

# Dell Docking Station WD19 Thunderbolt

## User 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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# Introduction




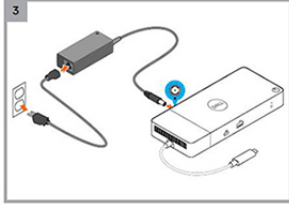

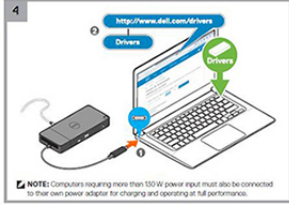
The Dell Thunderbolt Docking Station WD19TB is a device that links all your electronic devices to your computer using a Thunderbolt 3 (Type-C) cable interface. Connecting the computer to the docking station allows you to access all peripherals (mouse, keyboard, stereo speakers, external hard drive, and large-screen displays) without having to plug each one into the computer.

**⚠ CAUTION:** Update your computer's BIOS, computer graphic drivers, Thunderbolt driver, Thunderbolt firmware and the Dell Thunderbolt Docking Station WD19TB drivers/firmware to the latest versions available at [www.dell.com/support](http://www.dell.com/support) BEFORE using the docking station. Older BIOS versions and drivers could result your computer not recognizing the docking station or not functioning optimally. Please see the [important information](#) chapter for detailed instructions on how to update your BIOS and graphics card drivers before using the Dell Thunderbolt Docking Station WD19TB .

# Package contents

Your docking station ships with the components shown below. Ensure that you have received all the components and contact Dell (see your invoice for contact information) if something is missing.

**Table 1. Package contents**

Contents	Specifications
 <p>1</p> <p>2</p> <p>3</p>	<ol style="list-style-type: none"> <li>1 Docking station with USB Type-C cable</li> <li>2 Power adapter</li> <li>3 Power cord</li> </ol>
<div style="display: flex; justify-content: space-between;"> <div data-bbox="97 995 464 1499" style="width: 25%;"> <p><b>Dell Thunderbolt™ Dock</b> WD19TB</p> <p>Quick Start Guide</p> <p><b>Important</b></p> <p>You must update your computer's BIOS and the Dell Thunderbolt Dock WD19TB drivers to the latest versions available at <a href="http://www.dell.com/support">www.dell.com/support</a> before using the Dock.</p> <p>Older BIOS versions and drivers could result in the Dell Thunderbolt Dock WD19TB not being recognized by your computer or not functioning optimally. For more information, please refer to the User Guide.</p>  </div> <div data-bbox="464 995 1217 1499" style="width: 75%;"> <div style="display: grid; grid-template-columns: 1fr 1fr; gap: 10px;"> <div data-bbox="496 1031 786 1234"> <p>1</p>  <p><a href="http://www.dell.com/drivers">http://www.dell.com/drivers</a> BIOS</p> </div> <div data-bbox="852 1031 1142 1234"> <p>3</p>  </div> <div data-bbox="496 1262 786 1465"> <p>2</p>  <p><a href="http://www.dell.com/drivers">http://www.dell.com/drivers</a> Drivers</p> </div> <div data-bbox="852 1262 1142 1465"> <p>4</p>  <p><a href="http://www.dell.com/drivers">http://www.dell.com/drivers</a> Drivers</p> <p><small>NOTE: Computers requiring more than 150 W power input must also be connected to their own power adapter for charging and operating at full performance.</small></p> </div> </div> </div> </div>	<p>Quick Setup Guide (QSG)</p>

Safety, Environmental, and Regulatory Information



Electrical Safety Information

Warning: To avoid electrical shock, do not touch the power supply or other internal components of the device when it is plugged into a power outlet.



Regulatory Notices

Regulatory notices for various countries including Canada, Europe, and Japan.



Waste Electrical and Electronic Equipment (WEEE)

Information regarding the disposal of waste electrical and electronic equipment.



RoHS (Restriction of Hazardous Substances)

Information regarding the Restriction of Hazardous Substances (RoHS) directive.



Energy Star

Information regarding the Energy Star program and energy efficiency.



Recycling Information

Information regarding recycling and environmental disposal.



Other Notices

Additional regulatory and safety notices for various regions.

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## Hardware requirements

Before using the docking station, ensure that your laptop or PC has a DisplayPort (Supported) or Thunderbolt port (Recommended) over USB Type-C designed to support the docking station.

**Table 2. Dell supported systems and recommended docking stations**

Product	Model number	WD19TB - 180 W with 130 W Power Delivery
Latitude	3390 2-in-1, 3400, 3490, 3500 and 3590	Supported
Latitude	5280, 5285 2-in-1, 5289, 5290, 5290 2-in-1, 5300 2-in-1, 5300, 5400, 5480, 5490, 5500, 5580 and 5590	Recommended
Latitude	5491 and 5591	Recommended
Latitude	7200 2-in-1, 7280, 7285, 7290, 7300, 7380, 7389, 7390, 7390 2-in-1, 7400, 7400 2-in-1, 7480 and 7490	Recommended
Precision	3520, 3530 and 3540	Recommended
Precision	5520, 5530 and 5530 2-in-1	Recommended
Precision	7520 and 7720	Recommended
Precision	7530 and 7730	Supported
Rugged	5420, 5424 and 7420	Supported
XPS	9360, 9365, 9370 and 9380	Recommended
XPS	9560, 9570 and 9575	Recommended

**NOTE:** Following are the platforms supported with Ubuntu 18.04:

- Latitude - 5300, 5400, 5500, 7300 and 7400
- Precision - 3530 and 3540
- XPS - 9380

## Identifying Parts and Features

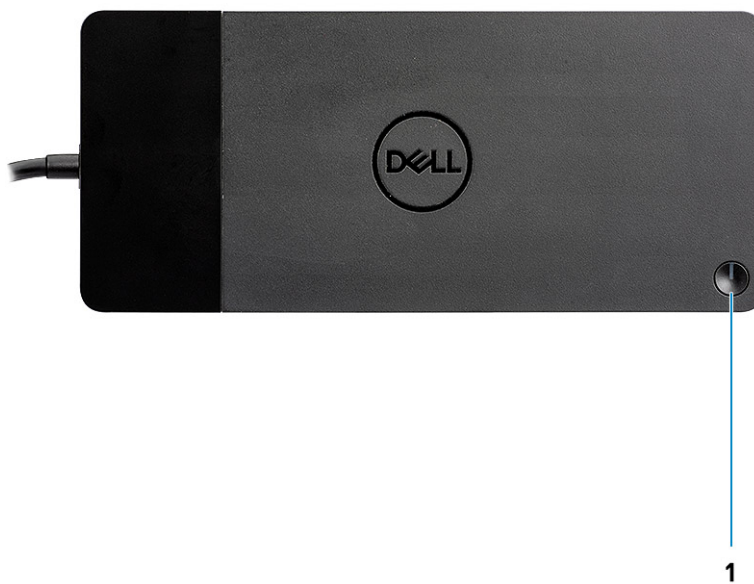


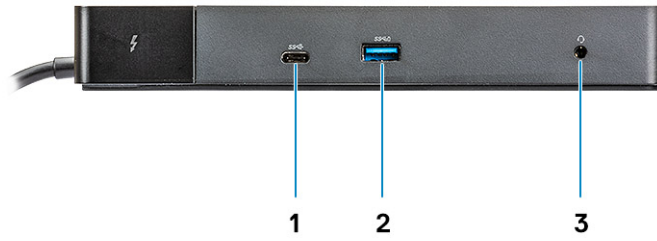
Figure 1. Top view






1 Sleep/Wake up/Power button

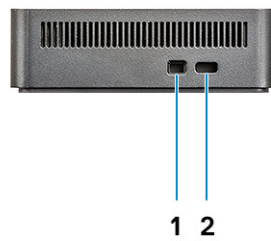
- ① **NOTE:** The dock button is designed to replicate your system's power button. If you connect the Dell Thunderbolt Docking Station WD19TB to supported Dell computers, the dock button works like your computer's power button and you can use it to power on/sleep/force shutdown the computer.
- ① **NOTE:** The dock button is not functional when connected to unsupported Dell computers or non-Dell computers.





**Figure 2. Front view**

- 1  USB 3.1 Gen1/Gen2 Type-C port
- 2  USB 3.1 Gen1 port with PowerShare
- 3  Audio headset port



**Figure 3. Left view**

- 1  Wedge-shaped lock slot



2 Kensington lock slot

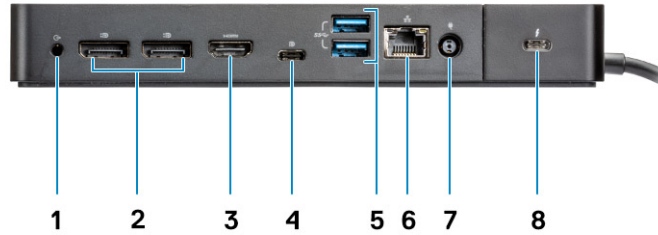










Figure 4. Back view

- 1  Line-out port
- 2  DisplayPort 1.4 (2)
- 3  HDMI2.0 port
- 4  USB 3.1 Gen1/Gen2 Type-C port with DisplayPort 1.4
- 5  USB 3.1 Gen1 port (2)
- 6  Network connector (RJ-45)
- 7  Power connector

- 8  Type-C with Thunderbolt 3 port (connected to a Thunderbolt 3 host)/ Type-C USB2.0 port (connected to a non-Thunderbolt host).



**Figure 5. Bottom view**

- 1 Service tag label

## Important Information

You must update your computer's BIOS and the Dell Thunderbolt Docking Station drivers to the latest versions available at [www.dell.com/support](http://www.dell.com/support) before using the docking station. Older BIOS versions and drivers could result in the docking station not being recognized by your computer or not functioning optimally.

