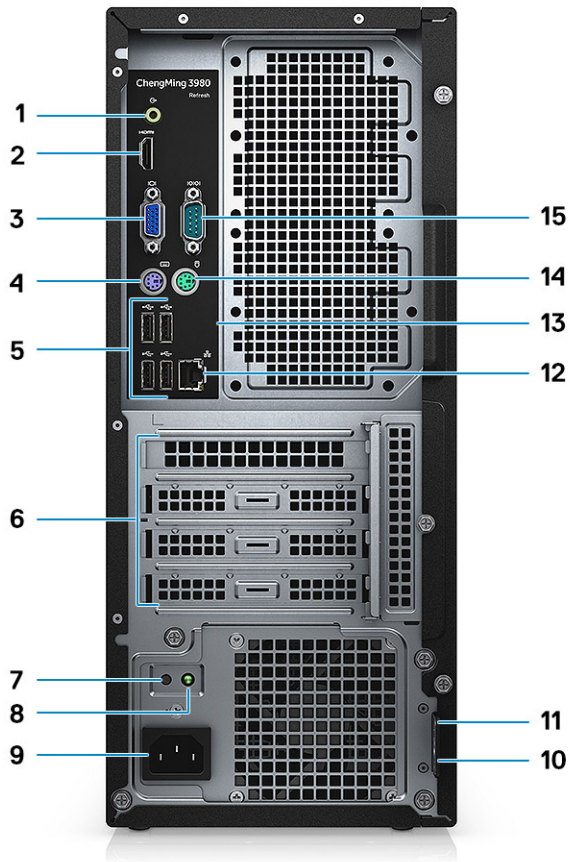


- |   |                           |   |                                     |
|---|---------------------------|---|-------------------------------------|
| 1 | Optical drive             | 2 | Power button and power status light |
| 3 | Hard drive activity light | 4 | Universal audio jack                |
| 5 | USB 3.1 Gen 1 ports       |   |                                     |

# System back view



Back view (ChengMing 3980, Refresh)



- |    |                                |    |                        |
|----|--------------------------------|----|------------------------|
| 1  | Line out port                  | 2  | HDMI port              |
| 3  | VGA port                       | 4  | PS2 port for keyboard  |
| 5  | USB 2.0 ports (4)              | 6  | Expansion card slots   |
| 7  | Power supply diagnostic button | 8  | Power diagnostic light |
| 9  | Power connector port           | 10 | Padlock ring           |
| 11 | Kensington security slot       | 12 | Network port           |
| 13 | Service tag                    | 14 | PS2 port for mouse     |
| 15 | Serial port                    |    |                        |

# Technical specifications

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

Topics:

- [Physical specifications](#)
- [System information](#)
- [Processor specifications](#)
- [Operating system specifications](#)
- [Memory specifications](#)
- [Port and connector specifications](#)
- [Communication specifications](#)
- [Video specifications](#)
- [Audio specifications](#)
- [Storage specifications](#)
- [Storage combinations](#)
- [Power supply specifications](#)
- [Security hardware](#)
- [Regulatory and Environmental Compliance](#)

## Physical specifications

**Table 2. Physical specifications**

Height	373.7
Width	160
Depth	289.4mm
Weight	5.9 kg (13.01 lb)

## System information

**Table 3. System information**

Chipset	Integrated: Intel H370
DRAM bus width	64-bit wide channels
FLASH EPROM	256Mbit

