

# **Dell Precision 3930 Rack**

## Setup and Specifications

## 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.

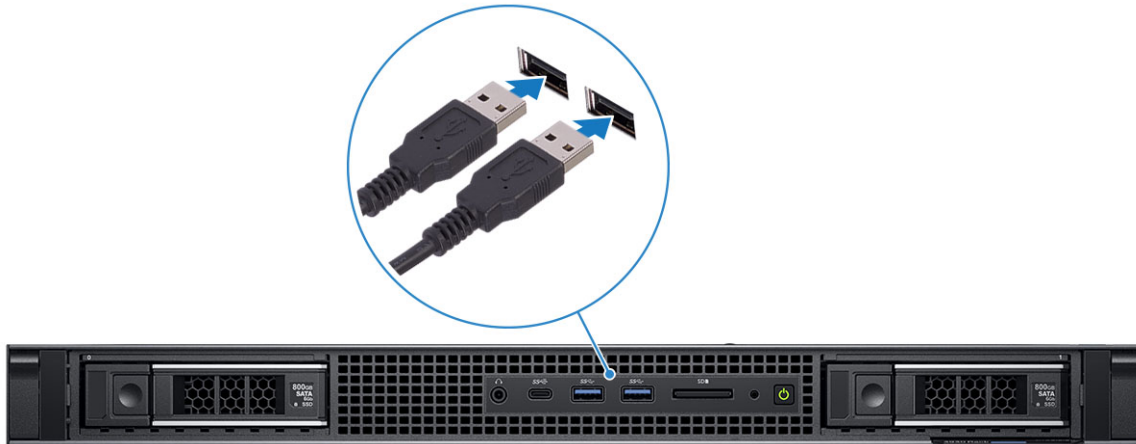
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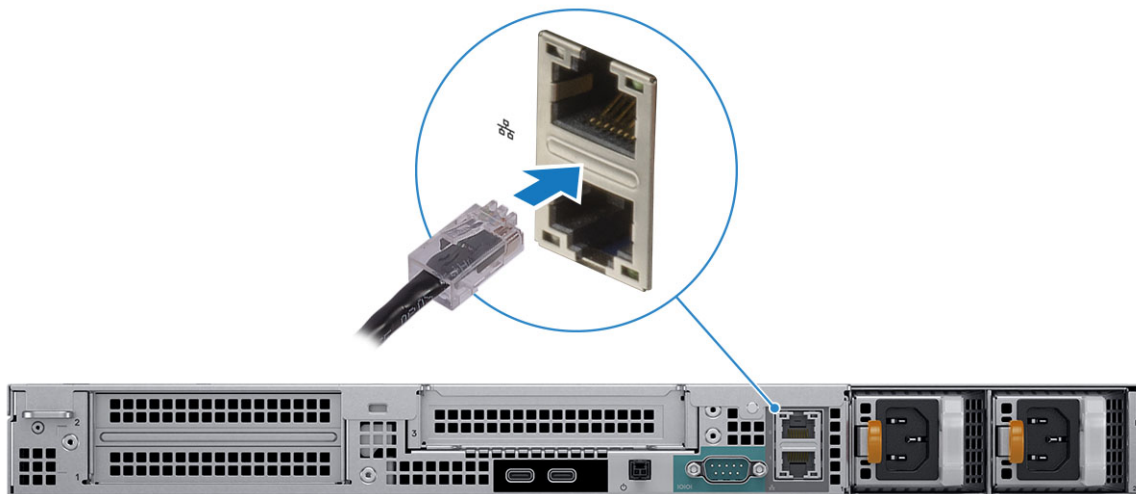
# Set up your computer

## Steps

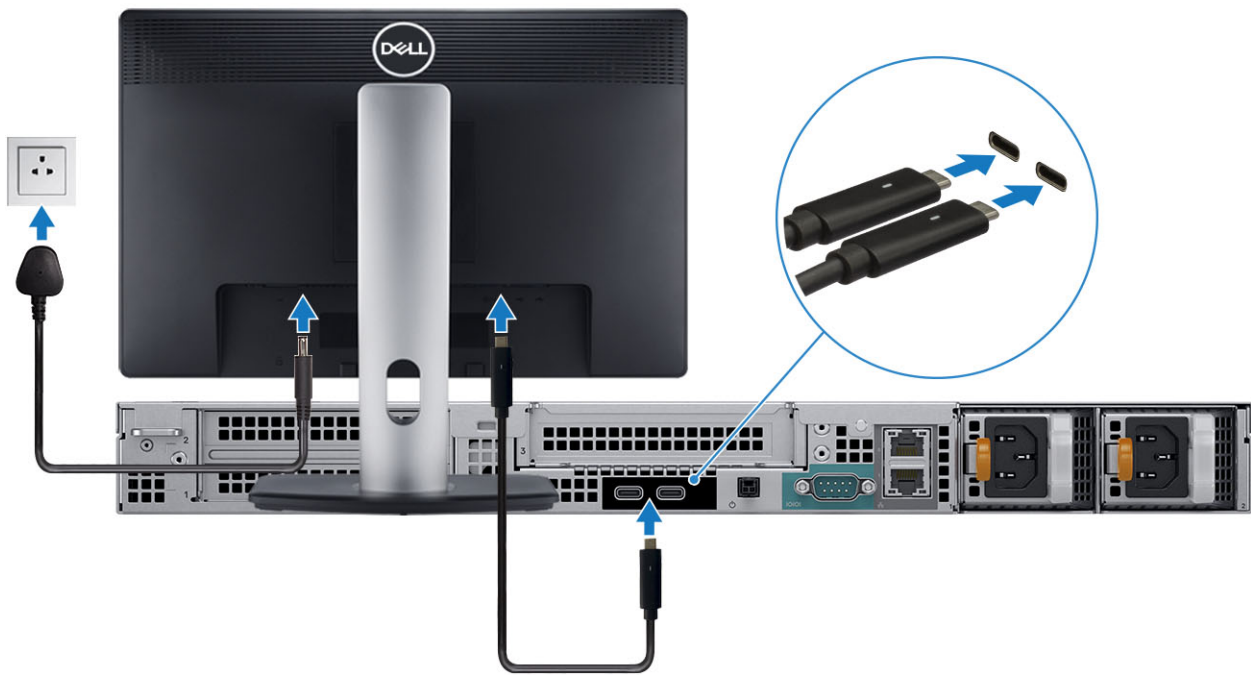
1. Connect the keyboard and mouse.



2. Connect to your network using a cable.



3. Connect the display.



**NOTE:** If you ordered your computer with discrete graphics card, the card is the primary driver for video. Connect the display to the discrete graphics card.

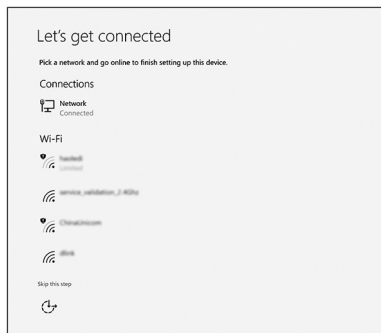
4. Connect the power cable.



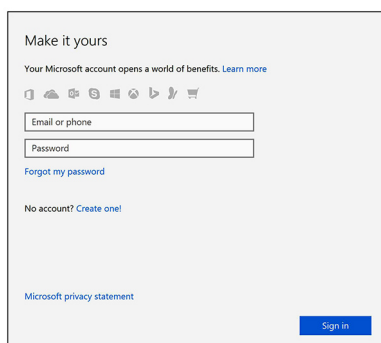
5. Press the power button.



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 an account.



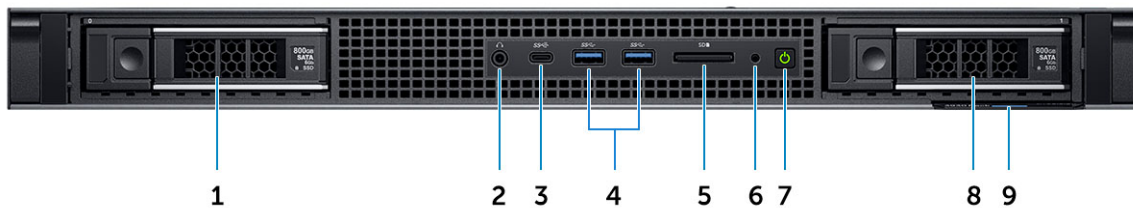
7. Locate Dell apps.