Dell highly recommends the following applications to automate the installation of BIOS, firmware, driver, and critical updates specific to your system and docking station:

- Dell | Update - for Dell XPS, Inspiron or Vostro systems only.
- Dell Command | Update - for Dell Latitude, Dell Precision, or XPS systems.

These applications are available for download on the Drivers & Downloads page for your product at [www.dell.com/support](http://www.dell.com/support)

Pick your system type from the list or enter the service tag of your system to get the right version for your computer.

**NOTE:** Dell WD19TB dock connection to your computer is required in order for Dell Update to start software updates on the host system.

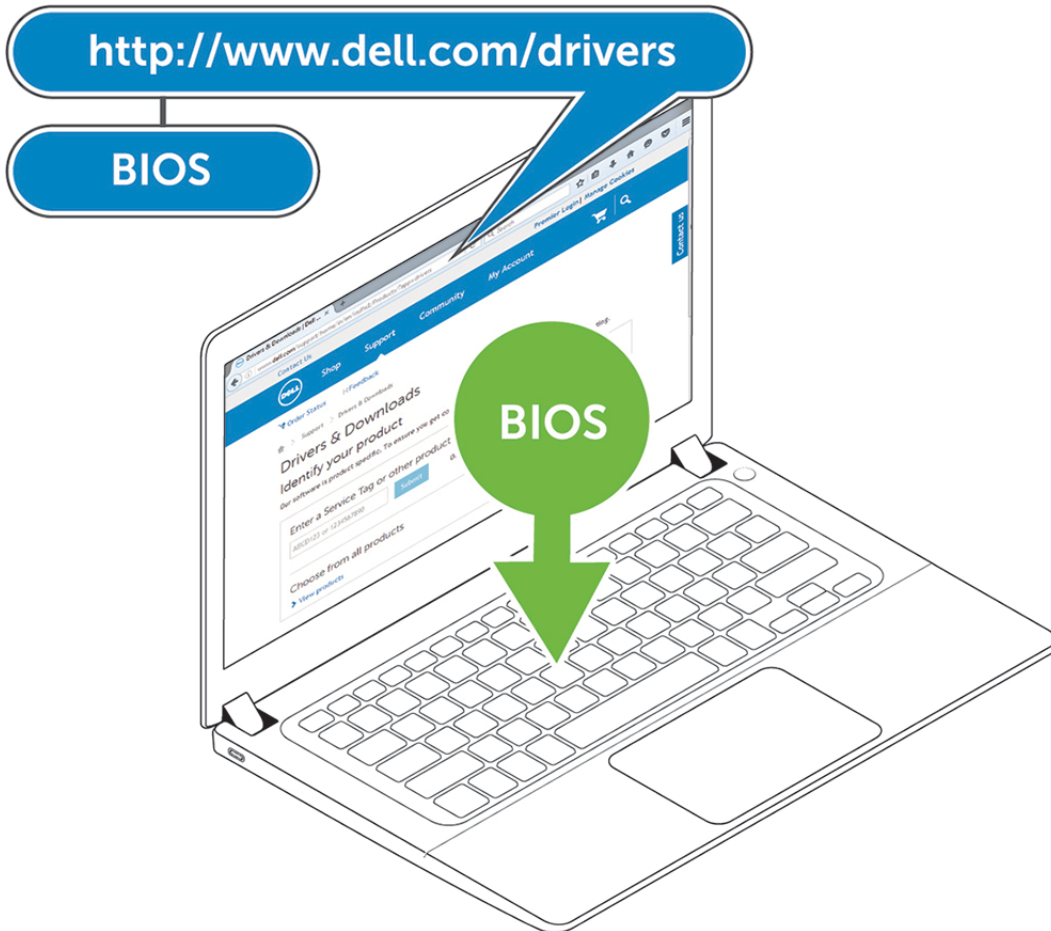
Dell Command | Update application is supported on Dell Precision, XPS, and Latitude notebooks. Alternatively, Dell recommends installing the following BIOS, firmware, and drivers step-by-step in the prescribed order to ensure optimal performance:

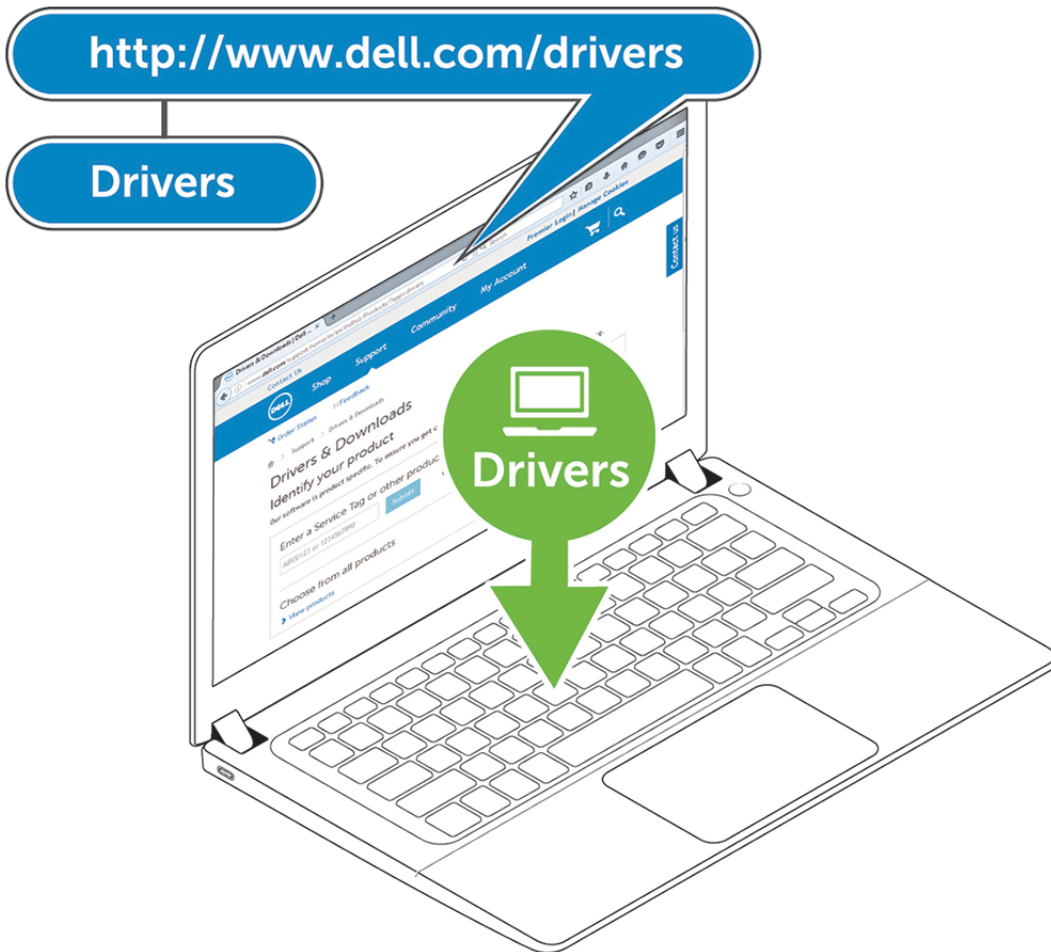
Search for your system model name under **Select a Product** selection, or enter the service tag of your system to locate the **Drivers & Downloads** page on the Dell support website ([www.dell.com/support](http://www.dell.com/support)). Change the **Operating System** to view all available updates for your system.

- Flash the latest **Basic Input/Output System (BIOS)** for the system. This is available in the "**BIOS**" section.
- Install the latest **Intel Thunderbolt Controller Driver** for the system. This is available in the "**Chipset**" section.
- Install the latest **Intel Thunderbolt 3 Firmware Update** for the system. This is available in the "**Chipset**" section.
- Install the latest **Intel HD/nVIDIA/AMD Graphics Driver** for the system. This is available in the "**Video**" section.
- Install the latest **Realtek USB GBE Ethernet Controller Driver for Dell Thunderbolt Dock**. This is available in the "**Docks & Stands**" section.
- Install the latest **Realtek USB Audio Driver for Dell Thunderbolt Dock**. This is available in the "**Docks & Stands**" section.
- Restart the system.
- After the software update process completes, connect the AC adapter to the Dell WD19TB dock first and then attach the Thunderbolt 3 (Type-C) cable to the computer before using the docking station.

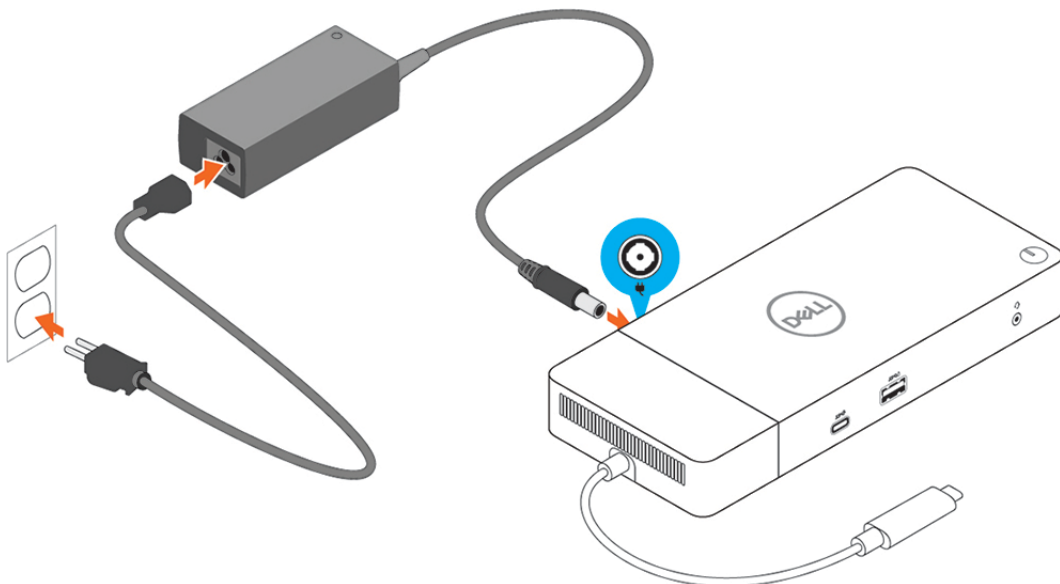
## Quick Setup of Hardware

- 1 Update your system's BIOS, graphics and drivers from [www.dell.com/support/drivers](http://www.dell.com/support/drivers).