PCIe bus	100MHz
External bus frequency	DMI3.0 8GT/s

## Processor specifications

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

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

**Table 4. Processor specifications**

Type	UMA Graphics
Intel Celeron- G4900 (2 Cores/2MB/2T/3.1GHz/65W)	Intel Ultra HD (UHD) Graphics 610 with shared graphics memory
Intel Pentium Gold- G5400 (2 Cores/4MB/4T/3.7GHz/65W)	Intel UHD Graphics 610 with shared graphics memory
Intel Core i3-8100 (4 Cores/6MB/4T/3.6GHz/65W)	Intel UHD Graphics 630 with shared graphics memory
Intel Core i5-8400 (6 Cores/9MB/6T/ 4.0GHz/65W)	Intel UHD Graphics 630 with shared graphics memory
Intel Core i5-8500 (6 Cores/9MB/6T/4.1GHz/65W)	Intel UHD Graphics 630 with shared graphics memory
Intel Core i7-8700 (6 Cores/12MB/12T/4.6GHz/65W)	Intel UHD Graphics 630 with shared graphics memory
Intel Celeron 9th Generation Celeron G4930 (2M Cache, 2 cores, 54 W, up to 3.2 GHz)	Intel UHD Graphics 610 with shared graphics memory
Intel 9th Generation Pentium Gold G5420 (4M Cache, 2 cores, 54 W, up to 3.8 GHz)	Intel UHD Graphics 610 with shared graphics memory
Intel 9th Generation Core i3-9100 (6 MB Cache, 4 cores, 65 W, up to 4.2 GHz)	Intel UHD Graphics 630 with shared graphics memory
Intel 9th Generation Core i5-9400 (9 MB Cache, 6 cores, 65 W, up to 4.1 GHz)	Intel UHD Graphics 630 with shared graphics memory
Intel 9th Generation Core i7-9700 (12 MB Cache, 8 cores, 65 W, up to 4.7 GHz)	Intel UHD Graphics 630 with shared graphics memory

## Operating system specifications

**Table 5. Operating system specifications**

Operating systems supported	<ul style="list-style-type: none"> <li>Windows 10 64-bit</li> <li>Windows 10 64-bit Professional</li> <li>Ubuntu</li> <li>NeoKylin</li> </ul>
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# Memory specifications

**Table 6. Memory specifications**

Minimum memory configuration	4 GB
Maximum memory configuration	32 GB
Number of slots	2 UDIMM
Maximum memory supported per slot	16 GB
Memory options	<ul style="list-style-type: none"><li>• 4GB DDR4 2400MHz (4Gx1)</li><li>• 8GB DDR4 2400MHz (8Gx1)</li><li>• 8GB DDR4 2400MHz (4Gx2)</li><li>• 16GB DDR4 2400MHz (8Gx2)</li><li>• 16GB DDR4 2400MHz (16Gx1)</li><li>• 32GB DDR4 2400MHz (16Gx2)</li><li>• 4GB DDR4 2666MHz (4Gx1)</li><li>• 8GB DDR4 2666MHz (8Gx1)</li><li>• 8GB DDR4 2666MHz (4Gx2)</li><li>• 16GB DDR4 2666MHz (8Gx2)</li><li>• 16GB DDR4 2666MHz (16Gx1)</li><li>• 32GB DDR4 2666MHz (16Gx2)</li></ul>
	<p><b>NOTE:</b> The memory modules are customer replaceable units (CRU), and memory can be upgraded.</p> <p>Memory performance on Intel Celeron, Pentium, and Core i3 processors will be at 2400 MHz.</p>
Type	DDR4 SDRAM Non-ECC memory.
Speed	<ul style="list-style-type: none"><li>• 2666 MHz</li><li>• 2400 MHz on Celeron, Pentium, and i3 processor</li></ul>

# Port and connector specifications

**Table 7. Port and connector specifications**

USB	<ul style="list-style-type: none"><li>• Four USB 3.1 Gen 1 ports</li><li>• Four USB 2.0 ports</li></ul>
Security	<ul style="list-style-type: none"><li>• Kensington security slot</li><li>• Padlock ring</li></ul>
Audio	<ul style="list-style-type: none"><li>• Headset port</li><li>• Line-out</li></ul>

Video	<ul style="list-style-type: none"> <li>• VGA port</li> <li>• HDMI 1.4 (UMA)</li> </ul>
Network adapter	One RJ-45 connector
Serial port	One serial port
PS/2 ports for keyboard and mouse	<ul style="list-style-type: none"> <li>• One PS/2 port for mouse</li> <li>• One PS/2 port for keyboard</li> </ul>

## Communication specifications

**Table 8. Communication specifications**

Feature	Specifications
Network adapter	Ethernet controller 10/100/1000 Mb/s Ethernet (RJ-45 )
Wireless	<ul style="list-style-type: none"> <li>• WLAN/Bluetooth combo wireless NIC add-in card (with external antenna)</li> <li>• 2nd gigabit NIC add-in card (PCIe)</li> </ul>