**Table 1. Locate Dell apps**

Resources	Description
	Register your computer
	<p>Dell Help and Support</p>
	SupportAssist—Check and update your computer.

## Chassis overview

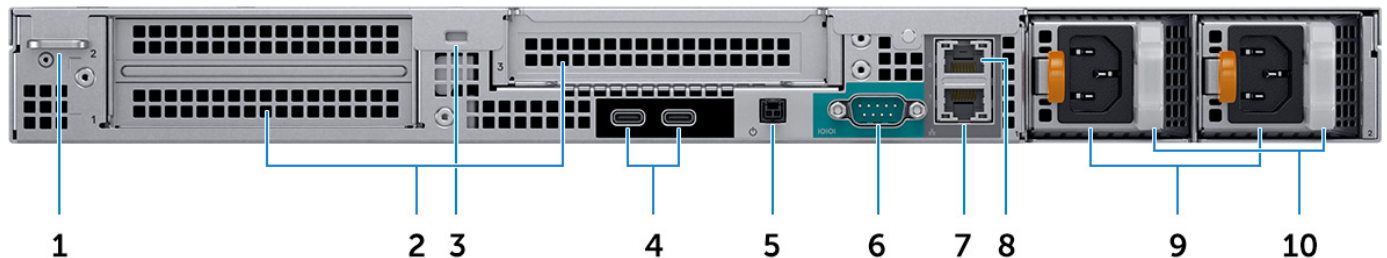
### Front



- |                             |                             |
|-----------------------------|-----------------------------|
| 1. Hard drive slot 0        | 2. Audio port               |
| 3. USB Type-C 3.1 Gen2 port | 4. USB Type-A 3.1 Gen1 port |
| 5. SD card reader slot      | 6. Drive activity light     |
| 7. Power button             | 8. Hard drive slot 1        |
| 9. Service tag              |                             |

### Back

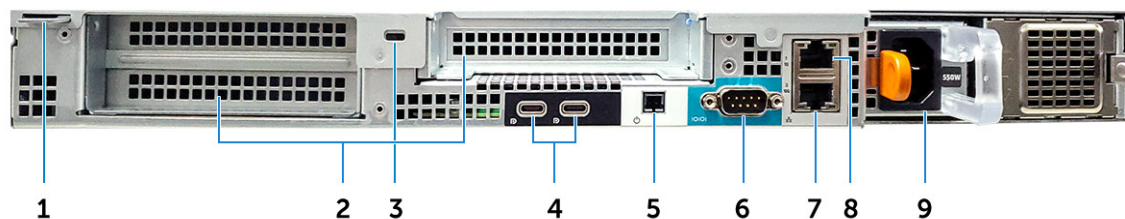
(Option 1)



- |                        |   |
|------------------------|---|
| 1. Padlock ring        | 2. Expansion card slots                         |
| 3. Security cable slot | 4. USB Type-C 3.1 Gen2 (with UMA video support) |
| 5. Remote power switch | 6. Serial port                                  |
| 7. 10 GB Network port  | 8. 1 GB Network port                            |
| 9. Power supply units  | 10. Power supply diagnostics LED                |

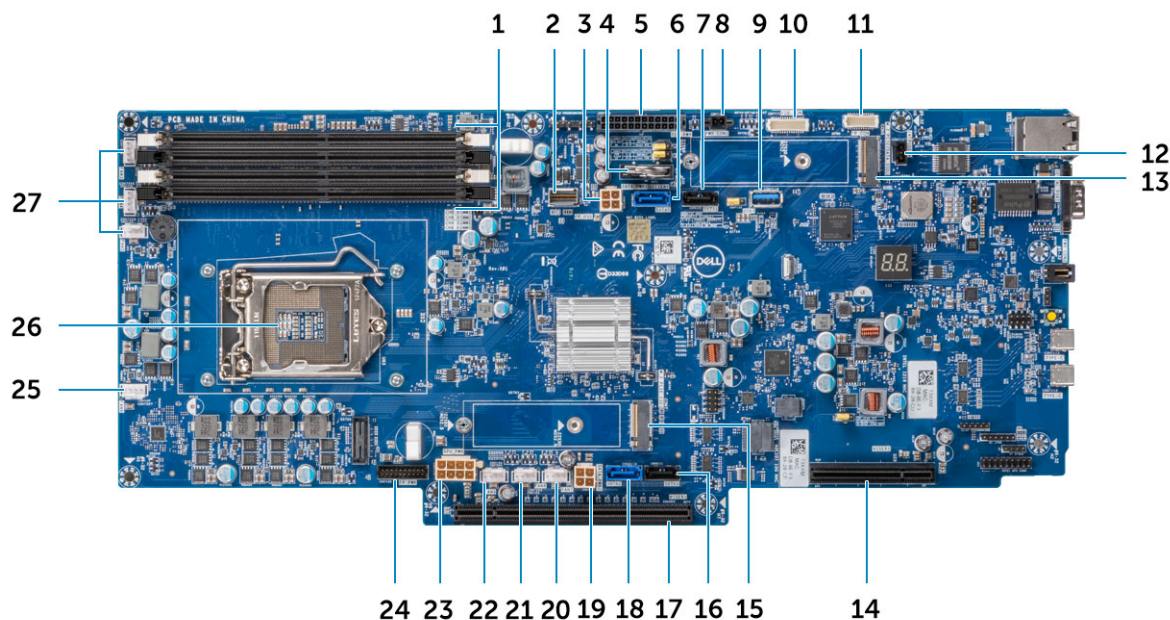


## (Option 2)



- |                        |   |
|------------------------|---|
| 1. Padlock ring        | 2. Expansion card slots                         |
| 3. Security cable slot | 4. USB Type-C 3.1 Gen2 (with UMA video support) |
| 5. Remote power switch | 6. Serial port                                  |
| 7. 10 GB Network port  | 8. 1 GB Network port                            |
| 9. Power supply unit   |   |

## System board layout



- |   |  |
|---|--|
| 1. Memory Slots                             | 2. Front panel HSD                     |
| 3. Left SATA power connector                | 4. Coin cell battery                   |
| 5. Power distribution board power connector | 6. SATA 0 connector                    |
| 7. SATA 1 connector                         | 8. Power connector 1                   |
| 9. USB Type-A 3.1 Gen1                      | 10. Power distribution board connector |
| 11. Front panel connector                   | 12. Intrusion switch connector         |
| 13. M.2 PCIe connector (SSD0)               | 14. PCIe slot                          |
| 15. M.2 PCIe connector (SSD1)               | 16. SATA 3 connector                   |
| 17. PCIe slot                               | 18. SATA 2 connector                   |
| 19. Right SATA power connector 2            | 20. Fan 7 power connector              |
| 21. Fan 8 power connector                   | 22. Fan 9 power connector              |
| 23. GPU power connector                     | 24. Front panel power connector        |
| 25. Fan 6 power connector                   | 26. Processor                          |
| 27. Fan 5/4/3 power connector               |  |

# System Information

## 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 dimensions - physical

**NOTE:** System Weight and Shipping Weight are based on a typical configuration and may vary based on personal computer configuration. A typical configuration includes: Integrated graphics, two hard drives.

**Table 2. System dimensions (Physical)**

	<b>Tower</b>
Chassis Weight (lb/kg)	27.38 / 12.42
<b>Chassis Dimensions (H x W x D)</b>	
Height (inch/cm)	1.68 / 4.28
Width (inch/cm)	18.97 / 48.2
Depth (inch/cm)	22.73 / 57.75 23.19 / 58.91 (With Bezel)
Shipping Weight (lb/kg – includes packaging materials)	42.63 / 19.34
<b>Packaging Dimensions (H x W x D)</b>	
Height (inch/cm)	8.38 / 21.3
Width (inch/cm)	23.42 / 59.5
Depth (inch/cm)	31.61 / 80.3

**NOTE:** The rails are compatible with a 4 - post EIA-310 standard compatible rack.

## System information

**Table 3. System information**

<b>Feature</b>	<b>Specification</b>
Chipset	Intel C246 chipset
DRAM bus width	64-bit
FLASH EPROM	SPI 256 MB
PCIe bus	100 MHz

**Table 3. System information (continued)**

Feature	Specification
External bus frequency	DMI 3.0-8GT/s

## Power supply unit

This topic lists the power supply units information.