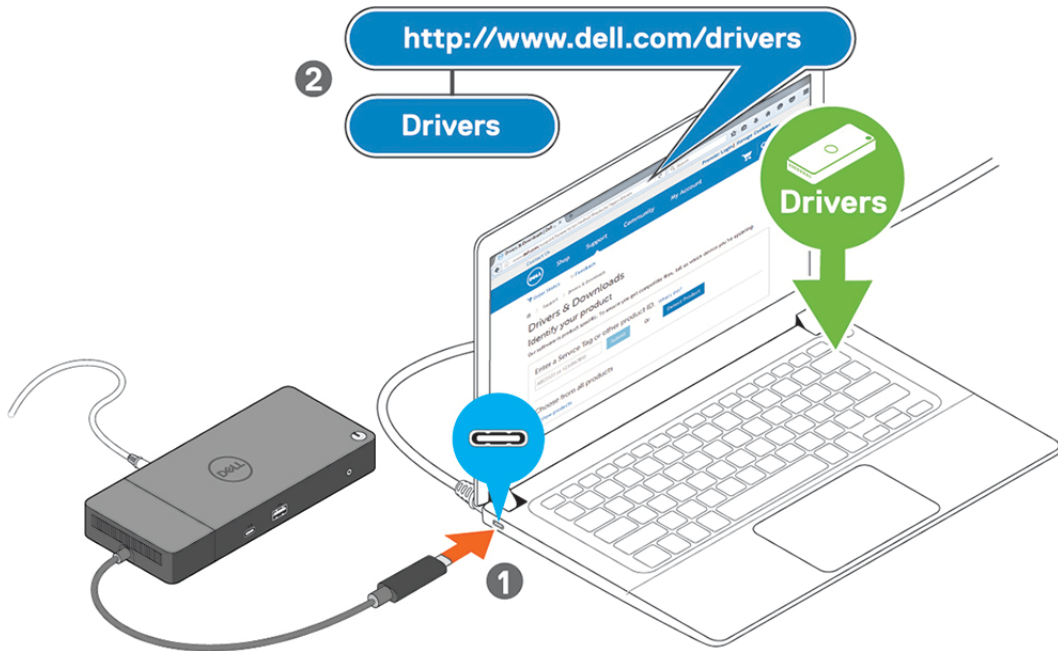


- 2 Connect the AC adapter to a power outlet. Then, connect the AC adapter to the 7.4 mm DC-in power input on the Dell Thunderbolt Docking Station WD19TB .



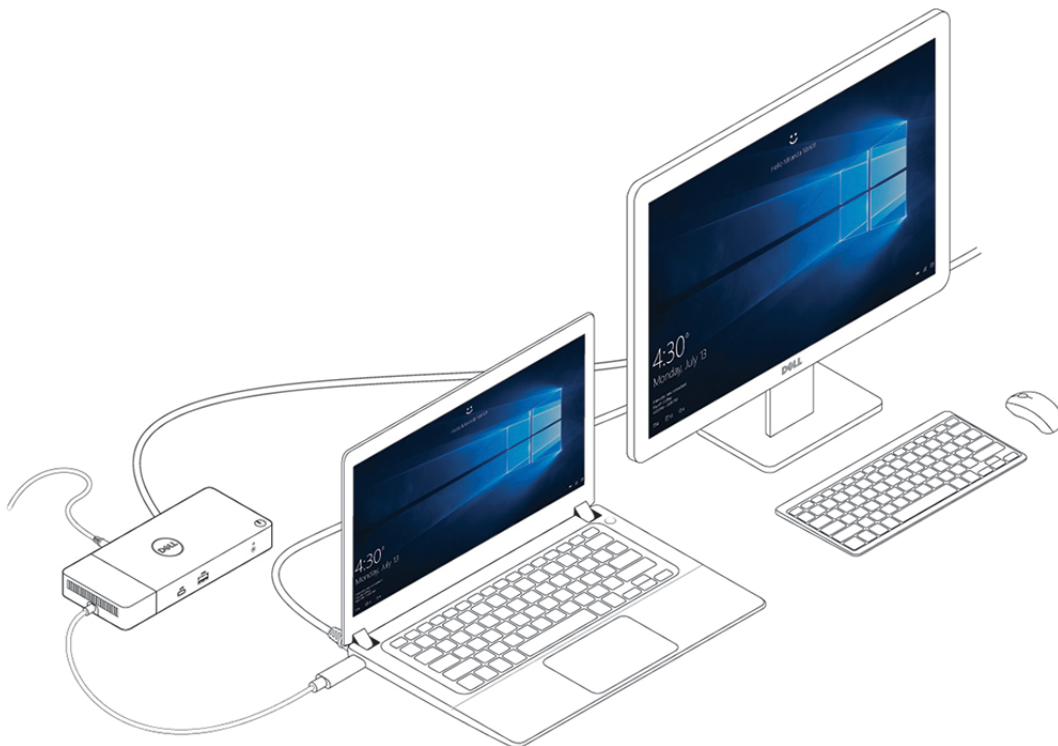
**Figure 6. Connecting the AC Adapter**

- 3 Connect the USB Type-C connector to the computer.  
Update the Dell Thunderbolt Docking Station WD19TB firmware from [www.dell.com/support/drivers](http://www.dell.com/support/drivers).



**Figure 7. Connecting the USB Type-C connector**

- 4 Connect multiple displays to the docking station, as needed.

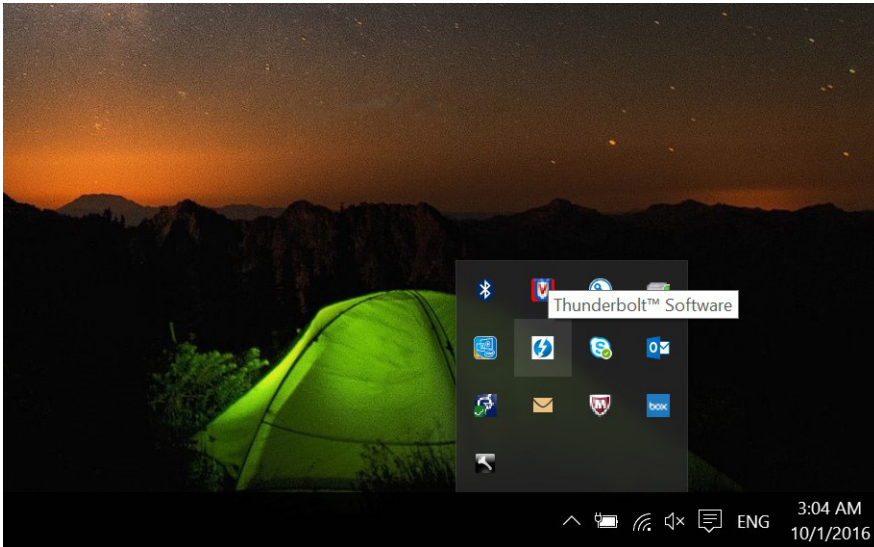


**Figure 8. Connecting the multiple displays**

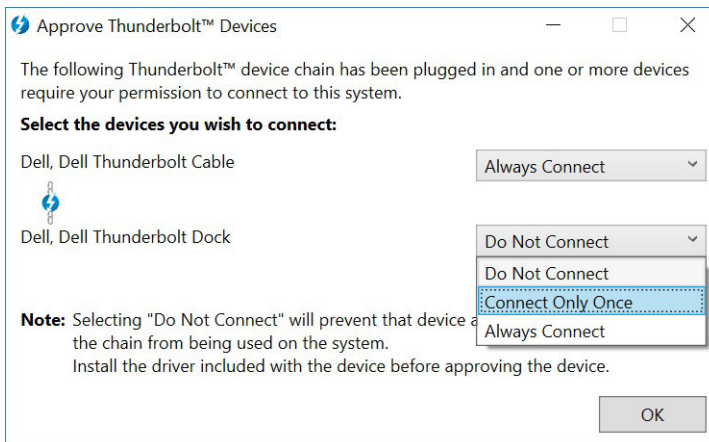
# Thunderbolt Settings and Security Options

## Thunderbolt Driver Setting

- 1 Connect the Thunderbolt Device to the system. The Thunderbolt icon appears in the system tray.