## Video specifications

**Table 9. Video specifications**

Controller	Type	CPU Dependency	Graphics memory type	Capacity	External display support	Maximum resolution
Intel UHD Graphics 610	UMA	Intel Pentium Gold G5400 / Intel Pentium Gold G5420  Celeron processor G4900 / Intel Pentium Gold G4930	Integrated	Shared system memory	VGA  HDMI 1.4	VGA: 2048x1536@60 Hz  HDMI : 1920x1080@60Hz
Intel UHD Graphics 630	UMA	Intel Core i3 - 8100 / Intel Core i3 - 9100  Intel Core i5 - 8400 / Intel Core i5 - 9400  Intel Core i7 - 8700 / Intel Core i7 - 9700	Integrated	Shared system memory	VGA  HDMI 1.4	VGA: 2048x1536@60 Hz  HDMI : 1920x1080@60Hz
NVIDIA GeForce GT 730 2GB	Discrete	N/A	GDDR5	2 GB	DP1.2	Max Resolution  • 2560X1600

Controller	Type	CPU Dependency	Graphics memory type	Capacity	External display support	Maximum resolution
AMD Radeon RX 550 4GB	Discrete	N/A	GDDR5	4 GB	mDP and DP	Max Resolution <ul style="list-style-type: none"> <li>5120 X 2880</li> </ul>
NVIDIA GeForce GTX 1060	Discrete	N/A	GDDR5	3 GB	DL-DVI DP HDMI	DL-DVI = 2560 x 1600x 24bpp @ 60hz (reduced blanking) DisplayPort = <ul style="list-style-type: none"> <li>7680 x 4320 @ 60hz YUV420 8bit with single DP1.3</li> <li>5120 x 3200 x 24 bpp @ 60hz (reduced blanking)</li> <li>5120 x 3200 x 30 bpp @ 60hz (YUV422)</li> </ul> HDMI = 4096 x 2160 x 24bpp @ 60hz

## Audio specifications

**Table 10. Audio specifications**

Controller	Audio software: Waves MaxxAudio Pro
Type	Four-channel high-definition audio
Speakers	Two (Directional speakers)
Interface	<ul style="list-style-type: none"> <li>Universal audio jack</li> <li>High quality speakers</li> <li>Microphones</li> <li>Stereo headset/mic combo</li> </ul>
Internal speaker amplifier	2W (RMS) per channel

## Storage specifications

**Table 11. Storage specifications**

Primary/Boot drive	Secondary drive	Interface	Capacity
Hard drive (HDD)	3.5 inch HDD and 2.5 inch HDD	Up to 6Gbps (SATA 3.0)	Up to 2 TB
Solid-State Drive (SSD)	SSD M.2 PCIe 2230 and 2280 PCIe	PCIe Gen3 8Gb/s (up to 4 lanes)	Up to 512GB

Primary/Boot drive	Secondary drive	Interface	Capacity
Solid-State Drive (SSD)	M.2 SATA 2230 and 2280	SATA AHCI, Up to 6 Gbps	Up to 512GB
Solid-State Drive (SSD)	2.5 inch SSD	Up to 6Gbps (SATA 3.0)	Up to 512GB
Up to 32 GB (optional)	Optane	N/A	Up to 32GB

#### Optical Drive options

Slim ODD tray type 9.5 mm (Optional)

## Storage combinations

Table 12. Storage combinations

Primary/Boot drive	Secondary drive
M.2 Drive + SATA	M.2 128GB Solid State Drive+ 1TB 7200 rpm Hard Drive

## Power supply specifications

Table 13. Power supply

Feature	Specifications
Input Voltage	100–240 VAC or 200-240 VAC, 50–60Hz
Wattage	<ul style="list-style-type: none"> <li>290W PSU (APFC)</li> <li>290W PSU (EPA Bronze)</li> <li>365 W PSU (EPA Gold), pair with NVIDIA GTX 1060 3GB GDDR5</li> </ul>

## Security hardware

Table 14. Security hardware

Feature	Specifications
Security HW	<ul style="list-style-type: none"> <li>Data wipe via BIOS (Secure Erase)</li> </ul>

## Regulatory and Environmental Compliance

Table 15. Regulatory and Environmental Compliance

Feature	Specifications
Regulatory and Environmental Compliance	<ul style="list-style-type: none"> <li>Energy Star 7.0 (available in selected configurations only)</li> <li>FCC, UL mark</li> </ul>