**Table 4. 550 Watts**

Feature	Specifications
Power Supply Wattage	550 W
AC input Voltage Range	100–240 VAC
AC input current (low AC range/high AC range)	7.4 A / 3.7 A
AC input Frequency	50 HZ / 60 HZ.

**Table 5. 3.0 V CMOS Battery**

Brand	Type	Voltage	Composition	Life
PANASONIC	CR-2302L/BN	3 V	Lithium Manganese Dioxide	Continuous Discharge Under 15 kΩ Load to 2.0 V End-Voltage: 1000 hours or longer
Varta	6032-101-501	3V	Lithium Manganese Dioxide	Continuous Discharge Under 15 kΩ Load to 2.0V End-Voltage: 1000 hours or longer
Duracell	DL2032	3V	Lithium Manganese Dioxide	Continuous Discharge Under 15 kΩ Load to 2.0 V End-Voltage: 1000 hours or longer
Maxwell	CR2032	3V	Lithium Manganese Dioxide	Continuous Discharge Under 15 kΩ Load to 2.0 V End-Voltage: 1000 hours or longer

## Processor

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

**Table 6. Processor specifications**

Type	UMA Graphics
Intel Xeon E Processor E-2288G (8 Core, 3.7 GHz, 16 MB Cache)	Integrated Intel UHD P630
Intel Xeon E Processor E-2286G (6 Core, 4.0 GHz, 12 MB Cache)	Integrated Intel UHD P630

**Table 6. Processor specifications (continued)**


Type	UMA Graphics
Intel Xeon E Processor E-2278G (8 Core, 3.4 GHz, 16 MB Cache)	Integrated Intel UHD P630
Intel Xeon E Processor E-2276G (6 Core, 3.8 GHz, 12 MB Cache)	Integrated Intel UHD P630
Intel Xeon E Processor E-2246G (6 Core, 3.6 GHz, 12 MB Cache)	Integrated Intel UHD P630
Intel Xeon E Processor E-2236 (6 Core, 3.4 GHz, 12 MB Cache)	Not Supported
Intel Xeon E Processor E-2226G (6 Core, 3.4 GHz, 12 MB Cache)	Integrated Intel UHD P630
Intel Xeon E Processor E-2224G (4 Core, 3.5 GHz, 8 MB Cache)	Integrated Intel UHD P630
Intel Xeon E Processor E-2224 (4 Core, 3.4 GHz, 8 MB Cache)	Not Supported
Intel Xeon E Processor E-2186G (6 Core HT 3.8 Ghz, 4.7 GHz Turbo, 8 MB Cache)	Integrated Intel UHD P630
Intel Xeon E Processor E-2176G (6 Core HT 3.7 Ghz, 4.7 GHz Turbo, 8 MB Cache)	Integrated Intel UHD P630
Intel Xeon E Processor E-2174G (4 Core HT 3.8 Ghz, 4.7 GHz Turbo, 8 MB Cache)	Integrated Intel UHD P630
Intel Xeon E Processor E-2146G (6 Core HT 3.5 GHz, 4.5 Ghz Turbo, 8 MB Cache)	Integrated Intel UHD P630
Intel Xeon E Processor E-2136 (6 Core HT 3.3 Ghz, 4.5 Ghz Turbo, 8 MB Cache)	Not Supported
Intel Xeon E Processor E-2134 (4 Core HT 3.5 Ghz, 4.5 Ghz Turbo, 8 MB Cache)	Not Supported
Intel Xeon E Processor E-2124G (4 Core, 3.4 GHz, 4.5 Ghz Turbo, 8 MB Cache)	Integrated Intel UHD P630
Intel Xeon E Processor E-2124 (4 Core 3.4 GHz, 4.5 Ghz Turbo, 8 MB Cache)	Not Supported
Intel Core i3-8100 Processor (4 Core, 3.6 GHz, 6 MB Cache)	Integrated Intel UHD 630
Intel Core i5-8500 Processor (6 Core, 3.0 GHz up to 4.1 GHz Turbo, 9 MB Cache)	Integrated Intel UHD 630
Intel Core i5-8600 Processor (6 Core, 3.1 GHz up to 4.3 GHz Turbo, 9 MB Cache)	Integrated Intel UHD 630
Intel Core i5-8600K Processor (6 Core, 3.6 GHz up to 4.3 GHz Turbo, 9 MB Cache)	Integrated Intel UHD 630
Intel Core i7-8700 Processor (6 Core, 3.2 GHz up to 4.6 GHz Turbo, 12 MB Cache)	Integrated Intel UHD 630

**Table 6. Processor specifications (continued)**

Type	UMA Graphics
Intel Core i7-8700K Processor (6 Core, 3.7 GHz up to 4.7 GHz Turbo, 12 MB Cache)	Integrated Intel UHD 630
Intel Core i3-9100 Processor (4 Core, 3.6 GHz, 6 MB Cache)	Integrated Intel UHD 630
Intel Core i5-9400 Processor (8 Core, 2.9 GHz, 9 MB Cache)	Integrated Intel UHD 630
Intel Core i5-9500 Processor (6 Core, 3.0 GHz, 9 MB Cache)	Integrated Intel UHD 630
Intel Core i5-9600 Processor (6 Core, 3.1 GHz, 9 MB Cache)	Integrated Intel UHD 630
Intel Core i7-9700 Processor (8 Core, 3.0 GHz, 12 MB Cache)	Integrated Intel UHD 630
Intel Core i7-9700K Processor (8 Core, 3.6 GHz, 12 MB Cache)	Integrated Intel UHD 630
Intel Core i9-9900 Processor (8 Core, 3.1 GHz, 16 MB Cache)	Integrated Intel UHD 630
Intel Core i9-9900K Processor (8 Core, 3.6 GHz, 16 MB Cache)	Integrated Intel UHD 630

## Memory

**Table 7. Memory specifications**

Specification
4 GB
128 GB
4
UDIMM
32 GB
<ul style="list-style-type: none"> <li>4 GB - 1 x 4 GB (Non-ECC)</li> <li>8 GB - 2 x 4 GB (Non-ECC)</li> <li>8 GB - 1 x 8 GB (ECC)</li> <li>16 GB - 2 x 8 GB (Non-ECC)</li> <li>16 GB - 2 x 8 GB (ECC)</li> <li>32 GB - 4 x 8 GB (Non-ECC)</li> <li>32 GB - 4 x 8 GB (ECC)</li> <li>64 GB - 2 x 32 GB (Non-ECC)</li> <li>64 GB - 4 x 16 GB (Non-ECC)</li> <li>64 GB - 4 x 16 GB (ECC)</li> <li>128 GB - 4 x 32 GB (Non-ECC)</li> </ul>
 <b>NOTE:</b> ECC memory is only supported with Xeon E Processor and Core i3 Processor SKUs.
DDR4 UDIMM Non-ECC/ECC memory
3200 MHz

