

# Precision 3590

## External Display Connection 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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# Before you begin

You can connect up to four 4K external displays, or one 8K display using the Thunderbolt 4 (USB-C) ports and HDMI port available on your Precision 3590.

Before you begin, ensure that you:

- Check the graphics options on your computer.
- Check the ports available on your external displays and decide on the mode of connection.

## Check the graphics options on your computer

The number of external displays that are supported depends on the type of graphics card available on your computer.

For more information about the graphic cards available on your computer, run Dell SupportAssist on your computer, or scan your hardware at [www.dell.com/support](http://www.dell.com/support).

The following are the graphic options that may be installed in your computer:

- Intel Arc Graphics (Integrated graphics)
- Intel Graphics (Integrated graphics)
- NVIDIA RTX 500 Ada Generation (Discrete graphics)

## Modes of connection

Depending on the connectors available on your external display, you can connect the display to the Thunderbolt 4 (USB-C) ports or HDMI port on your computer using:

- HDMI cable
- Thunderbolt 4 cables, adapters, or docking stations
- USB-C cables, adapters, or docking stations

**i** **NOTE:** To experience the full resolution supported by your external displays, use appropriate cables. For example, use DisplayPort or HDMI cables for 4K and above resolution.

**i** **NOTE:** USB-C or Thunderbolt docking stations can be used to connect external displays to the computer using a single USB-C cable, while charging the computer. For more information about the types of docking stations available from Dell, see the knowledge base article [000124295](https://www.dell.com/support/000124295) at [www.dell.com/support](http://www.dell.com/support).

**i** **NOTE:** USB-C adapters can also be used to connect external displays to the computer, though these do not allow power charging simultaneously. For more information about the types of USB-C adapters available from Dell, see the knowledge base article [000125728](https://www.dell.com/support/000125728) at [www.dell.com/support](http://www.dell.com/support).

These are the Thunderbolt 4 (USB-C) ports and HDMI port available on your computer:

**i** **NOTE:** The devices connected to the ports on the left side of the computer have priority over the ports on the right. While connecting external displays, it is recommended that you connect the displays to the left ports.

## USB-C and Thunderbolt 4 USB-C ports available on your computer

**i** **NOTE:** When connecting a display indirectly using an adapter or docking station, it is recommended that you connect the display to the docking station first, then connect the docking station to the Thunderbolt 4 (USB-C) port on your computer.

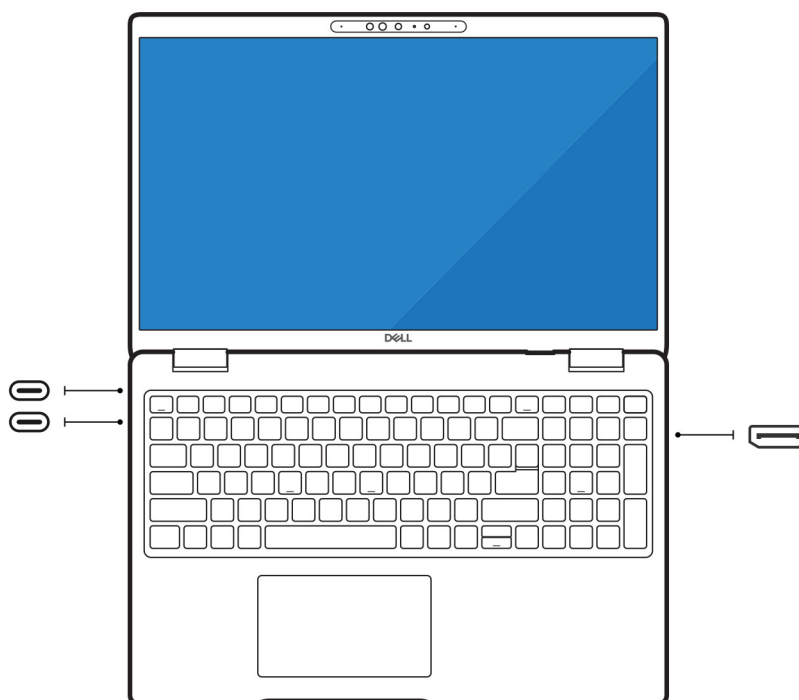


Figure 1. USB-C and Thunderbolt 4 USB-C ports available on your computer

## Turn off the internal display

There may be instances where you may want to turn off the computer internal display to connect more external displays. You can turn off the display of your computer by using the Intel Graphics Command Center.