Feature	Specifications
Temperature range	<ul style="list-style-type: none"> <li>· EPEAT Registered (for selected configurations only). For specific country participation and rating, please visit <a href="http://www.epeat.net">www.epeat.net</a></li> <li>· Operating :10°C to 35°C (50°F to 95°F)</li> <li>· Storage: -40°C to 65°C (-40°F to 149°F)</li> </ul>
Relative humidity	<ul style="list-style-type: none"> <li>· Operating : 20% to 80% (*Max dew point temperature = 26°C) (non-condensing)</li> <li>· Storage: 5% to 95% (+Max dew point temperature = 33°C) (non-condensing)</li> </ul>
Airborne contaminant level	G1 as defined by ISA-S71.04-1985
Vibration	Vibration (maximum)*: operating=0.26 GRMS; Storage=1.37 GRMS
Shock	Shock (maximum): operating=40 G†; Storage=105 G‡

# System setup

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

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

Topics:

- [Boot Sequence](#)
- [Navigation Keys](#)
- [System Setup options](#)
- [Updating the BIOS in Windows](#)
- [System and setup password](#)

## Boot Sequence

Boot Sequence allows 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: XXX denotes the SATA drive number.**

- Optical Drive (if available)
- SATA Hard Drive (if available)
- Diagnostics

 **NOTE: Choosing Diagnostics, will display the ePSA diagnostics screen.**


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

## Navigation Keys

The following table displays the system setup navigation keys.

 **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 16. 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.
	   <b>NOTE: For the standard graphics browser only.</b>
<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.

## System Setup options

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

**Table 17. General**

Option	Description
System Information	<p>Displays the following information:</p> <ul style="list-style-type: none"> <li>• System Information: Displays <b>BIOS Version, Service Tag, Asset Tag, Ownership Date, Manufacture Date</b>, and the <b>Express Service Code</b>.</li> <li>• Memory Information: Displays <b>Memory Installed, Memory Available, Memory Speed, Memory Channels Mode, Memory Technology, DIMM 1 Size, and DIMM 2 Size</b>.</li> <li>• PCI Information: Displays <b>SLOT1, SLOT2, SLOT3, SLOT4, SLOT5_M.2</b></li> <li>• Processor Information: Displays <b>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</b>.</li> <li>• Device Information: Displays <b>SATA-0, SATA-1, SATA-2, SATA-3, LOM MAC Address, Video Controller</b></li> </ul>
Boot Sequence	<p>Allows you to specify the order in which the computer attempts to find an operating system from the devices specified in this list.</p> <ul style="list-style-type: none"> <li>• Legacy</li> <li>• <b>UEFI</b> (default)</li> </ul>
Advanced Boot Options	Allows you to select the Enable Legacy Option ROMs option, when in UEFI boot mode. By default, this option is enabled.
UEFI Boot Path Security	<p>Options:</p> <ul style="list-style-type: none"> <li>• <b>Always, Except Internal HDD</b> (default)</li> <li>• Always</li> <li>• Never</li> </ul>
Date/Time	Allows you to set the date and time settings. Changes to the system date and time take effect immediately.

**Table 18. System Configuration**

Option	Description
Integrated NIC	<p>Allows you to control the on-board LAN controller. The options are:</p> <ul style="list-style-type: none"><li>• Enable UEFI Network stack</li><li>• Disabled</li><li>• Enabled</li><li>• Enabled w/PXE (default)</li></ul> <p><b>i</b> <b>NOTE: Depending on the computer and its installed devices, the items listed in this section may or may not appear.</b></p>
Serial Port	<p>Identifies and defines the serial port settings. You can set the serial port to:</p> <ul style="list-style-type: none"><li>• Disabled</li><li>• COM1 (default)</li><li>• COM2</li><li>• COM3</li><li>• COM4</li></ul>
SATA Operation	<p>Allows you to configure the operating mode of the integrated hard drive controller.</p> <ul style="list-style-type: none"><li>• Disabled = The SATA controllers are hidden</li><li>• AHCI</li><li>• <b>RAID On</b> (default)</li></ul>
Drives	<p>Allows you to enable or disable the various drives on-board:</p> <ul style="list-style-type: none"><li>• SATA-0</li><li>• SATA-1</li><li>• SATA-2</li><li>• SATA-3</li><li>• M.2 PCIe SSD-0</li></ul> <p>Default Setting: All drives are enabled.</p>
Smart Reporting	<p>This field controls whether hard drive errors for integrated drives are reported during system startup. This option is disabled by default.</p>
USB Configuration	<p>Allows you to enable or disable the integrated USB controller for:</p> <ul style="list-style-type: none"><li>• Enable Boot Support</li><li>• Enable Front USB Ports</li><li>• Enable Rear USB Ports</li></ul> <p>All the options are enabled by default.</p>
Front USB Configuration	<p>Allows you to enable or disable the Front USB configuration. The options are:</p> <ul style="list-style-type: none"><li>• Front Port 1 (Left)*</li><li>• Front Port 2( Right)*</li><li>• Front Port 3 (Left)*</li><li>• Front Port 4 (Right)*</li></ul> <p>All the options are enabled by default.</p> <p>* denotes a USB 3.0-capable port</p>
Rear USB Configuration	<p>Allows you to enable or disable the rear USB configuration. The options are:</p>