## Dell Precision 3930 rack memory matrix

**Table 8. Dell Precision 3930 rack memory population order**

Main memory configuration					Channel A		Channel B		MOD
Configuration	ECC/ non- ECC	Total memor- y	DPC	Frequen- cy	DIMM 1	DIMM0	DIMM1	DIMM0	
2x8 GB	ECC	16	1	2667		8 GB		8 GB	4879G
4x8 GB	ECC	32 GB	2	2667	8 GB	8 GB	8 GB	8 GB	H5JK2
4x16 GB	ECC	64 GB	2	2667	16 GB	16 GB	16 GB	16 GB	YGNTTR
2x4 GB	non- ECC	8 GB	1	2667		4 GB		4 GB	Y5GVC
2x8 GB	non- ECC	16 GB	1	2667		8 GB		8 GB	R3YC2
4x8 GB	non- ECC	32 GB	2	2667	8 GB	8 GB	8 GB	8 GB	XJRPK
4x16 GB	non- ECC	64 GB	2	2667	16 GB	16 GB	16 GB	16 GB	3F5PX
2x32 GB	non- ECC	64 GB	1	2667		32 GB		32 GB	983D4
4x32 GB	non- ECC	128 GB	2	2667	32 GB	32 GB	32 GB	32 GB	983D4
2x4 GB	non- ECC	8 GB	1	3200		4 GB		4 GB	M4MD V
2x8 GB	non- ECC	16 GB	1	3200		8 GB		8 GB	R3YT4
2x8 GB	non- ECC	16 GB	1	3200		8 GB		8 GB	8KM6C
2x8 GB	non- ECC	16 GB	1	3200		8 GB		8 GB	TVMC6
4x8 GB	non- ECC	32 GB	2	3200	8 GB	8 GB	8 GB	8 GB	Y9VY9
4x8 GB	non- ECC	32 GB	2	3200	8 GB	8 GB	8 GB	8 GB	8KM6C
4x8 GB	non- ECC	32 GB	2	3200	8 GB	8 GB	8 GB	8 GB	TVMC6
4x16 GB	non- ECC	64 GB	2	3200	16 GB	16 GB	16 GB	16 GB	9GCW0
2x32 GB	non- ECC	64 GB	1	3200		32 GB		32 GB	N6R0K
4x32 GB	non- ECC	128 GB	2	3200	32 GB	32 GB	32 GB	32 GB	DKNHC
Population order					Fourt h	Secon d	Third	First	



**NOTE:** To achieve optimized memory performance a single DIMM needs to be populated in both Channels A and Channel B regardless of the DIMM-number. Mixing of memory DIMM sizes is not supported.

## Storage

**Table 9. Storage specifications**

Type	Form factor	Interface	Security option	Capacity
Four 2.5 inches Front load Hard-Disk Drives (HDD)	Approximately (2.76 x 3.959 x 0.276 inches)	Up to 6Gb/s (SATA 3.0)	OPAL /SED FIPS	Up to 8 TB
Two 3.5 inches Front load Hard-Disk Drives (HDD)	Approximately (5.79 x 4 x 1)	Up to 6Gb/s (SATA 3.0)	NA	Up to 16 TB
Two solid state drives (SSD)	M.2 2280	2x PCIe x4 NVMe on the system board (not in a bay), Up to 32 Gbps 2x M.2 PCIe x4 NVMe on Dell Ultraspeed Drive Duo Card (populated in PCIe slot 2 on Riser 1A)	SED/OPAL	Up to 4 TB

**NOTE:** Your computer will either support two 3.5 inch hard-drives or four 2.5 inch hard-drives, depending on the configuration.

**NOTE:** Front Load Hard-Disk Drives are not hot swappable.

## Audio

**Table 10. Audio specifications**

Feature	Specification
Controller	Waves MaxxAudio ProSupport
Type	Two-channel high-definition audio
Interface	<ul style="list-style-type: none"> <li>Universal audio jack</li> <li>Stereo headset</li> </ul>

## Video card

**Table 11. Video card specifications**

Controller	Type	CPU Dependency	Graphics memory type	Capacity	External display support	Maximum resolution
Intel UHD Graphics 630	UMA	<ul style="list-style-type: none"> <li>Intel Core i3 - 8100/9100</li> <li>Intel Core i5 - 8600/8500 / 9400/9500 / 9600</li> <li>Intel Core i7 - 8700/9700 / 9700K</li> <li>Intel Core i9 - 9900/9900 K</li> </ul>	Integrated	Shared system memory	DisplayPort supported through Rear USB Type-C port  DP/HDMI/VGA/DVI supported through Rear USB Type-C port	4096 x 2304
Intel UHD Graphics P630	UMA	<ul style="list-style-type: none"> <li>Intel Xeon G</li> </ul>	Integrated	Shared system memory	DP/HDMI/VGA/DVI supported through Rear USB Type-C port	4096 x 2304
NVIDIA Quadro P400	Discrete	N/A	GDDR5	2 GB	eDP/mDP/HDMI/ supported through Rear USB Type-C portType-C	7680 x 4320
NVIDIA Quadro P620	Discrete	N/A	GDDR5	2 GB	mDP	2560 x 1600 x 32 bpp at 60 Hz
NVIDIA T400	Discrete	N/A	GDDR6	2 GB	mDP	<ul style="list-style-type: none"> <li>3840 x 2160 at 120 Hz</li> <li>5120 x 2880 at 60 Hz</li> </ul>
NVIDIA Quadro P1000	Discrete	N/A	GDDR5	4 GB	mDP	1920 x 1200 x 32 bpp at 60 Hz
NVIDIA T600	Discrete	N/A	GDDR6	4 GB	mDP	<ul style="list-style-type: none"> <li>3840 x 2160 at 120 Hz</li> <li>5120 x 2880 at 60 Hz</li> <li>7680 x 4320 at 60 Hz</li> </ul>
NVIDIA T1000	Discrete	N/A	GDDR6	4 GB	mDP	<ul style="list-style-type: none"> <li>3840 x 2160 at 120 Hz</li> <li>5120 x 2880 at 60 Hz</li> <li>7680 x 4320 at 60 Hz</li> </ul>
AMD WX3200	Discrete	N/A	GDDR5	4 GB	mDP	1 port



**Table 11. Video card specifications (continued)**

Controller	Type	CPU Dependency	Graphics memory type	Capacity	External display support	Maximum resolution
						<ul style="list-style-type: none"> <li>7680 x 4320 at 60 Hz</li> </ul> 2 ports <ul style="list-style-type: none"> <li>5120 x 2880 at 60 Hz</li> </ul> 4 ports <ul style="list-style-type: none"> <li>3840 x 2160 at 60 Hz</li> <li>1920 x 1080 at 60 Hz</li> </ul>
AMD Radeon Pro WX4100	Discrete	N/A	GDDR5	4 GB	mDP/DisplayPort	5120 x 2880
NVIDIA Quadro P2000	Discrete	N/A	GDDR5	5 GB	mDP/DisplayPort	5120 x 2880
NVIDIA RTX2080B	Discrete	N/A	GDDR6	8 GB	DisplayPort / HDMI	Single DisplayPort 1.4a <ul style="list-style-type: none"> <li>7680 x 4320 (8K) at 60 Hz</li> </ul> Dual DisplayPort 1.4a <ul style="list-style-type: none"> <li>7680 x 4320 (8K) at 120 Hz</li> </ul> HDMI 2.0b <ul style="list-style-type: none"> <li>4096x2160 (4K) at 60 Hz</li> </ul>
NVIDIA Quadro P4000	Discrete	N/A	GDDR5	8 GB	DisplayPort	5120 x 2880
NVIDIA RTX4000	Discrete	N/A	GDDR5	8 GB	DisplayPort / Type-C	DisplayPort <ul style="list-style-type: none"> <li>7680 x 4320 x 24bpp at 120 Hz</li> <li>7680 x 4320 x 36bpp at 60 Hz</li> <li>5120 x 2880 x 24bpp at 60 Hz</li> </ul> USB type-C <ul style="list-style-type: none"> <li>7680 x 4320 x 24bpp at 120 Hz</li> <li>7680 x 4320 x 36bpp at 60 Hz</li> <li>5120 x 2880 x 24bpp at 60 Hz</li> </ul>
NVIDIA Quadro P5000	Discrete	N/A	GDDR5X	16 GB	DVI-D/DisplayPort	5120 x 2880
NVIDIA RTX5000	Discrete	N/A	GDDR6	16 GB	DisplayPort / Type-C	DisplayPort