To turn off the computer display:

1. In the Windows search bar, type **Intel Graphics Command Center** and press **<Enter>**.
2. Accept the **Intel Graphics Command Center** software license agreement.
3. On the **Intel Graphics Command Center** window, click **Display**. The list of active displays is listed under the **Connected Displays** section.
4. Click the ellipsis (...) at the upper right corner of your primary display, then click **Mirror > Display 2**.
5. Click the ellipsis (...) at the upper right corner of display 2, then click **Make Display Primary**.
6. Click the ellipsis (...) at the upper right corner of your computer display, then click **Disable**.

## Connect external displays

You can connect up to four external displays to the Thunderbolt 4 (USB-C) ports and HDMI port on your computer.

The number of displays supported depends on the following:

- Whether you are using integrated graphics or discrete graphics.
- If the internal display is enabled or disabled.
- Your docking station may also limit the number of supported external displays. Check the documentation that came with your docking station.

The following table summarizes the number of supported external displays:

**Table 1. Display support (up to 4K/60 Hz)**

Graphics card	Supported external displays with computer internal display on	Supported external displays with computer internal display off
Intel Arc Graphics (Integrated graphics)	3	4
Intel Graphics (Integrated graphics)	3	4

**Table 2. Display support (up to 8K/60 Hz)**

Graphics card	Supported external displays with computer internal display on	Supported external displays with computer internal display off
Intel Arc Graphics (Integrated graphics)	1	1
Intel Graphics (Integrated graphics)	1	1

## Integrated graphics

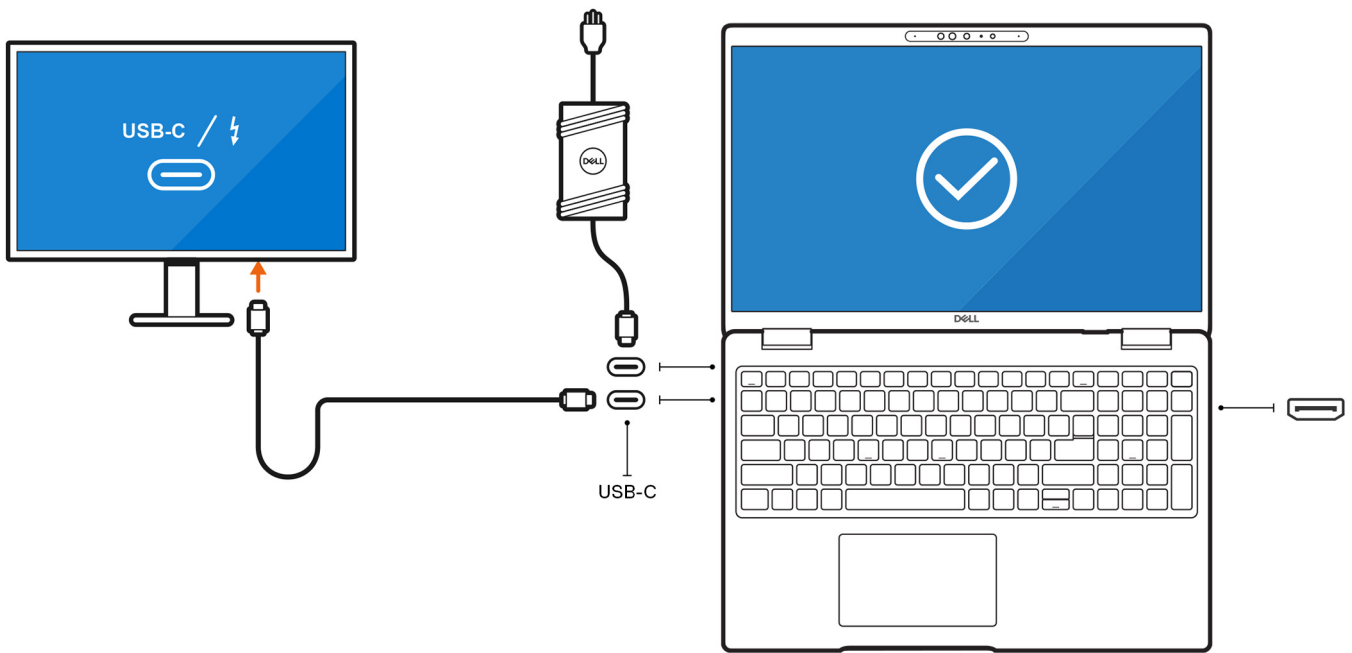
### Connecting external displays to Precision 3590