Option	Description
	<ul style="list-style-type: none"> <li>• Rear Port 1 (Left)</li> <li>• Rear Port 2 (Right)</li> <li>• Rear Port 3 (Left)</li> <li>• Rear Port 4 (Right)</li> </ul> <p>All the options are enabled by default.</p> <p>* denotes a USB 3.0-capable port</p>
Audio	<p>Allows you to enable or disable the integrated audio controller.</p> <ul style="list-style-type: none"> <li>• Enable Microphone</li> <li>• Enable Internal Speaker</li> </ul> <p>Both the options are enabled by default.</p>
Miscellaneous Devices	<p>Allows you to enable or disable the various on-board devices.</p> <ul style="list-style-type: none"> <li>• Enable PCI Slot (default option)</li> <li>•</li> </ul>

**Table 19. Video**

Option	Description
Primary Display	<p>Allows you to select the primary display when multiple controllers are available in the system.</p> <ul style="list-style-type: none"> <li>• <b>Auto (default)</b></li> <li>• Intel HD Graphics</li> <li>• NVIDI HD Graphics</li> </ul> <p><b>i</b>   <b>NOTE: If you do not select Auto, the on-board graphics device will be present and enabled.</b></p>
Multi-Display	<p>The option is enabled by default</p>

**Table 20. Security**

Option	Description
Admin Password	<p>This option lets you enable or disable Admin passwords for the system.</p> <p><b>i</b>   <b>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.</b></p> <p><b>i</b>   <b>NOTE: Successful password changes take effect immediately.</b></p> <p>Default Setting: Not set</p>
System Password	<p>Allows you to set, change or delete the system password.</p> <p><b>i</b>   <b>NOTE: Successful password changes take effect immediately.</b></p> <p>Default Setting: Not set</p>
Internal HDD-0 Password	<p>Allows you to set, change or delete the password on the system's internal hard-disk drive.</p> <p><b>i</b>   <b>NOTE: Successful password changes take effect immediately.</b></p> <p>Default Setting: Not set</p>

Option	Description
Internal HDD-2 Password	<p>Allows you to set, change or delete the password on the system's internal hard-disk drive.</p> <p><b>i</b>   <b>NOTE: Successful password changes take effect immediately.</b></p> <p>Default Setting: Not set</p>
Password Change	<p>Allows you to enable the disable permission to the System and Hard Drive passwords when the admin password is set.</p> <p>Default Setting: Allow Non-Admin Password Changes is selected.</p>
UEFI Capsule Firmware Updates	<p>Allows you to controls whether the system allows BIOS update via UEFI capsule update packages.</p> <p>Default setting: Enable</p>
PTT Security	<p>Allows you to control the Platform Trust Technology feature (PTT) is visible to the operating system. The options are:</p> <ul style="list-style-type: none"> <li>· PTT On</li> </ul> <p><b>i</b>   <b>NOTE: Disabling this option dose not change any setting you have made to the PTT nor dose it delete or change any information or keys you may have stored in the PTT. Changes to this settings take effect immediatly</b></p>
Master Password Lockout	The option is disabled by default
HDD Protection Support	The option is disabled by default
SMM Security Mitigation	The option is disabled by default
CPU XD Support	Allows you to enable or disable the Execute Disable mode of the processor. This option is enabled by default.