**Table 11. Video card specifications (continued)**

Controller	Type	CPU Dependency	Graphics memory type	Capacity	External display support	Maximum resolution
						<ul style="list-style-type: none"> <li>7680 x 4320 x 24bpp at 120 Hz</li> <li>7680 x 4320 x 36bpp at 60 Hz</li> <li>5120 x 2880 x 24bpp at 60Hz</li> </ul> USB type-C <ul style="list-style-type: none"> <li>7680 x 4320 x 24bpp at 120 Hz</li> <li>7680 x 4320 x 36bpp at 60 Hz</li> <li>5120 x 2880 x 24bpp at 60 Hz</li> </ul>
NVIDIA RTX A4000	Discrete	N/A	GDDR6	16 GB	VESA DisplayPort	DisplayPort <ul style="list-style-type: none"> <li>7680 x 4320 x 24bpp at 120 Hz</li> <li>7680 x 4320 x 36bpp at 60 Hz</li> <li>5120 x 3200 x 24bpp at 60 Hz</li> <li>5120 x 2880 x 24bpp at 60 Hz</li> </ul>
NVIDIA RTX A4500	Discrete	N/A	GDDR6	20 GB	VESA DisplayPort	DisplayPort <ul style="list-style-type: none"> <li>7680 x 4320 x 24bpp at 120 Hz</li> <li>7680 x 4320 x 36bpp at 60 Hz</li> <li>5120 x 2880 x 24bpp at 60 Hz</li> </ul>
NVIDIA RTX A5500	Discrete	N/A	GDDR6	24 GB	VESA DisplayPort	DisplayPort <ul style="list-style-type: none"> <li>7680 x 4320 x 24bpp at 120 Hz</li> <li>7680 x 4320 x 36bpp at 60 Hz</li> <li>5120 x 2880 x 24bpp at 60 Hz</li> </ul>
NVIDIA Quadro P6000	Discrete	N/A	GDDR5X	24 GB	DVI-D/DisplayPort	5120 x 2880
NVIDIA RTX6000	Discrete	N/A	GDDR6	24 GB	DisplayPort / Type-C	DisplayPort <ul style="list-style-type: none"> <li>7680 x 4320 x 24bpp at 120 Hz</li> <li>7680 x 4320 x 36bpp at 60 Hz</li> <li>5120 x 2880 x 24bpp at 60 Hz</li> </ul>

**Table 11. Video card specifications (continued)**

Controller	Type	CPU Dependency	Graphics memory type	Capacity	External display support	Maximum resolution
						USB type-C <ul style="list-style-type: none"> <li>7680 x 4320 x 24bpp at 120 Hz</li> <li>7680 x 4320 x 36bpp at 60 Hz</li> <li>5120 x 2880 x 24bpp at 60 Hz</li> </ul>

**NOTE:** Please see the processor specification section for Xeon G SKU.

**NOTE:** Xeon SKUs with "G" suffix support Intel UHD Graphics.

**NOTE:** If the graphics card power rating exceeds 75 Watts, then connect the graphics card power cable to the graphics card power connector on the system board. (Dual RTX4000, RTX5000 and RTX6000 will need dual power supply).

**NOTE:** NVIDIA RTX A4000/A4500/A5500 graphics cards are only compatible with the updated chassis.

## Communication

**Table 12. Communication specifications**

Feature	Specification
Network adapter	Integrated Intel 10/100/1000 Mb/s Ethernet (RJ45) Integrated Aquantia 10 GB/s Ethernet (RJ45) Intel X550-T2 10 GbE dual port PCIe network card (RJ45) Intel X710-T2L-t 10 GbE dual port PCIe network card (RJ45)

**NOTE:** Wake on LAN (WoL) is not supported on the Intel X550-T2 network card and the Intel X710-T2L-t network card.

## Media card-reader

**Table 13. Media card-reader specifications**

Feature	Specification
Type	One SD-card slot
Supported cards	<ul style="list-style-type: none"> <li>SD</li> <li>SDHC</li> <li>SDXC</li> </ul>

## System board connectors

**Table 14. System board connectors**

Feature	Specification
M.2 Connectors	Two (2280 Key-M)

**Table 14. System board connectors (continued)**

Feature	Specification
Serial ATA (SATA) connector	Four
<b>Riser 1A</b>	
PCIe X16 slot	Slot 1 (bottom): Full Height Double width PClex16 Gen 3 or Single Width PClex8 Gen 3
PCIe X8 slot	Slot 2 (top): Full Height Single Width PClex8 Gen 3
<b>Riser 1B</b>	
PCIe-32 bit	Slot 1 (bottom): Full Height PCI 32/33 Slot 2 (top): Full Height PCI 32/33
<b>Riser 2</b>	
PCIe X4 slot	Fixed Riser for Slot 3 (on all chassis): Full Height Single Width PClex4 Gen 3

## Ports and connectors

**Table 15. Front ports and connectors**

Feature	Specification
Memory card reader	SD 4.0 memory card reader
USB	<ul style="list-style-type: none"> <li>One USB 3.1 Gen2 Type-C port</li> <li>Two USB 3.1 Gen 1 Type-A ports</li> </ul>
Audio	Universal audio jack.

**Table 16. Rear ports and connectors**

Feature	Specification	
USB	Two USB 3.1 Gen2 Type-C ports (with UMA video support)	
Network adapter	<ul style="list-style-type: none"> <li>One 1 Gb RJ45</li> <li>One 10 Gb RJ45</li> </ul>	
Serial port	One serial port	

## Operating system

Your Precision 3930 Rack 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 Pro, 64-bit
- Windows 10 Pro for Workstations, 64-bit

- Windows 10 Home, 64-bit
- Windows 10 Pro for National Academic, 64-bit
- Red Hat Enterprise Linux 8.0
- Red Hat Enterprise Linux 7.5
- Ubuntu 16.04 LTS
- Ubuntu 18.04 LTS
- Ubuntu 20.04 LTS

## Operating conditions

For information on Product Safety, EMC and Environmental data sheets <https://www.dell.com/learn/product-info-datasheets-safety-emc-environmental>

**Table 17. Operating conditions**

Test	Condition
Temperature range	<ul style="list-style-type: none"> <li>• Operating: 10–35°C (50°F–95°F) for all system configurations</li> <li>• Operating: 10–45°C (50°F–113°F) for specific system configurations (&lt;=80W processors, SSDs and Enterprise HDDs, GPU=Nvidia Quadro P400, P2000, P4000)</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: 10% to 85% (Max dew point temperature = 40°C) (noncondensing).</li> <li>• Storage: 10% to 90% (Max dew point temperature = 60°C) (noncondensing).</li> </ul>
Airborne contaminant level	G1 as defined by ISA-S71.04-1985.
Vibration	(maximum)*: operating=0.26 GRMS; Storage=2.0 GRMS.
Shock	(maximum): operating=10 G‡; Storage=71 G‡.

### NOTE:

\* Measured using a random vibration spectrum that simulates user environment. † Measured using a 2-microsecond half-sine pulse when the hard drive is in use.

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

## Service and support

 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

**Table 18. Warranty (continued)**

<b>Warranty</b>
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**

<b>Accidental Damage Services</b>
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

# 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

## BIOS overview

**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 on the hardware installed on 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 is displayed to initiate a one-time boot menu with a list of the valid boot devices for the system. Diagnostics and BIOS Setup options are also included in this menu. The devices that are listed on the boot menu depend on the bootable devices in the system. This menu is useful when you are attempting to boot to a particular device or to bring up the diagnostics for the system. Using the boot menu does not make any changes to the boot order stored in the BIOS.

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.

Keys	Navigation
<b>Enter</b>	Selects a value in the selected field (if applicable) or follow the link in the field.
<b>Spacebar</b>	Expands or collapses a drop-down list, if applicable.
<b>Tab</b>	Moves to the next focus area.  <b>NOTE:</b> For the standard graphics browser only.
<b>Esc</b>	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 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 is displayed, 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.