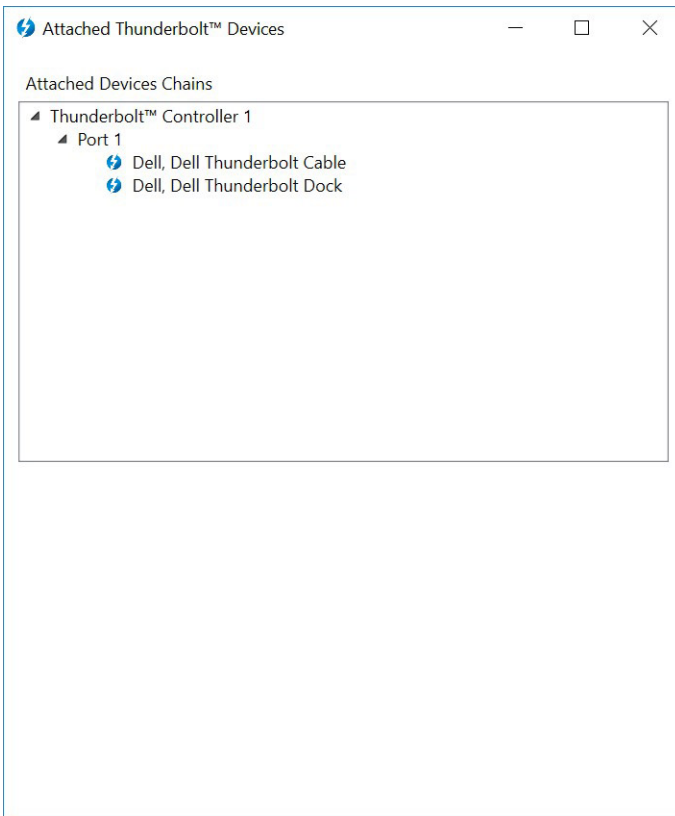
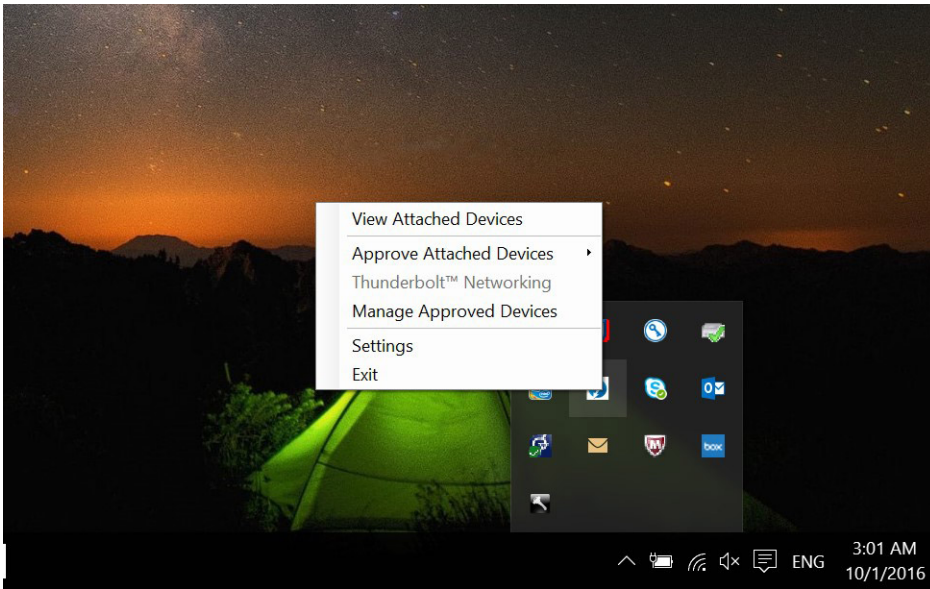


- 2 An Authentication window pops up for the user to select the connection setting.

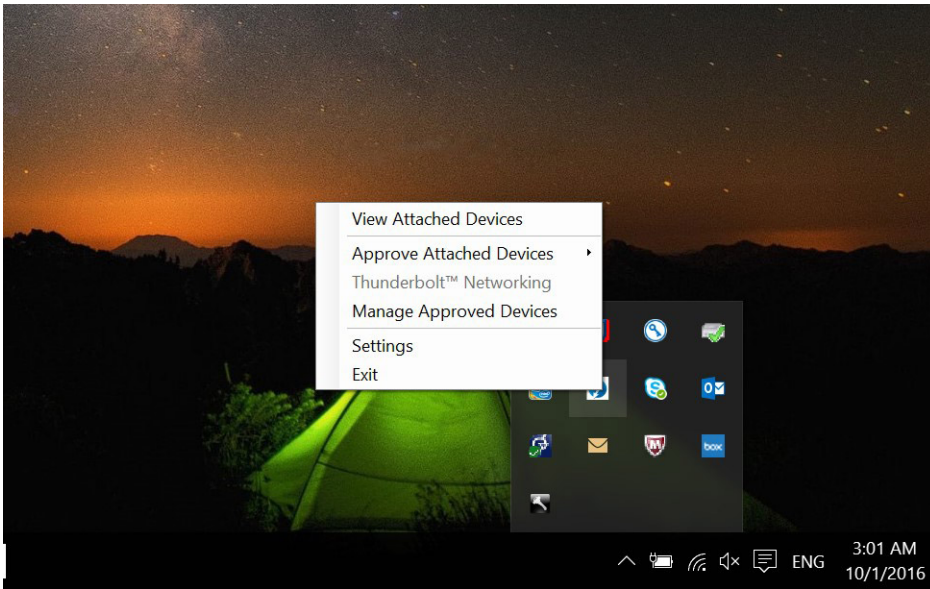


- 3 Right click on the Thunderbolt icon to View Attached Thunderbolt Devices.

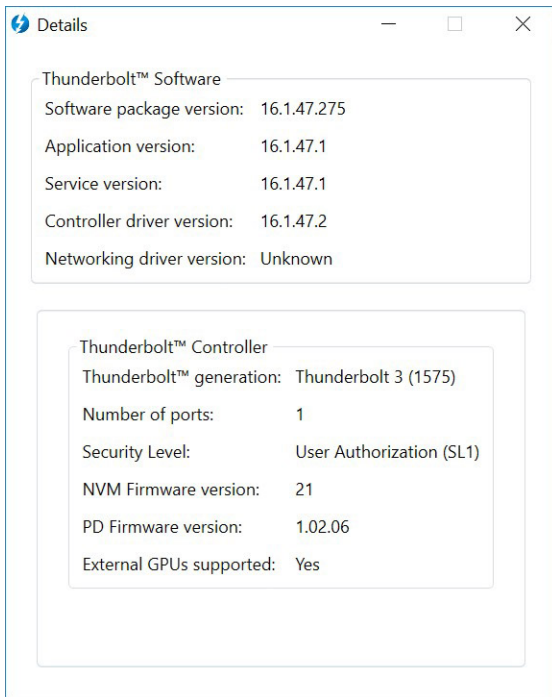




4 Right click on the Thunderbolt icon to view Thunderbolt Settings.



- 5 Click **Details** to view (Thunderbolt driver/firmware) version details.



## Thunderbolt Configuration

If Dell BIOS is used in your system, you may find below Control options in Thunderbolt Configuration page in your BIOS Setup:

- 1 Enable Thunderbolt Technology Support (Enabled by default)
  - When enabled, the Thunderbolt Technology feature, and associated ports and adapters are enabled.
  - When disabled, the Thunderbolt Technology feature is disabled, and any connected Thunderbolt adapter devices are not available in pre-boot or within the operating system.
- 2 Enable Thunderbolt Boot Support (Disabled by default)
  - When enabled, the following Thunderbolt adapter features are enabled during Pre-boot: Thunderbolt adapter boot support, USB device on Thunderbolt adapter support (including USB boot support). This allows Thunderbolt adapter peripheral devices and USB devices connected to the Thunderbolt adapter to be used during BIOS pre-boot. However, setting this to “Enabled” will override the Security Levels utilized within the operating system. When this setting is enabled, any Thunderbolt adapter peripherals and USB devices connected to the Thunderbolt adapter port prior to booting the system can be used in pre-boot. As long as the device remains connected, it will continue to function within the operating system, regardless of the Security Level set in BIOS.
- 3 Enable Thunderbolt Adapter Pre-boot Modules (Disabled by default)
  - When enabled, this setting will allow PCIe devices that are connected through a Thunderbolt adapter (i.e. PCIe devices behind the Thunderbolt adapter) to execute the PCIe device’s UEFI Option ROM(s) (if present) during pre-boot.
  - When disabled, this setting will prevent PCIe device Option ROMs from executing during pre-boot for PCIe devices connected behind the Thunderbolt adapter.

**NOTE:** Enabling the “Enable Thunderbolt Adapter Boot Support” or “Enable Thunderbolt Adapter Pre-boot Modules” options may allow devices connected to the Thunderbolt adapter during pre-boot to function in the operating system regardless of the Security Level selected in BIOS Setup. The device will continue to operate in the operating system until it is disconnected. When reconnected while within the operating system, the device will connect according to the Security Level and previous OS authorizations.

## Thunderbolt Security

The settings below configure the Thunderbolt adapter security settings within the operating system. Security Levels are not applicable or enforced in the Pre-boot environment.

- No Security: Automatically connect to devices plugged into the Thunderbolt port.

- User Authorization: Approval is required for any new devices connected to the Thunderbolt port.
- Secure Connect: The Thunderbolt adapter port will only allow connection to devices that have been configured with a shared key.

**NOTE:** The first time a Thunderbolt peripheral's Unique ID is granted "always connect" PCIe access, a secure encrypted key is written to the peripheral controller's non-volatile memory and added to the host PC's ACL list. Each time a peripheral's Unique ID is found on the ACL, the PC's controller sends a security challenge and the response from the peripheral is then verified before the PCIe connection is allowed. If the response is not valid, the user receives a connection permission prompt. This capability, when enabled, prevents pre-SL2 capable peripherals from connecting to a PC; thereby preventing a potential HW spoofing of an approved device to generate a DMA exploit (beyond what is prevented with SL1).

- DisplayPort Only: Automatically connect to DisplayPort devices only. No Thunderbolt adapter or PCIe devices are allowed to connect.