**Table 21. Secure Boot**

Option	Description
Secure Boot Enable	Allows you to enable or disable Secure Boot feature. The option is disabled by default.
Secure Boot Mode	<ul style="list-style-type: none"> <li>· <b>Deployed Mode</b> (default)</li> <li>· Audit Mode</li> </ul>
Expert key Management	<p>Allows you to manipulate the security key databases only if the system is in Custom Mode. The <b>Enable Custom Mode</b> option is disabled by default. The options are:</p> <ul style="list-style-type: none"> <li>· <b>PK</b> (default)</li> <li>· KEK</li> <li>· db</li> <li>· dbx</li> </ul> <p>If you enable the <b>Custom Mode</b>, the relevant options for <b>PK, KEK, db, and dbx</b> appear. The options are:</p> <ul style="list-style-type: none"> <li>· <b>Save to File</b>- Saves the key to a user-selected file</li> <li>· <b>Replace from File</b>- Replaces the current key with a key from a user-selected file</li> <li>· <b>Append from File</b>- Adds a key to the current database from a user-selected file</li> <li>· <b>Delete</b>- Deletes the selected key</li> <li>· <b>Reset All Keys</b>- Resets to default setting</li> <li>· <b>Delete All Keys</b>- Deletes all the keys</li> </ul> <p><b>i</b>   <b>NOTE: If you disable the Custom Mode, all the changes made will be erased and the keys will restore to default settings.</b></p>

**Table 22. Intel Software Guard Extensions**

Option	Description
Intel SGX Enable	Allows you to enable or disable the Intel Software Guard Extensions to provide a secured environment for running code/storing sensitive information in the context of the main operating system. <ul style="list-style-type: none"><li>· Disabled</li><li>· Enabled</li><li>· <b>Software Controlled</b> (default)</li></ul>
Enclave Memory Size	Allows you to set the Intel SGX Enclave Reserve Memory Size. <ul style="list-style-type: none"><li>· 32 MB</li><li>· 64 MB</li><li>· 128 MB</li></ul>

**Table 23. Performance**

Option	Description
Multi Core Support	This field specifies whether the process will have one or all cores enabled. This option is enabled by default.
Enable Intel SpeedStep	Allows you to enable or disable the Intel SpeedStep mode of the processor. This option is enabled by default.
C States Control	Allows you to enable or disable additional processor sleep states. This option is enabled by default.
Intel TurboBoost	Allows you to enable or disable the Intel TurboBoost mode of the processor. This option is enabled by default.
Hyper-Thread Control	Allows you to enable or disable the HyperThreading in the processor. <ul style="list-style-type: none"><li>· Disabled</li><li>· <b>Enabled</b> (default)</li></ul>

**Table 24. Power Management**

Option	Description
AC Recovery	Determines how the system responds when AC power is re-applied after a power loss. You can set the AC Recovery to: <ul style="list-style-type: none"><li>· Power Off</li><li>· Power On</li><li>· Last Power State</li></ul> This option is <b>Power Off</b> by default.
Enable Intel Speed Shift Technology	The option is enabled by default
Auto On Time	Sets time to automatically turn on the computer. Time is kept in standard 12-hour format (hour:minutes:seconds). Change the startup time by typing the values in the time and AM/PM fields. <b>i</b> <b>NOTE: This feature does not work if you turn off your computer using the switch on a power strip or surge protector or if Auto Power is set to disabled.</b>
Deep Sleep Control	Allows you to define the controls when Deep Sleep is enabled. <ul style="list-style-type: none"><li>· <b>Disabled (default)</b></li><li>· Enabled in S5 only</li></ul>

Option	Description
	<ul style="list-style-type: none"> <li>Enabled in S4 and S5</li> </ul> <p>This option is Disabled by default.</p>
USB Wake Support	Allows you to enable the USB devices to wake the computer from standby mode. This option is enabled by default.
Block Sleep	Allows you to block entering to sleep (S3 state) in OS environment. This option is disabled by default.