## System setup options

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

## General options

**Table 20. 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 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 Channel Mode, Memory Technology, DIMM A Size, DIMM B Size, DIMM C Size, DIMM D Size</b>.</li> <li>• PCI Information: Displays Slot1, Slot2, Slot3.</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</b>, and <b>64-Bit Technology</b>.</li> <li>• Device Information: Displays <b>SATA-0, SATA 1, SATA 2, SATA 3, M.2 PCIe SSD-0, M.2 PCIe SSD-1, LOM MAC address, LOM2 MAC address, Video Controller, Audio Controller</b>.</li> </ul>



**Table 20. General (continued)**

Option	Description
Boot Sequence	Allows you to specify the order in which the computer attempts to find an operating system from the devices specified in this list.
Advanced Boot Options	Allows you to select the Enable Legacy Option ROMs option, when in UEFI boot mode. By default, this option is selected. <ul style="list-style-type: none"> <li>• Enable Legacy Option ROMs</li> <li>• Enable Attempt Legacy Boot</li> <li>• Default— None Selected</li> </ul>
UEFI Boot Path Security	This option controls if the system will prompt the user to enter the Admin password when booting a UEFI boot path from the F12 Boot Menu. <ul style="list-style-type: none"> <li>• Always, Except Internal HDD—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.

## System information

**Table 21. System Configuration**

Option	Description
Integrated NIC	Allows you to control the onboard LAN controller. The option 'Enable UEFI Network Stack' is not selected by default. The options are: <ul style="list-style-type: none"> <li>• Disabled</li> <li>• Enabled</li> <li>• Enabled w/PXE (default)</li> </ul>
Integrated NIC2	Allows you to control the onboard LAN controller. The option 'Enable UEFI Network Stack' is not selected by default. The options are: <ul style="list-style-type: none"> <li>• Disabled</li> <li>• Enabled (default)</li> <li>• Enabled w/PXE</li> </ul>
UEFI Network Stack	Allows pre-OS and early OS networking features to use any enabled NICs. This may be used without PXE turned on. <ul style="list-style-type: none"> <li>• Enable UEFI Network Stack</li> <li>• Default - (Disabled)</li> </ul>
Serial Port	Determines how the built-in serial port operates. Choose any one option: <ul style="list-style-type: none"> <li>• Disabled</li> <li>• COM1 (selected by default)</li> <li>• COM2</li> <li>• COM3</li> <li>• COM4</li> </ul>
SATA Operation	Allows you to configure the operating mode of the integrated hard drive controller. <ul style="list-style-type: none"> <li>• Disabled = The SATA controllers are hidden</li> <li>• AHCI = SATA is configured for AHCI mode</li> <li>• RAID ON = SATA is configured to support RAID mode (selected by default)</li> </ul>
Drives	Allows you to enable or disable the various drives onboard: <ul style="list-style-type: none"> <li>• SATA-0 (enabled by default)</li> </ul>

**Table 21. System Configuration (continued)**



Option	Description
	<ul style="list-style-type: none"> <li>• SATA-1 (enabled by default)</li> <li>• SATA-2 (enabled by default)</li> <li>• SATA-3 (enabled by default)</li> <li>• M.2 PCIe SSD-0 (enabled by default)</li> <li>• M.2 PCIe SSD-1 (enabled by default)</li> </ul>
Smart Reporting	This field controls whether hard drive errors for integrated drives are reported during system startup. The <b>Enable Smart Reporting option</b> is disabled by default.
USB Configuration	<p>Allows you to enable or disable the integrated USB controller for:</p> <ul style="list-style-type: none"> <li>• Enable USB Boot Support</li> <li>• Enable Front USB Ports</li> <li>• Enable Rear USB Ports</li> <li>• Enable Internal USB Port</li> </ul> <p>All the options are enabled by default.</p>
Front USB Configuration	<p>Allows you to enable or disable the front USB ports. All the ports are enabled by default.</p> <ul style="list-style-type: none"> <li>• Front Port 1 (Left)</li> <li>• Front Port 2 (Center)</li> <li>• Front Port 3 (Right)*</li> </ul> <p>All the options are enabled by default.</p>
Rear USB Configuration	<p>Allows you to enable or disable the back USB ports. All the ports are enabled by default.</p> <ul style="list-style-type: none"> <li>• Rear Port 1 (Left)*</li> <li>• Rear Port 2 (Right)*</li> </ul> <p>All the options are enabled by default.</p>
Internal USB Configuration	<p>Allows you to enable or disable the Internal USB port. The port is enabled by default.</p> <ul style="list-style-type: none"> <li>• Internal Port 1</li> </ul>
Thunderbolt Adapter Configuration	<p>When enabled the Thunderbolt technology feature and associated ports and adapters are enabled. This option is enabled by default.</p> <ul style="list-style-type: none"> <li>• Enable Thunderbolt Technology Support (Default)</li> <li>• Security Level - No Security</li> <li>• Security Level -User Authorization (Default)</li> <li>• Security Level - Secure connect</li> <li>• Security Level - DisplayPort Only</li> </ul>
Audio	<p>Allows you to enable or disable the integrated audio controller. The option <b>Enable Audio</b> is selected by default.</p> <ul style="list-style-type: none"> <li>• Enable Microphone (Default)</li> </ul>
Dust Filter Maintenance	<p>Allows you to enable or disable BIOS messages for maintaining the optional dust filter that is installed on your computer. BIOS will generate a preboot reminder to clean or replace the dust filter based on the interval set. The option <b>Disabled</b> is selected by default.</p> <ul style="list-style-type: none"> <li>• Disabled</li> <li>• 15 days</li> <li>• 30 days</li> <li>• 60 days</li> <li>• 90 days</li> <li>• 120 days</li> <li>• 150 days</li> <li>• 180 days</li> </ul>
Miscellaneous devices	<p>Allows you to enable or disable various on board devices. The option <b>Enable Secure Digital (SD) Card</b> is selected by default.</p> <ul style="list-style-type: none"> <li>• Enable Secure Digital (SD) Card</li> </ul>

**Table 21. System Configuration (continued)**

Option	Description
	<ul style="list-style-type: none"> <li>Secure Digital (SD) Card Boot</li> <li>Secure Digital (SD) Card Read-Only Mode</li> </ul>
Front power button	<p>Allows you to enable or disable the power button on the front panel. The option <b>Enable Front Power button</b> is selected by default.</p> <ul style="list-style-type: none"> <li>Enable Front power button</li> <li>Disabled Front power button</li> </ul>


## Video screen options

**Table 22. Video**

Option	Description
Multi-Display	<p>Allows you to enable or disable Multi-Display. It has to be enabled for Windows 7 or later.</p> <ul style="list-style-type: none"> <li>Enable Multi-Display (default)</li> </ul> <p> <b>NOTE:</b> This feature is not applicable to other operating systems.</p>
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>Auto (default)</li> <li>Intel HD Graphics</li> <li>ATI Radeon HD Graphics</li> </ul> <p> <b>NOTE:</b> If you do not select Auto, the onboard graphics device will be present and enabled.</p>

## Security

**Table 23. Security**

Option	Description
Admin Password	Allows you to set, change, and delete the admin password.
System Password	Allows you to set, change, and delete the system password.
Internal HDD-0 Password	Allows you to set, change, and delete the computer's internal HDD.
Strong Password	This option lets you enable or disable strong passwords for the system.
Password Configuration	Allows you to control the minimum and maximum number of characters that are allowed for an administrative password and the system password. The range of characters is 4 and 32.
Password Bypass	<p>This option lets you bypass the System (Boot) Password and the internal HDD password prompts during a system restart.</p> <ul style="list-style-type: none"> <li>Disabled—Always prompt for the system and internal HDD password when they are set. This option is disabled by default.</li> <li>Reboot Bypass—Bypass the password prompts on restarts (warm boots).</li> </ul> <p> <b>NOTE:</b> The system will always prompt for the system and internal HDD passwords when powered on from the off state (a cold boot). Also, the system will always prompt for passwords on any module bay HDDs that may be present.</p>
Password Change	<p>This option lets you determine whether changes to the System and HDD passwords are permitted when an administrator password is set.</p> <p><b>Allow Non-Admin Password Changes</b> - This option is enabled by default.</p>