In the BIOS of a Dell Thunderbolt-enabled PC, you will be able to configure the security settings of the Thunderbolt connection. You can find the configuration options in the BIOS path: **System Configuration > USB / Thunderbolt Configuration**.

**Table 3. Thunderbolt configuration**

Security setting	Description
No security	Allow legacy Thunderbolt devices to auto-connect – the CM auto connects a new device plugged in.
User Authorization	Allow User Notification devices at minimum – the CM requests connection approval from the host SW and auto-approval may be given based on the Unique ID of the connecting device.
Secure Connect	Allow one-time saved key devices at minimum – the CM requests connection approval from the host SW and auto-approval is only given if the host challenge to the device is acceptable.
DisplayPort Only	Allow DisplayPort sinks to be connected (re-driver or DP tunnel, no PCIe tunneling).

# Setup of External Monitors

## Updating the graphics drivers for your computer

The Microsoft Windows operating systems include the VGA graphics drivers only. Therefore, for optimum graphics performance, it is recommended that Dell graphics drivers applicable for your computer be installed from [dell.com/support](http://dell.com/support) under the “**Video**” section

### NOTE:

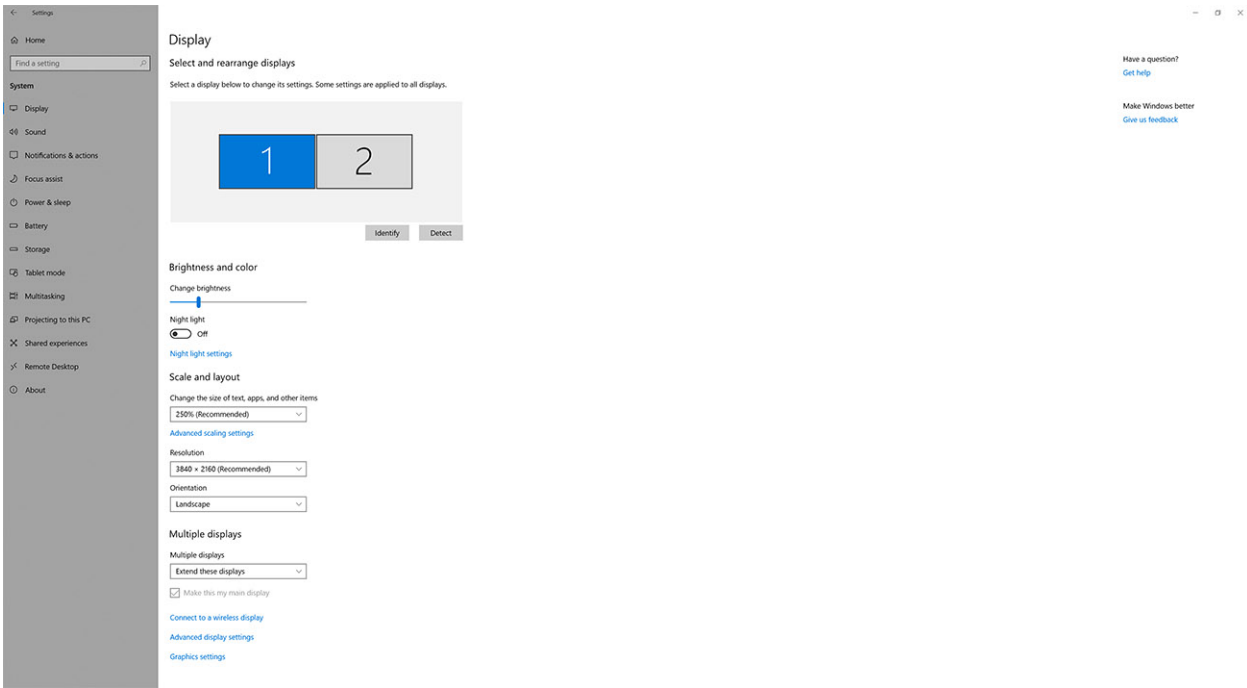
- 1 For nVidia Discrete Graphics solutions on the supported Dell systems:
  - a First, install the Intel Media Adapter Graphics Driver applicable to your computer.
  - b Second, install the nVidia Discrete Graphics Driver applicable to your computer.
- 2 For AMD Discrete Graphics solutions on the supported Dell systems:
  - a First, install the Intel Media Adapter Graphics driver applicable to your computer.
  - b Second, install the AMD Discrete Graphics driver applicable to your computer.

## Configuring your Monitors

If connecting two displays, follow these steps:

- 1 Click the **Start** button, and then select **Settings**.
- 2 Click **System** and select **Display**.

3 Under the **Multiple displays** section, select **Extend these displays**.



## Display bandwidth

External monitors require a certain amount of bandwidth to work properly. Monitors with higher resolution require more bandwidth.

- HBR2 is DP 1.2 (5.4 Gbps maximum link rate per lane). With DP overhead, the effective data rate is 4.3 Gbps per lane.
- HBR3 is DP 1.4 (8.1 Gbps maximum link rate per lane). With DP overhead, the effective data rate is 6.5 Gbps per lane.

**Table 4. Display bandwidth**

Resolution	Minimum bandwidth required
1 x FHD (1920 x 1080) display @60 Hz	3.2 Gbps
1 x QHD (2560 x 1440) display @60 Hz	5.6 Gbps
1 x 4K (3840 x 2160) display @30 Hz	6.2 Gbps
1 x 4K (3840 x 2160) display @60 Hz	12.5 Gbps

## Display Resolution Table

**Table 5. WD19TB for Non-Thunderbolt systems**

Display Port Available Bandwidth	Single Display (maximum resolution)	Dual Display (maximum resolution)	Triple Display (maximum resolution)	Quad Display (maximum resolution)
HBR2 (HBR2 x2 lanes - 8.6 Gbps)	DP1.4/HDMI2.0/MFDP Type-C: 4K (3840 x 2160) @30 Hz	<ul style="list-style-type: none"> <li>• DP1.4 + DP1.4: FHD (1920 x 1080) @60 Hz</li> <li>• DP1.4 + HDMI2.0: FHD (1920 x 1080) @60 Hz</li> </ul>	<ul style="list-style-type: none"> <li>• DP1.4 + DP1.4 + HDMI2.0:                             <ul style="list-style-type: none"> <li>- 1 x FHD (1920 x 1080) @60 Hz</li> <li>- 2 x HD (1280 x 720) @60 Hz</li> </ul> </li> <li>• DP1.4 + DP1.4 + MFDP Type-C:</li> </ul>	NA

Display Port Available Bandwidth	Single Display (maximum resolution)	Dual Display (maximum resolution)	Triple Display (maximum resolution)	Quad Display (maximum resolution)
		<ul style="list-style-type: none"> <li>DP1.4 + MFDP Type-C: FHD (1920 x 1080) @60 Hz</li> </ul>	<ul style="list-style-type: none"> <li>1 x FHD (1920 x 1080) @60 Hz</li> <li>2 x HD (1280 x 720) @60 Hz</li> </ul>	
HBR3 (HBR3 x2 lanes - 12.9 Gbps)	DP1.4/HDMI2.0/MFDP Type-C: 4K (3840 x 2160) @60 Hz	<ul style="list-style-type: none"> <li>DP1.4 + DP1.4: QHD (2560 x 1440) @60 Hz</li> <li>DP1.4 + HDMI2.0: QHD (2560 x 1440) @60 Hz</li> <li>DP1.4 + MFDP Type-C: QHD (2560 x 1440) @60 Hz</li> </ul>	<ul style="list-style-type: none"> <li>DP1.4 + DP1.4 + HDMI2.0: FHD (1920 x 1080) @60 Hz</li> <li>DP1.4 + DP1.4 + MFDP Type-C: FHD (1920 x 1080) @60 Hz</li> </ul>	NA