**Table 25. POST Behavior**

Option	Description
Numlock LED	Allows you to enable or disable the Numlock feature when your computer starts. This option is enabled by default.
Keyboard Errors	Allows you to enable or disable the keyboard error reporting when the computer starts. This option is enabled by default.
Fast Boot	<p>This option can speed up the boot process by bypassing some compatibility steps:</p> <ul style="list-style-type: none"> <li>Minimal — The system boots quickly, unless the BIOS has been updated, memory changed, or the previous POST did not complete.</li> <li>Thorough — The system does not skip any steps in the boot process.</li> <li>Auto — This allows the operating system to control this setting (this works only when the operating system supports Simple Boot Flag).</li> </ul> <p>This option is set to <b>Thorough</b> by default.</p>
Extended BIOS Post Time	<ul style="list-style-type: none"> <li><b>0 seconds</b> (default)</li> <li>5 seconds</li> <li>10 seconds</li> </ul>
Full Screen Logo	The option is disabled by default
Warnings and Errors	<ul style="list-style-type: none"> <li><b>Prompt on Warnings and Errors</b> (default)</li> <li>Continue on Warnings and Errors</li> <li>Continue on Warnings</li> </ul>

**Table 26. Virtualization Support**

Option	Description
Virtualization	This option specifies whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities provided by Intel® Virtualization Technology. <b>Enable Intel Virtualization Technology</b> - This option is enabled by default.
VT for Direct I/O	This option is enabled by default.

**Table 27. 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.
SERR Messages	The option is enabled by default
BIOS Downgrade	Allows you to control flashing of the system firmware to the previous versions. This option is enabled by default.

Option	Description
	<b>NOTE:</b> If this option is not selected, the flashing of the system firmware to the previous versions is blocked.
Data Wipe	The option is disabled by default
BIOS recovery	Allows you to recover the corrupted BIOS conditions from the recovery files on the primary hard drive or an external USB key.
First Power On Date	This option lets you set ownership date. The option is disabled by default

**Table 28. System Logs**

Option	Description
BIOS Events	Displays the system event log and allows you to: <ul style="list-style-type: none"> <li>Clear Log</li> <li>Mark all Entries</li> </ul>

**Table 29. Advanced configurations**

Option	Description
ASPM	<ul style="list-style-type: none"> <li><b>Auto</b> (default)</li> <li>Disabled</li> <li>L1 only</li> </ul>

**Table 30. SupportAssist System Resolution**

Option	Description
Auto OS Recovery Threshold	Allows you to control the automatic boot flow for SupportAssist System. Options are: <ul style="list-style-type: none"> <li>Off</li> <li>1</li> <li>2 (default)</li> <li>3</li> </ul>
SupportAssist OS Recovery	Allows you to recover the SupportAssist OS Recovery (Enabled by default)

## 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.

- Restart the computer.
- 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.
- If you are unable to detect or find the Service Tag, click **Choose from all products**.
- Choose the **Products** category from the list.

**NOTE:** Choose the appropriate category to reach the product page

- 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.

## System and setup password

**Table 31. 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.**

**ℹ 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 re-boot.

- 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/or Setup password. You cannot delete or change an existing System or Setup password, if the **Password Status** is Locked. To enter the System Setup, press F2 immediately after a power-on or reboot.

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

**NOTE:** If you change the System and/or Setup password, re-enter the new password when prompted. If you delete the System and/or Setup password, confirm the deletion when prompted.

- 5 Press Esc and a message prompts you to save the changes.
- 6 Press Y to save the changes and exit from System Setup.  
The computer reboot.

## Supported operating systems

Table 32. Supported operating systems

Supported operating systems	Description
Windows 10	<ul style="list-style-type: none"> <li>Windows 10 64-bit</li> <li>Windows 10 64-bit Professional</li> </ul>
Others	<ul style="list-style-type: none"> <li>Ubuntu</li> <li>NeoKylin</li> </ul>

## Downloading drivers

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

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

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

## Intel chipset drivers

Verify if the Intel chipset drivers are already installed in the system.