**Table 23. Security (continued)**


Option	Description
UEFI Capsule Firmware Updates	This option controls whether this system allows BIOS updates via UEFI capsule update packages. This option is selected by default. Disabling this option blocks BIOS updates from services such as Microsoft Windows Update and Linux Vendor Firmware Service (LVFS)
TPM 2.0 Security	<p>Allows you to control whether the Trusted Platform Module (TPM) is visible to the operating system.</p> <ul style="list-style-type: none"> <li>• TPM On (default)</li> <li>• Clear</li> <li>• PPI Bypass for Enable Commands</li> <li>• PPI Bypass for Disable Commands</li> <li>• PPI Bypass for Clear Commands</li> <li>• Attestation Enable (default)</li> <li>• Key Storage Enable (default)</li> <li>• SHA - 256 (default)</li> </ul> <p>Choose any one option:</p> <ul style="list-style-type: none"> <li>• Disabled</li> <li>• Enabled (default)</li> </ul>
Computrace	<p>This field lets you Activate or Disable the BIOS module interface of the optional Computrace Service from Absolute Software. Enables or disables the optional Computrace service that is designed for asset management.</p> <ul style="list-style-type: none"> <li>• Deactivate - This option is selected by default.</li> <li>• Disable</li> <li>• Activate</li> </ul>
Chassis Intrusion	<p>This field controls the chassis intrusion feature.</p> <p>Choose any one of the options:</p> <ul style="list-style-type: none"> <li>• Disabled (default)</li> <li>• Enabled</li> <li>• On-Silent</li> </ul>
OROM Keyboard Access	<p>This option determines whether users can enter Option ROM Configuration screens via hotkeys during boot.</p> <ul style="list-style-type: none"> <li>• Enabled (Default)</li> <li>• Disabled</li> <li>• One Time Enable</li> </ul>
Admin Setup Lockout	Allows you to prevent users from entering Setup when Admin password is set. This option is not set by default.
Master Password Lockout	Allows you to disable master password support. Hard Disk passwords need to be cleared before the settings can be changed. This option is not set by default.
SMM Security Mitigation	Allows you to enable or disable additional UEFI SMM Security Mitigation protections. This option is not set by default.

## Secure boot options

**Table 24. Secure Boot**

Option	Description
Secure Boot Enable	<p>Allows you to enable or disable Secure Boot feature</p> <ul style="list-style-type: none"> <li>• Secure Boot Enable</li> </ul> <p>This option is selected by default.</p>

**Table 24. Secure Boot (continued)**

Option	Description
Secure Boot Mode	<p>Allows you to modify the behavior of Secure Boot to allow evaluation or enforcement of UEFI driver signatures.</p> <ul style="list-style-type: none"> <li>• Deployed Mode (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>• PK (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>NOTE:</b> If you disable the Custom Mode, all the changes that are made will be erased, and the keys will restore to default settings.</p>

## Intel software guard extensions options

**Table 25. Intel software guard extensions**

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

## Performance

**Table 26. Performance**


Option	Description
Multi Core Support	<p>This field specifies whether the process has one or all cores enabled. The performance of some applications improves with the additional cores.</p> <ul style="list-style-type: none"> <li>• <b>All</b>—Default</li> </ul>

**Table 26. Performance (continued)**

Option	Description
	<ul style="list-style-type: none"> <li>• 1</li> <li>• 2</li> <li>• 3</li> </ul>
<b>Intel SpeedStep</b>	<p>Allows you to enable or disable the Intel SpeedStep mode of processor.</p> <ul style="list-style-type: none"> <li>• <b>Enable Intel SpeedStep</b></li> </ul> <p>This option is set by default.</p>
<b>C-States Control</b>	<p>Allows you to enable or disable the additional processor sleep states.</p> <ul style="list-style-type: none"> <li>• <b>C states</b></li> </ul> <p>This option is set by default.</p>
<b>Cache Prefetch</b>	<p>Allows you to enable or disable the MLC streamer and MLC spatial prefetcher of the processor</p> <ul style="list-style-type: none"> <li>• Hardware Prefetcher</li> <li>• Adjacent Cache Prefetcher</li> </ul> <p>Both options are enabled by default.</p>
<b>Intel TurboBoost</b>	<p>Allows you to enable or disable the Intel TurboBoost mode of the processor.</p> <ul style="list-style-type: none"> <li>• <b>Enable Intel TurboBoost</b></li> </ul> <p>This option is set by default.</p>
<b>HyperThread Control</b>	<p>Allows you to enable or disable HyperThreading in the processor.</p> <ul style="list-style-type: none"> <li>• Disabled</li> <li>• Enabled (Default)</li> </ul>

## Power management

**Table 27. Power Management**

Option	Description
AC Recovery	<p>Determines how the system responds when AC power is reapplied after a power loss. You can set the AC Recovery to:</p> <ul style="list-style-type: none"> <li>• Power Off—Default</li> <li>• Power On</li> <li>• Last Power State</li> </ul> <p>This option is Power Off by default.</p>
Enable Intel Speed Shift Technology	<p>Allows you to enable or disable Intel Speed Shift Technology support. The option <b>Enable Intel Speed Shift Technology</b> is set by default.</p>
Auto On Time	<p>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.</p> <p> <b>NOTE:</b> This feature does not work if you turn off your computer using the switch on a power strip or surge protector or if <b>Auto Power is set to disabled</b>.</p>
Wake on LAN	<p>This option allows the computer to power up from the off state when triggered by a special LAN signal. This feature only works when the computer is connected to AC power supply.</p>

**Table 27. Power Management (continued)**

Option	Description
	<ul style="list-style-type: none"> <li>• <b>Disabled</b> - Does not allow the system to power on by special LAN signals when it receives a wake-up signal from the LAN.</li> <li>• <b>LAN</b> - Allows the system to be powered on by special LAN.</li> <li>• <b>LAN Only</b> - Allows the system to be powered on by special LAN signals.</li> <li>• <b>LAN with PXE Boot</b> - A wakeup packet sent to the system in either the S4 or S5 state, that will cause the system to wake up and immediately boot to PXE.</li> </ul> <p>This option is Disabled by default.</p>
Block Sleep	Allows you to block entering to sleep in OS environment. This option is disabled by default.

## Thermal configuration

**Table 28. Thermal configuration**

Option	Description
Thermal Mode	<p>Allows you to determine the speed of the system fans. This option is enabled by default.</p> <ul style="list-style-type: none"> <li>• Low</li> <li>• Auto (Default)</li> </ul> <p>This option is set to <b>Auto</b> by default.</p> <p><b>NOTE:</b> This setting applies to all the Zone</p>
CPU Zone	<p>Allows you to control the minimum and maximum fan speed in the CPU Zone. The range of characters is between 0 and 100.</p> <p><b>NOTE:</b> When Thermal Mode is set in auto, Zero is the optimal speed level.</p>
PSU Zone	<p>Allows you to control the minimum and maximum fan speed in the PSU Zone. The range of characters is between 0 and 100.</p> <p><b>NOTE:</b> When Thermal Mode is set in auto, Zero is the optimal speed level.</p>
PCIe Zone	<p>Allows you to control the minimum and maximum fan speed in the PCIe Zone. The range of characters is between 0 and 100.</p> <p><b>NOTE:</b> When Thermal Mode is set in auto, Zero is the optimal speed level.</p>

## Post behavior

**Table 29. 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. The option <b>Enable Keyboard Error Detection</b> is enabled by default.
Extend BIOS POST Time	<p>This option creates an additional preboot delay.</p> <ul style="list-style-type: none"> <li>• 0 seconds (default)</li> <li>• 5 seconds</li> <li>• 10 seconds</li> </ul>
Full Screen Logo	This option will display full screen logo if your image match screen resolution. The option <b>Enable Full Screen Logo</b> is not set by default.
Warnings and Errors	This option causes the boot process to only pause when warning or errors are detected. Choose any one of the options:

**Table 29. POST Behavior (continued)**

Option	Description
	<ul style="list-style-type: none"> <li>• Prompt on Warnings and Errors—Default</li> <li>• Continue on Warnings</li> <li>• Continue on Warnings and Errors</li> </ul>

## Manageability

**Table 30. Manageability**

Option	Description
USB provision	This option is not selected by default.
MEBx Hotkey	This option is selected by default.