**Table 6. WD19TB for Thunderbolt systems**

Display Port Available Bandwidth	Single Display (maximum resolution)	Dual Display (maximum resolution)	Triple Display (maximum resolution)	Quad Display (maximum resolution)
HBR2 (HBR2 x8 lanes - 34.5 Gbps)	DP1.4/HDMI2.0/MFDP Type-C/USB Type-C TB: 4K (3840 x 2160) @60 Hz	<ul style="list-style-type: none"> <li>DP1.4 + DP1.4: QHD (2560 x 1440) @60 Hz</li> <li>DP1.4 + HDMI2.0: QHD (2560 x 1440) @60 Hz</li> <li>DP1.4 + MFDP Type-C: QHD (2560 x 1440) @60 Hz</li> <li>DP1.4 + USB Type-C TB: 4K (3840 x 2160) @60 Hz</li> <li>HDMI2.0 + USB Type-C TB: 4K (3840 x 2160) @60 Hz</li> <li>MFDP Type-C + USB Type-C TB: 4K (3840 x 2160) @60 Hz</li> </ul>	<ul style="list-style-type: none"> <li>DP1.4 + DP1.4 + HDMI2.0: 3 x FHD (1920 x 1080) @60 Hz</li> <li>DP1.4 + DP1.4 + MFDP Type-C: 3 x FHD (1920 x 1080) @60 Hz</li> <li>DP1.4 + DP1.4 + USB Type-C TB: 3 x QHD (2560 x 1440) @60 Hz</li> <li>DP1.4 + MFDP Type-C + USB Type-C TB: 3 x QHD (2560 x 1440) @60 Hz</li> <li>DP1.4 + HDMI2.0 + USB Type-C TB: 3 x QHD (2560 x 1440) @60 Hz</li> </ul>	<ul style="list-style-type: none"> <li>DP1.4 + DP1.4 + HDMI2.0 + USB Type-C TB: QHD (2560 x 1440) @60 Hz</li> <li>DP1.4 + DP1.4 + MFDP Type-C + USB Type-C TB: QHD (2560 x 1440) @60 Hz</li> </ul>
HBR3 (HBR3 x4 lanes + HBR3 x1 - 32.4 Gbps)	DP1.4/HDMI2.0/MFDP Type-C/USB Type-C TB: 8K (7689x4320) @30 Hz	<ul style="list-style-type: none"> <li>DP1.4 + DP1.4: 4K (3840 x 2160) @60 Hz</li> <li>DP1.4 + HDMI2.0: 4K (3840 x 2160) @60 Hz</li> <li>DP1.4 + MFDP Type-C: 4K (3840 x 2160) @60 Hz</li> <li>DP1.4 + USB Type-C TB: <ul style="list-style-type: none"> <li>1 x 4K (3840 x 2160) @60 Hz</li> <li>1 x QHD (2560 x 1440) @60 Hz</li> </ul> </li> <li>HDMI2.0 + USB Type-C TB:</li> </ul>	<ul style="list-style-type: none"> <li>DP1.4 + DP1.4 + HDMI2.0: <ul style="list-style-type: none"> <li>1 x 4K (3840 x 2160) @60 Hz</li> <li>2 x QHD (2560 x 1440) @60 Hz</li> </ul> </li> <li>DP1.4 + DP1.4 + MFDP Type-C: <ul style="list-style-type: none"> <li>1 x 4K (3840 x 2160) @60 Hz</li> <li>2 x QHD (2560 x 1440) @60 Hz</li> </ul> </li> <li>DP1.4 + DP1.4 + USB Type-C TB: <ul style="list-style-type: none"> <li>2 x 4K (3840 x 2160) @60 Hz</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>DP1.4 + DP1.4 + HDMI2.0 + USB Type-C TB: QHD (2560 x 1440) @60 Hz</li> <li>DP1.4 + DP1.4 + MFDP Type-C + USB Type-C TB: QHD (2560 x 1440) @60 Hz</li> </ul>

Display Port Available Bandwidth	Single Display (maximum resolution)	Dual Display (maximum resolution)	Triple Display (maximum resolution)	Quad Display (maximum resolution)
		<ul style="list-style-type: none"> <li>- 1 x 4K (3840 x 2160) @60 Hz</li> <li>- 1 x QHD (2560 x 1440) @60 Hz</li> <li>· MFPD Type-C + USB Type-C TB: <ul style="list-style-type: none"> <li>- 1 x 4K (3840 x 2160) @60 Hz</li> <li>- 1 x QHD (2560 x 1440) @60 Hz</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- 1 x QHD (2560 x 1440) @60 Hz</li> <li>· DP1.4 + MFPD Type-C + USB Type-C TB: <ul style="list-style-type: none"> <li>- 2 x 4K (3840 x 2160) @60 Hz</li> <li>- 1 x QHD (2560 x 1440) @60 Hz</li> </ul> </li> <li>· DP1.4 + HDMI2.0 + USB Type-C TB: <ul style="list-style-type: none"> <li>- 2 x 4K (3840 x 2160) @60 Hz</li> <li>- 1 x QHD (2560 x 1440) @60 Hz</li> </ul> </li> </ul>	

**NOTE:** HDMI2.0 and MFPD (Multi-Function DisplayPort) Type-C ports on the back of all docks in the WD19 family are toggled. HDMI2.0 and MFPD Type-C cannot support dual monitors simultaneously. Only one of these ports can be used as a display device at a time.

**NOTE:** If higher resolution monitors are used, the Graphics driver makes a judgement based on monitor specifications and display configurations. Some resolutions may not be supported and so will be removed from the Windows Display Control Panel.

**NOTE:** Linux operating system is unable to physically turn-off built-in display, the external display numbers will be one less than the display numbers listed in above tables.

If the Display Port Data Rate is HBR2 then, the maximum resolution that Linux supports is 8192 x 8192 (counted with built-in display plus external display).

WD19TB for Thunderbolt systems with HBR2:

- 1 If the built-in display resolution is FHD (1920 x 1080 @60 Hz), two external displays with QHD (2560 x 1440) @60 Hz could be supported.
- 2 If the built-in display resolution is 4K (3840 x 2160 @60 Hz), only one external displays with QHD (2560 x 1440) @60 Hz could be supported.

**NOTE:** Resolution support is also dependent on the monitor's Extended Display Identification Data (EDID) resolution.

**NOTE:** The 5K resolution support is only available in either of these conditions:

- 1 With discrete graphics mode only, or special graphics mode, or
- 2 Using the Thunderbolt 3 Type-C to a dual DisplayPort adapter.

**NOTE:** Configuration that is supported with AMD and Nvidia in discrete-only mode or special-graphics mode. These modes are listed in the BIOS for the Dell Precision mobile workstations 7000 series and will require disabling switchable graphics for discrete-only mode or enabling special-graphics mode when Switchable is enabled. If the system does not have these options in the BIOS, then four monitors are NOT supported.



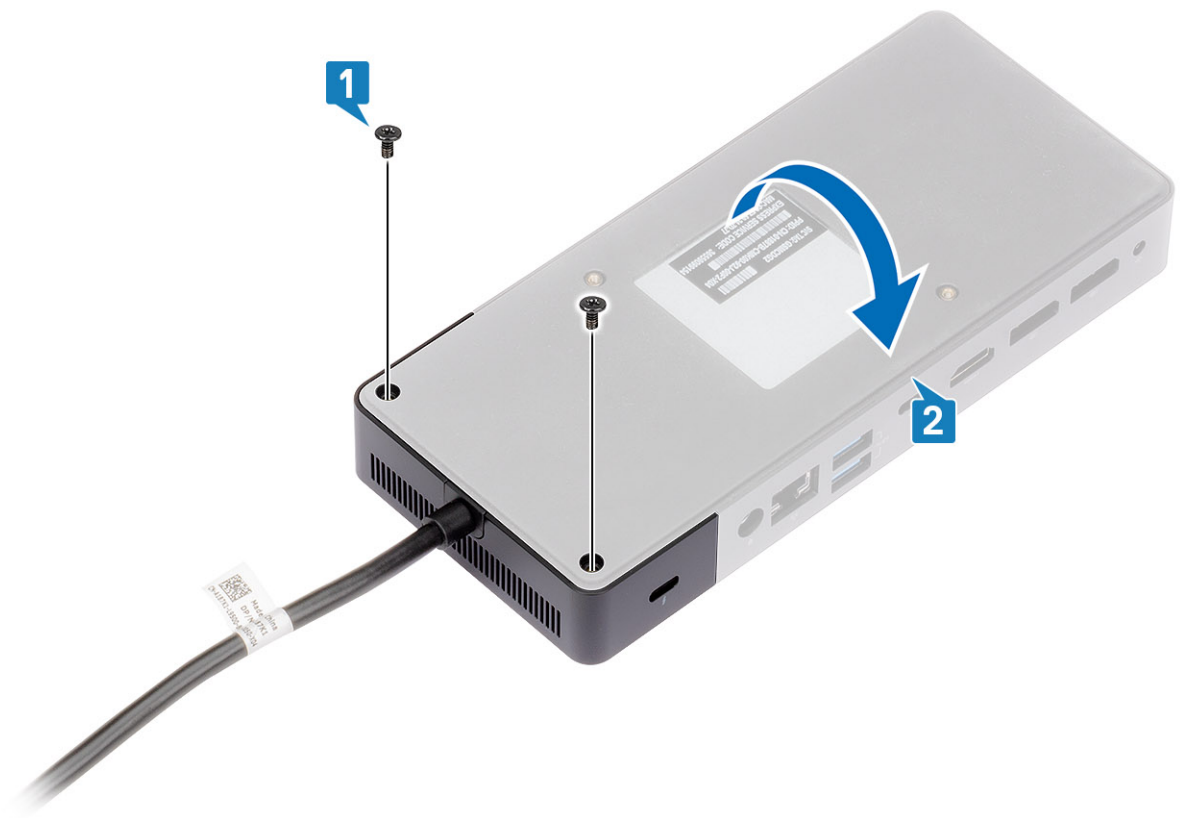
## Removing the USB Type-C cable module

The Dell Thunderbolt Docking Station WD19TB is shipped with the USB Type-C cable attached. To remove/change the cable module, follow these steps:

- 1 Turn over the docking station.



- 2 Remove the two M2.5 x 5 screws [1], and turn over the docking station [2].



- 3 Gently pull the cable module away from the docking station.



- 4 Lift and remove the USB Type-C cable module from its connector inside the docking station.