- System devices
  - ACPI Fan
  - ACPI Fan
  - ACPI Fan
  - ACPI Fan
  - ACPI Fan
  - ACPI Fixed Feature Button
  - ACPI Power Button
  - ACPI Processor Aggregator
  - ACPI Thermal Zone
  - ACPI Thermal Zone
  - Composite Bus Enumerator
  - Dell Diag Control Device
  - Dell System Analyzer Control Device
  - High Definition Audio Controller
  - High Definition Audio Controller
  - High precision event timer
  - Intel(R) Management Engine Interface
  - Intel(R) Power Engine Plug-in
  - Intel(R) Xeon(R) E3 - 1200/1500 v5/6th Gen Intel(R) Core(TM) Gaussian Mixture Model - 1911
  - Intel(R) Xeon(R) E3 - 1200/1500 v5/6th Gen Intel(R) Core(TM) PCIe Controller (x16) - 1901
  - Legacy device
  - Microsoft ACPI-Compliant System
  - Microsoft System Management BIOS Driver
  - Microsoft UEFI-Compliant System
  - Microsoft Virtual Drive Enumerator
  - Microsoft Windows Management Interface for ACPI
  - Microsoft Windows Management Interface for ACPI
  - Microsoft Windows Management Interface for ACPI
  - NDIS Virtual Network Adapter Enumerator
  - Numeric data processor
  - PCI Express Root Complex
  - PCI standard host CPU bridge
  - PCI standard RAM Controller
  - PCI-to-PCI Bridge
  - Plug and Play Software Device Enumerator
  - Programmable interrupt controller
  - Remote Desktop Device Redirector Bus
  - System CMOS/real time clock
  - System timer
  - UMBus Root Bus Enumerator

## Serial IO driver

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

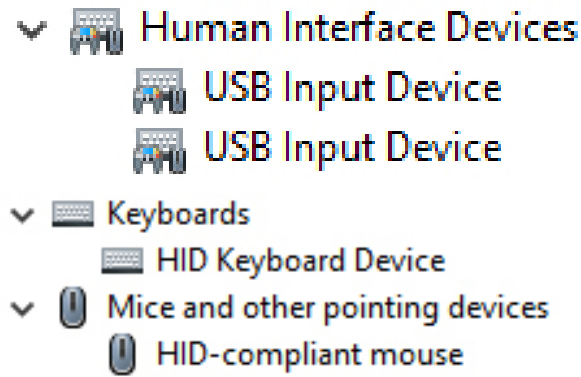
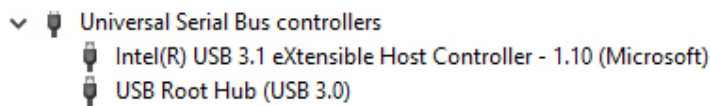


Figure 1. Serial IO driver

## USB drivers

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

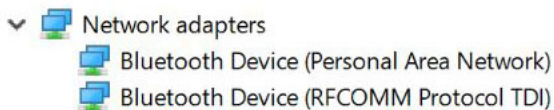


## Network drivers

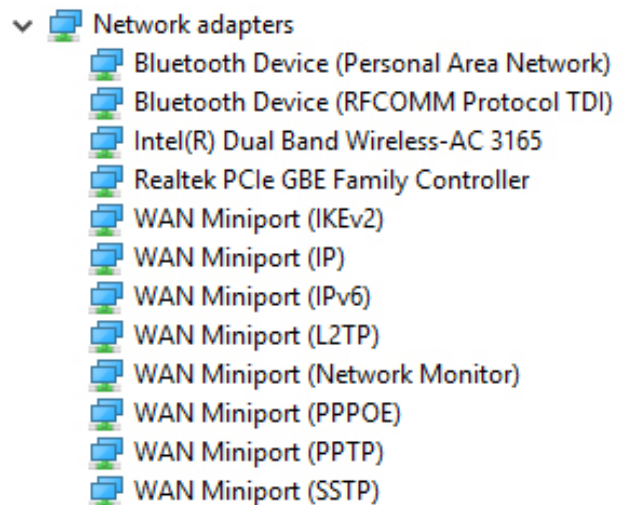
Install the WLAN and Bluetooth drivers from the Dell support site.

Table 33. Network drivers

Before installation



After installation





# Realtek Audio





Verify if audio drivers are already installed in the computer.

**Table 34. Realtek audio**

Before Installation




- ▼  Sound, video and game controllers
  -  Intel(R) Display Audio

After Installation

- ▼  Sound, video and game controllers
  -  Intel(R) Display Audio
  -  NVIDIA High Definition Audio
  -  Realtek(R) Audio

# Serial ATA drivers

Install the latest Intel Rapid Storage driver for best performance. Using the default Windows storage drivers is not recommended. Verify if the default serial ATA drivers are installed in the computer.

- ▼  Storage controllers
  -  Intel(R) Chipset SATA/PCIe RST Premium Controller
  -  Microsoft Storage Spaces Controller

# Getting help

## Contacting Dell

① **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.