## Virtualization support

**Table 31. Virtualization Support**

Option	Description
Virtualization	<p>This option specifies whether a Virtual Machine Monitor (VMM) can utilize the additional hardware capabilities that are provided by the Intel Virtualization technology.</p> <ul style="list-style-type: none"> <li>• <b>Enable Intel Virtualization Technology</b></li> </ul> <p>This option is set by default.</p>
VT for Direct I/O	<p>Enables or disables the Virtual Machine Monitor (VMM) from utilizing the additional hardware capabilities that are provided by the Intel Virtualization technology for direct I/O.</p> <ul style="list-style-type: none"> <li>• <b>Enable VT for Direct I/O</b></li> </ul> <p>This option is set by default.</p>
Trusted Execution	<p>This option specifies whether a Measured Virtual Machine Monitor (MVMM) can utilize the additional hardware capabilities that are provided by Intel Trusted Execution Technology.</p> <ul style="list-style-type: none"> <li>• Trusted Execution</li> </ul> <p>This option is not set by default.</p>


## Maintenance

**Table 32. Maintenance**

Option	Description
Service Tag	Displays the service tag of your computer.
Asset Tag	<p>Allows you to create a system asset tag if an asset tag is not already set.</p> <p>This option is not set by default.</p>
SERR Messages	Controls the SERR message mechanism. This option is set by default. Some graphics cards require that the SERR message mechanism be disabled.
BIOS Downgrade	<p>Allows you to flash previous revisions of the system firmware.</p> <ul style="list-style-type: none"> <li>• <b>Allow BIOS Downgrade</b></li> </ul>



**Table 32. Maintenance (continued)**

Option	Description
	This option is set by default.
Data Wipe	<p>Allows you to securely erase data from all internal storage devices.</p> <ul style="list-style-type: none"> <li>• <b>Wipe on Next Boot</b></li> </ul> <p>This option is not set by default.</p>
BIOS Recovery	<p><b>BIOS Recovery from Hard Drive</b>—This option is set by default. Allows you to recover the corrupted BIOS from a recovery file on the HDD or an external USB key.</p> <p><b>BIOS Auto-Recovery</b>— Allows you to recover the BIOS automatically.</p> <p> <b>NOTE:</b> <b>BIOS Recovery from Hard Drive</b> field should be enabled.</p> <p><b>Always Perform Integrity Check</b>—Performs integrity check on every boot.</p>
First Power On Date	Allows you the set Ownership date. The option <b>Set Ownership Date</b> is not set by default.

## System logs

**Table 33. System Logs**

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

## Advanced configuration


**Table 34. Advanced configuration**

Option	Description
ASPM	<p>Allows you to set the ASPM level.</p> <ul style="list-style-type: none"> <li>• Auto (default) - There is handshaking between the device and PCI Express hub to determine the best ASPM mode supported by the device</li> <li>• Disabled - ASPM power management is turned off at all time</li> <li>• L1 Only - ASPM power management is set to use L1</li> </ul>
PCIe LinkSpeed	<p>Allows the user to select the max PCIe link speed.</p> <ul style="list-style-type: none"> <li>• Auto (Default)</li> <li>• Gen 1</li> <li>• Gen 2</li> </ul>


# 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 computer it will not recognize the BitLocker key. You will then be prompted to enter the recovery key to progress, and the computer 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, search in the Knowledge Base Resource at [Dell Support Site](#).

### Steps


1. Go to [Dell Support Site](#).
2. Click **Product support**. In the **Search support** box, enter the Service Tag of your computer, and then click **Search**.  
 **NOTE:** If you do not have the Service Tag, use the SupportAssist 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 [Dell Support Site](#).

## 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 [Dell Support Site](#).

## 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 computer it will not recognize the BitLocker key. You will then be prompted to enter the recovery key to progress, and the computer 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, search in the Knowledge Base Resource at [Dell Support Site](#).

### 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 [Dell Support Site](#).
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 One-Time boot menu

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

### About this task

 **CAUTION:** If BitLocker is not suspended before updating the BIOS, the next time you reboot the computer it will not recognize the BitLocker key. You will then be prompted to enter the recovery key to progress, and the computer 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, search in the Knowledge Base Resource at [Dell Support Site](#).

### BIOS Update

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

You can confirm by booting your computer to the **One Time Boot** Menu to see if BIOS FLASH UPDATE is listed as a boot option. If the option is listed, then the BIOS can be updated using this method..

### Updating from the One-Time boot menu

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

- USB drive formatted to the FAT32 file system (the drive 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 must be connected to the computer
- Functional computer battery to flash the BIOS

Perform the following steps to perform the BIOS flash update process from the One-Time boot menu:

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

### Steps

1. Turn off your computer, insert the USB drive where you copied the BIOS flash update file into a USB port of the computer.
2. Turn on the computer and press 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 the 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 flash update is completed.


# System and setup password


**Table 35. 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 password and setup password

### Prerequisites

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

### About this task

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

### Steps

1. In the **System BIOS** or **System Setup** screen, select **Security** and press Enter.  
The **Security** screen is displayed.
2. Select **System Password** and create a password in the **Enter the new password** field.  
Use the following guidelines to assign the system password:
  - A password can have up to 32 characters.
  - The password can contain the numbers 0 through 9.
  - Only lower case letters are valid, upper case letters are not allowed.
  - Only the following special characters are allowed: space, ("), (+), (.), (-), (.), (/), (:), ([), (\), (]), (`).
3. Type the system password that you entered earlier in the **Confirm new password** field and click **OK**.
4. Press Esc and a message prompts you to save the changes.
5. Press Y to save the changes.  
The computer reboots.

## Deleting or changing an existing system setup password


### Prerequisites

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

### About this task

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

### Steps



1. In the **System BIOS** or **System Setup** screen, select **System Security** and press Enter.  
The **System Security** screen is displayed.
2. In the **System Security** screen, verify that **Password Status** is **Unlocked**.
3. Select **System Password**, alter or delete the existing system password and press Enter or Tab.
4. Select **Setup Password**, alter or delete the existing setup password and press Enter or Tab.  
 **NOTE:** If you change the System and/or Setup password, re-enter the new password when promoted. If you delete the System and/or Setup password, confirm the deletion when promoted.
5. Press Esc and a message prompts you to save the changes.
6. Press Y to save the changes and exit from System Setup.  
The computer reboot.

# Getting help and contacting Dell

## Self-help resources


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


**Table 36. Self-help resources**

Self-help resources	Resource location
Information about Dell products and services	<a href="#">Dell Site</a>
My Dell	
Tips	
Contact Support	In Windows search, type <code>Contact Support</code> , and press Enter.
Online help for operating system	<a href="#">Windows Support Site</a> <a href="#">Linux Support Site</a>
Troubleshooting information, user manuals, setup instructions, product specifications, technical help blogs, drivers, software updates, and so on.	<a href="#">Dell Support Site</a>
Dell knowledge base articles for a variety of computer concerns.	<ol style="list-style-type: none"> <li>1. Go to <a href="#">Dell Support Site</a>.</li> <li>2. Type the subject or keyword in the <b>Search</b> box.</li> <li>3. Click <b>Search</b> to retrieve the related articles.</li> </ol>
Learn and know the following information about your product: <ul style="list-style-type: none"> <li>• Product specifications</li> <li>• Operating system</li> <li>• Setting up and using your product</li> <li>• Data backup</li> <li>• Troubleshooting and diagnostics</li> <li>• Factory and system restore</li> <li>• BIOS information</li> </ul>	See <i>Me and My Dell</i> at <a href="#">Manuals at Dell Support Site</a> . To locate the <i>Me and My Dell</i> relevant to your product, identify your product through one of the following: <ul style="list-style-type: none"> <li>• Select <b>Detect Product</b>.</li> <li>• Locate your product through the drop-down menu under <b>View Products</b>.</li> <li>• Enter the <b>Service Tag number</b> or <b>Product ID</b> in the search bar.</li> </ul>

## Contacting Dell

To contact Dell for sales, technical support, or customer service issues, see [Contact Support at Dell Support Site](#).

 **NOTE:** Availability of the services may vary depending on the country or region, and product.

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