# Technical specifications

Topics:

- LED Status Indicators
- Docking specifications
- Input/Output (I/O) Connectors
- Dell ExpressCharge and ExpressCharge boost overview

## LED Status Indicators

### Power Adapter LED

**Table 7. Power Adapter LED indicator**

State	LED Behavior
Power Adapter is plugged into wall socket	Solid White

### Docking Status Indicator

**Table 8. Docking Station LED Indicators**

State	LED Behavior
Docking station is receiving power from power adapter	Solid White

**Table 9. Cable LED Indicators**

State	LED Behavior
USB Type-C host supports video + data + power	On
USB Type-C host does not support video + data + power	Off (will not illuminate)

**Table 10. RJ-45 LED Indicators**

Link Speed Indicators	Ethernet Activity Indicator
10 Mb = Green	Amber Flashing
100 Mb = Amber	
1 Gb = Green + Orange	

# Docking specifications

**Table 11. Docking Specifications**

Features	Specifications
<b>Standard</b>	Thunderbolt 3 (Type-C)
<b>Video Ports</b>	<ul style="list-style-type: none"> <li>• USB 3.1 Gen1/Gen2 Type-C with DisplayPort 1.4 or HDMI2.0 x1</li> <li>• DisplayPort++ 1.4 x2</li> <li>• Rear Thunderbolt 3 (Type-C), when connected to a Thunderbolt 3 host.</li> </ul>
<b>Audio Ports</b>	<ul style="list-style-type: none"> <li>• Front Headset connector x1</li> <li>• Rear Line out x1</li> </ul>
<b>Network Port</b>	<ul style="list-style-type: none"> <li>• Gigabit Ethernet (RJ-45) x1</li> </ul>
<b>USB Ports</b>	<ul style="list-style-type: none"> <li>• Front USB 3.1 Gen1 x1</li> <li>• Front USB 3.1 Gen1/Gen2 Type-C</li> <li>• Rear USB 3.1 Gen1 x2</li> <li>• Rear USB 3.1 Gen1/Gen2 Type-C with DisplayPort 1.4 x1</li> </ul>
<b>DC-in Port</b>	<ul style="list-style-type: none"> <li>• 7.4 mm DC-in port x1</li> </ul>
<b>USB Type-C cable length</b>	0.8 m
<b>Power delivery</b>	<p>Dell systems</p> <ul style="list-style-type: none"> <li>• 130 W power capability to Dell systems with 180 W AC-adaptor</li> </ul> <p>Non Dell systems</p> <ul style="list-style-type: none"> <li>• Maximum 90 W to Non Dell system with 180 W AC-adaptor</li> </ul>
<b>Button</b>	<ul style="list-style-type: none"> <li>• Sleep/Wakeup/Power button</li> </ul>

**Table 12. Environment specifications**

Feature	Specifications
<b>Temperature range</b>	<p>Operating: 0°C to 35°C</p> <p>Non-operating:</p> <ul style="list-style-type: none"> <li>• Storage: -20°C to 60°C (-4°F to 140°F)</li> <li>• Shipping: -20°C to 60°C (-4°F to 140°F)</li> </ul>
<b>Relative humidity</b>	<p>Operating: 10% to 80% (non-condensing)</p> <p>Non-operating:</p> <ul style="list-style-type: none"> <li>• Storage: 5% to 90% (non-condensing)</li> <li>• Shipping: 5% to 90% (non-condensing)</li> </ul>

Feature	Specifications
Dimension	205 mm x 90 mm x 29 mm
Weight	450 g (0.99 lb)
VESA Mounting options	Yes — via Dell Docking station mounting kit

**Table 13. Dell Thunderbolt 3 Dock - WD19TB Power Adapter**

Adapter Specifications	180 W
Input voltage	100 VAC to 240 VAC
Input current (max)	2.34 A
Input frequency	50 Hz to 60 Hz
Output current	9.23 A (continuous)
Rated output voltage	19.5 VDC

## Input/Output (I/O) Connectors

The Dell Thunderbolt Docking Station WD19TB has the following I/O connectors:

**Table 14. I/O connectors**

Ports	Connectors
<b>Video Ports</b>	<ul style="list-style-type: none"> <li>• DisplayPort++ 1.4 x2</li> <li>• USB 3.1 Gen1/Gen2 with DisplayPort 1.4 or HDMI2.0 x1</li> <li>• Rear Thunderbolt 3 (Type-C), when connected to a Thunderbolt 3 host.</li> </ul>
<b>Input/Output Ports</b>	<ul style="list-style-type: none"> <li>• USB 3.1 Gen1 x 2</li> <li>• USB 3.1 Gen1 with PowerShare x 1</li> <li>• USB 3.1 Gen1/Gen2 Type-C</li> <li>• Type-C Thunderbolt 3 port or Type-C USB2.0 port</li> <li>• 7.4 mm DC-in x 1</li> <li>• Gigabit Ethernet (RJ-45) x 1</li> <li>• Headset connector x 1</li> <li>• Line-out connector x 1</li> </ul>

## Dell ExpressCharge and ExpressCharge boost overview

- Dell ExpressCharge enables an empty battery to charge to 80% in about one hour when the system is turned off and to 100% in approximately two hours.
- Dell ExpressCharge Boost enables an empty battery to charge to 35% in 15 minutes.
- Metrics are created for **system off** given charge time with the system on has varied results.
- Customers must enable ExpressCharge mode in the BIOS or through Dell Power Manager to take advantage of these features.
- Check your Dell Latitude or Dell Precision system for the battery size using the table to determine compatibility.

**Table 15. Dell ExpressCharge compatibility**

<b>Power Delivery to System</b>	<b>Max Battery Size for ExpressCharge</b>	<b>Max Battery Size for ExpressCharge Boost</b>
90 W with 130 W adapter	92 Whr	53 Whr
130 W with 180 W adapter	100 Whr	76 Whr



# Dell docking station driver and firmware update

## Standalone Dock Firmware Update utility

Download the WD19TB update tool from [www.dell.com/support](http://www.dell.com/support). Connect the dock to the system and start the tool in administrative mode.

- 1 Wait for all the information to be entered in the various Graphical User Interface (GUI) panes.
- 2 **Update** and **Exit** buttons are displayed in the bottom right corner. Click the **Update** button.
- 3 Wait for all the component firmware update to complete. A progress bar is displayed in the bottom.
- 4 The update status is displayed above the payload information.

**Table 16. Command-Line Options**

Command lines	Function
/? or /h	Usage.
/s	Silent.
/f	Force update.
/forceit	Skip power check.
/l=<filename>	Log file.
/verflashexe	Display utility version.
/componentsvers	Display current version of all dock firmware components.

## Frequently asked questions

### 1 The fan is not working after connecting with the system.

- The fan is triggered by temperature. The dock fan will not rotate until the dock is hot enough to trigger a thermal threshold.
- Vice versa, if your dock is not cool enough, the fan will not stop even when you disconnect the dock from the system.

### 2 The dock does not work after high-speed fan noise.

- When you hear a loud fan noise, it is warning you that the dock is in some kind of a hot condition. For example, the vent in the dock may be blocked or the dock is working in a high working-temperature environment (> 35C), etc.. Please eliminate these abnormal conditions from the dock. If you do not eliminate the abnormal condition, in a worst-case situation, the dock will shut down through the over-temperature protection mechanism. Once this happens, please un-plug the Type-C cable from the system and remove the dock's power. Then wait 15 seconds and plug in the dock power to recover the dock back online.

### 3 I hear a fan noise when I plug in the dock's AC adapter.

- This is a normal condition. First time plugging in of the dock's AC adapter will trigger the fan to rotate, but it will subsequently turn off very soon.

### 4 I hear a loud fan noise. What's wrong?

- The dock fan is designed with five different rotate speeds. Normally, the dock will work on low fan speed. If you put the dock in a heavy loading, or in a high working-temperature environment, the dock fan may have a chance to work at a high speed. But, this is normal and the fan will work at a low/high speed depending on the work loading.

**Table 17. Fan states**

State	State name	Fan speed (rpm)
0	Fan off	Off
1	Fan minimum	1900
2	Fan low	2200
3	Fan medium	2900
4	Fan medium-high	3200
5	Fan high	3600

### 5 What is the charging station feature?

- The Dell Thunderbolt Docking Station WD19TB can charge your mobile or power bank even without being connected to the system. Just make sure your dock is connected to external power. The dock fan will rotate automatically if the dock gets too warm. This is normal working condition.

### 6 Why am I asked to approve Thunderbolt Devices after the Windows logon and what should I do?

- This is for Thunderbolt security. You are asked to approve a Thunderbolt device because the Thunderbolt Security level on your unit is set to "User Authorization" or "Secure Connect" in the BIOS Setup. You will not see this page if the Thunderbolt Security level on your system is set to "No Security" or "DisplayPort Only". Also, if you checked "Enable Thunderbolt Boot Support" in the BIOS Setup and power-on the system with the WD19TB dock attached, you will not see this page because the Security level is overridden to "No Security" in this case. When you are asked to approve a Thunderbolt device, you may select "Always Connect" if you do not have any security concerns to always allow the Thunderbolt device connection to your system. Or you may select "Connect Only Once" or "Do Not Connect" if you do have concerns.

### 7 Why does it take a long time for the system to recognize all the peripheral devices which are attached to the docking station?

- Security is always Dell's highest priority. We ship our systems with "Security level - User Authorization" setting by default. This allows our customers to review the Thunderbolt security conditions of their systems so they can make selections accordingly. However, this also means the Thunderbolt dock and the devices attached to it will need to pass Thunderbolt driver security permission checking to get it connected and initialized. This normally means some extra time is needed before these devices can be accessed by users.

### 8 Why does the hardware installation window show up when I plug in a USB device to the docking stations ports?

- When a new device is plugged in, the USB hub driver notifies the Plug and Play (PnP) manager that a new device was detected. The PnP manager queries the hub driver for all of the device's hardware IDs and then notifies the Windows OS that a new device needs to be installed. In this scenario, the user will see a hardware installation window.

<https://msdn.microsoft.com/en-us/windows/hardware/drivers/install/step-1--the-new-device-is-identified>

<https://msdn.microsoft.com/en-us/windows/hardware/drivers/install/identifiers-for-usb-devices>

- 9 **Why do the peripheral devices, which are connected to the dock station, become unresponsive after recovering from a power loss?**
- Our Dell Thunderbolt dock is designed to operate on AC power only and it does not support system power source back (powered by system Type-C port). A power loss event will make all devices on the dock fail to work. Even when you restore the AC power, the dock may still not function properly because the dock still needs to negotiate proper power contract with the system's Type-C port and establish a system EC-to-dock-EC connection.

# Troubleshooting the Dell Thunderbolt Docking Station WD19TB

## Symptoms and solutions

Table 18. Symptoms and solutions

Symptoms	Suggested solutions
<p>1. No video on the monitors attached to the High Definition Multimedia Interface (HDMI), or DisplayPort (DP) port on the docking station.</p>	<ul style="list-style-type: none"> <li>• Ensure that the latest BIOS and drivers for your computer and the docking station are installed on your computer.</li> <li>• Make sure your computer is connected to the docking station securely. Try to disconnect and reconnect the docking station to the notebook computer.</li> <li>• Disconnect both ends of the video cable and check for damaged/bent pins. Securely re-connect the cable to the monitor and docking station.</li> <li>• Make sure the video cable (HDMI, or DisplayPort) is connected properly to the monitor and the docking station. Ensure to select the correct video source on your monitor (refer to your monitor's documentation for more information about changing the video source).</li> <li>• Check the resolution settings on your computer. Your monitor may support higher resolutions than what the docking station is able to support. Please see the <a href="#">Display Resolution Table</a> for more information on maximum resolution capacity.</li> <li>• If your monitor is connected to the docking station, the video output on your computer may be disabled. You can enable the video output using the Windows Control Panel or refer to the User Guide of your computer.</li> <li>• If only one monitor is shown, while the other is not, go to Windows Display Properties, and under <b>Multiple Displays</b>, select the output for the second monitor.</li> <li>• Using Intel graphics and using the system LCD, only two additional displays can be supported.</li> <li>• For nVIDIA or AMD discrete graphics, the dock supports three external displays plus the system LCD.</li> <li>• Try with a different monitor and cable that is known to be good, if possible.</li> </ul>
<p>2. The video on the attached monitor is distorted or flickering.</p>	<ul style="list-style-type: none"> <li>• Reset the monitor to Factory Defaults. Refer to the User Guide of your monitor for more information on how to reset the monitor to factory defaults.</li> <li>• Ensure that the video cable (HDMI, or DisplayPort) is connected securely to the monitor and the docking station.</li> <li>• Disconnect and reconnect the monitor/s from the docking station.</li> <li>• First power off the docking station by disconnecting the Type-C cable and then removing the power adapter from the dock. Then, power on the docking station by connecting power adapter to the dock before connecting the Type-C cable to your computer.</li> </ul>

Symptoms	Suggested solutions
	<ul style="list-style-type: none"> <li>Undock and reboot the system if, the above steps do not work.</li> </ul>
<p>3. The video on the attached monitor is not displaying as an Extended Monitor.</p>	<ul style="list-style-type: none"> <li>Ensure that the Intel HD Graphics driver is installed in the Windows Device Manager.</li> <li>Ensure that the nVidia or AMD Graphics driver is installed in the Windows Device Manager.</li> <li>Open the Windows Display Properties and go to <b>Multiple Displays</b> control to set the display to the extended mode.</li> </ul>
<p>4. The audio connector is not functioning or there is a lag in the audio.</p>	<ul style="list-style-type: none"> <li>Ensure that the latest BIOS and drivers for your computer and the docking station are installed on your computer.</li> <li>If your BIOS Setup has a Audio Enabled/Disabled option, make sure it is set to <b>Enabled</b>.</li> <li>Ensure the correct playback device is selected on the notebook computer.</li> <li>Try to re-plug the audio cable to the external speaker output on the docking station.</li> <li>First power off the docking station by disconnecting the Type-C cable and then removing the power adapter from the dock. Then, power on the docking station by connecting the power adapter to the dock before connecting the Type-C cable to your computer.</li> </ul>
<p>5. The USB ports are not functioning on the docking station.</p>	<ul style="list-style-type: none"> <li>Ensure that the latest BIOS and drivers for your computer and the docking station are installed on your computer.</li> <li>If your BIOS Setup has a USB Enabled/Disabled option, make sure it is set to <b>Enabled</b>.</li> <li>Verify if the device is detected in Windows Device Manager and that the correct device drivers are installed.</li> <li>Ensure that the docking station is connected securely to the notebook computer. Try to disconnect and reconnect the docking station to the computer.</li> <li>Check the USB ports. Try plugging the USB device into another port.</li> <li>First power off the docking station by disconnecting the Type-C cable and then removing the power adapter from the dock. Then, power on the docking station by connecting the power adapter to the dock before connecting the Type-C cable to your computer.</li> </ul>
<p>6. The High-Bandwidth Digital Content Protection (HDCP) content is not displayed on the attached monitor.</p>	<ul style="list-style-type: none"> <li>Dell Thunderbolt Dock supports HDCP up to HDCP 2.2.</li> </ul> <p><b>NOTE: User's monitor/display must support HDCP 2.2</b></p>
<p>7. The LAN port is not functioning.</p>	<ul style="list-style-type: none"> <li>Ensure that the latest BIOS and drivers for your computer and the docking station are installed on your computer.</li> <li>Ensure that the RealTek Gigabit Ethernet Controller is installed in the Windows Device Manager.</li> <li>If your BIOS Setup has a LAN/GBE Enabled/Disabled option, make sure it is set to <b>Enabled</b></li> <li>Ensure that the Ethernet cable is connected securely on the docking station and the hub/router/firewall.</li> <li>Check the status LED of the Ethernet cable to confirm connectivity. Re-connect both ends of the Ethernet cable if the LED is not lit.</li> <li>First power off the docking station by disconnecting the Type-C cable and then removing the power adapter from the dock. Then, power on the docking station by connecting the power</li> </ul>

Symptoms	Suggested solutions
	<ul style="list-style-type: none"> <li>adapter to the dock before connecting the Type-C cable to your computer.</li> </ul>
8. Cable LED is not ON after it is connected to your host.	<ul style="list-style-type: none"> <li>Make sure the WD19TB is connected to AC power.</li> <li>Make sure the laptop is connected with the docking station. Try to disconnect and re-connect again with the docking station.</li> </ul>
9. USB port has no function in a pre-OS environment.	<ul style="list-style-type: none"> <li>If your BIOS has an Thunderbolt Configuration page, please make sure the following options are checked: <ul style="list-style-type: none"> <li>1. Enable USB Boot Support</li> <li>2. Enable External USB Port</li> <li>3. <b>Enable Thunderbolt Boot Support</b></li> </ul> </li> </ul>
10. PXE boot on dock does not function.	<ul style="list-style-type: none"> <li>If your BIOS has an integrated NIC page, please select <b>Enabled w/PXE</b>.</li> <li>If your BIOS Setup on your computer has an Thunderbolt Configuration page, please make sure the following options are checked: <ul style="list-style-type: none"> <li>1. Enable USB Boot Support</li> <li>2. <b>Enable Thunderbolt Boot Support</b></li> </ul> </li> </ul>
11. USB Boot does not function.	<ul style="list-style-type: none"> <li>If your BIOS has an Thunderbolt Configuration page, please make sure the following options are checked: <ul style="list-style-type: none"> <li>1. Enable USB Boot Support</li> <li>2. Enable External USB Port</li> <li>3. <b>Enable Thunderbolt Boot Support</b></li> </ul> </li> </ul>
12. AC Adapter is displayed as "Not Installed" in the Battery Information page of the Dell BIOS Setup when the Thunderbolt 3 Type-C cable is connected.	<ul style="list-style-type: none"> <li>1. Make sure the Dell Thunderbolt Docking Station WD19TB is connected properly to its own adapter (130 W or 180 W).</li> <li>2. Make sure the cable LED of your docking station is ON.</li> <li>3. Disconnect and then re-connect the Thunderbolt 3 (Type-C) cable to your computer.</li> </ul>
13. Peripherals connected to the docking station do not work in a pre-OS environment.	<ul style="list-style-type: none"> <li>Thunderbolt Boot Support is by default disabled in BIOS Setup on your Dell computer. With such default setting the docking station and the peripherals connected to the docking station do not work in a pre-OS environment.</li> <li>If the BIOS Setup on your computer has an Thunderbolt Configuration page, check the following options to enable docking station function in a pre-OS environment: <ul style="list-style-type: none"> <li>Enable External USB Port</li> <li>Enable Thunderbolt Boot Support</li> </ul> </li> </ul>
14. Alert message "You have attached an undersized power adapter to your system" is displayed when the docking station is connected to your computer.	<ul style="list-style-type: none"> <li>Make sure the docking station is connected properly to its own power adapter. Computer requiring more than 130 W power input must also be connected to their own power adapter for charging and operating at full performance.</li> <li>First power off the docking station by disconnecting the Type-C cable and then removing power adapter from the dock. Then, power on the docking station by connecting the power adapter to the dock before connecting the Type-C cable to your computer.</li> </ul>

Symptoms	Suggested solutions
15. Undersized power adapter warning message displayed and cable LED is off.	<ul style="list-style-type: none"> <li>• The docking connector has disconnected from the system's Thunderbolt ports. Please reconnect the docking cable from the system, wait for 15 seconds or more, and then dock again.</li> </ul>
16. No external display. USB or data and cable LED is off.	<ul style="list-style-type: none"> <li>• The docking connector has disconnected from the system's Thunderbolt ports. Please reconnect the docking connector.</li> <li>• Undock and reboot the system if the above steps do not work.</li> </ul>
17. When system or dock is moved the cable LED turns off.	<ul style="list-style-type: none"> <li>• Avoid moving the system/dock when the docking cable is connected to the system.</li> </ul>
18. With Ubuntu 18.04, WIFI will be turned off when the docking station is connected to the system and the WIFI turns On again after rebooting the system.	<ul style="list-style-type: none"> <li>• Please uncheck the option <b>Control WLAN radio</b> in BIOS.</li> <li>• Option is available in - Settings -&gt; Power Management -&gt; Wireless Radio Control</li> </ul>

# 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.