**NOTE:** When connecting a display indirectly using an adapter or docking station, it is recommended that you connect the display to the docking station first, then connect the docking station to the Thunderbolt 4 (USB-C) port on your computer.

### With the computer display turned on

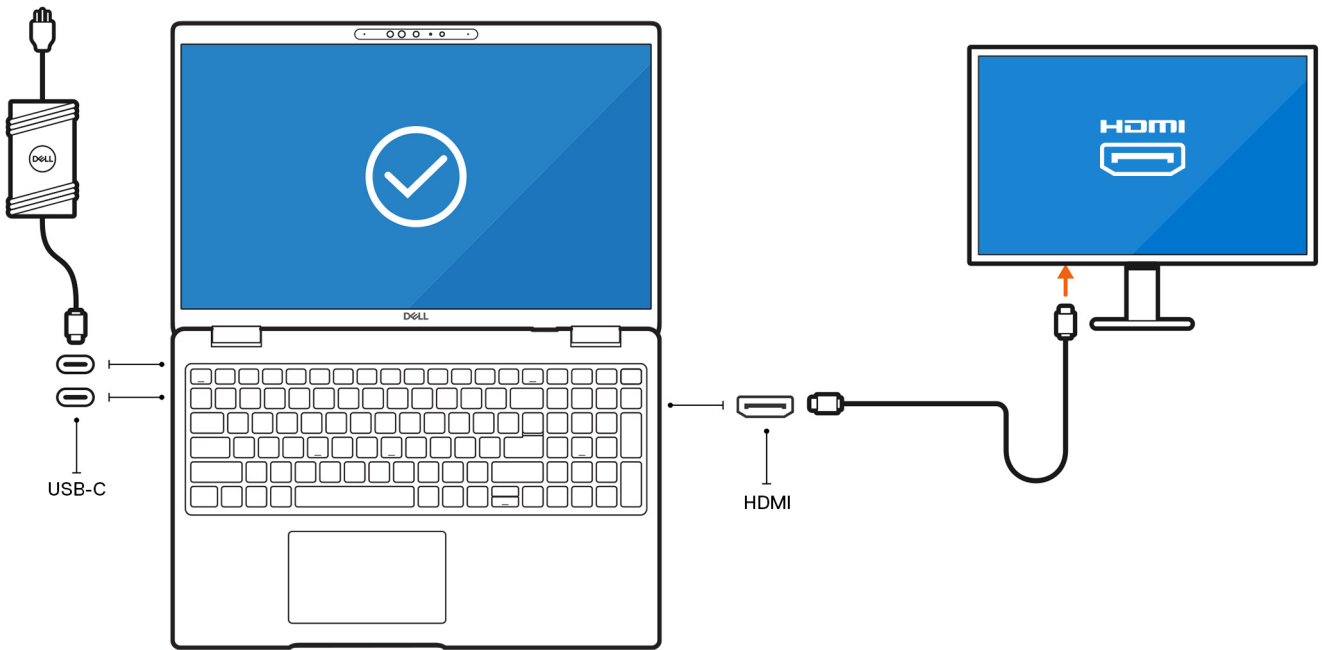
You can connect external displays directly to Thunderbolt 4 (USB-C) ports and HDMI port, or up to two external displays using a docking station.

- Connect an external display using a direct USB-C or Thunderbolt cable:



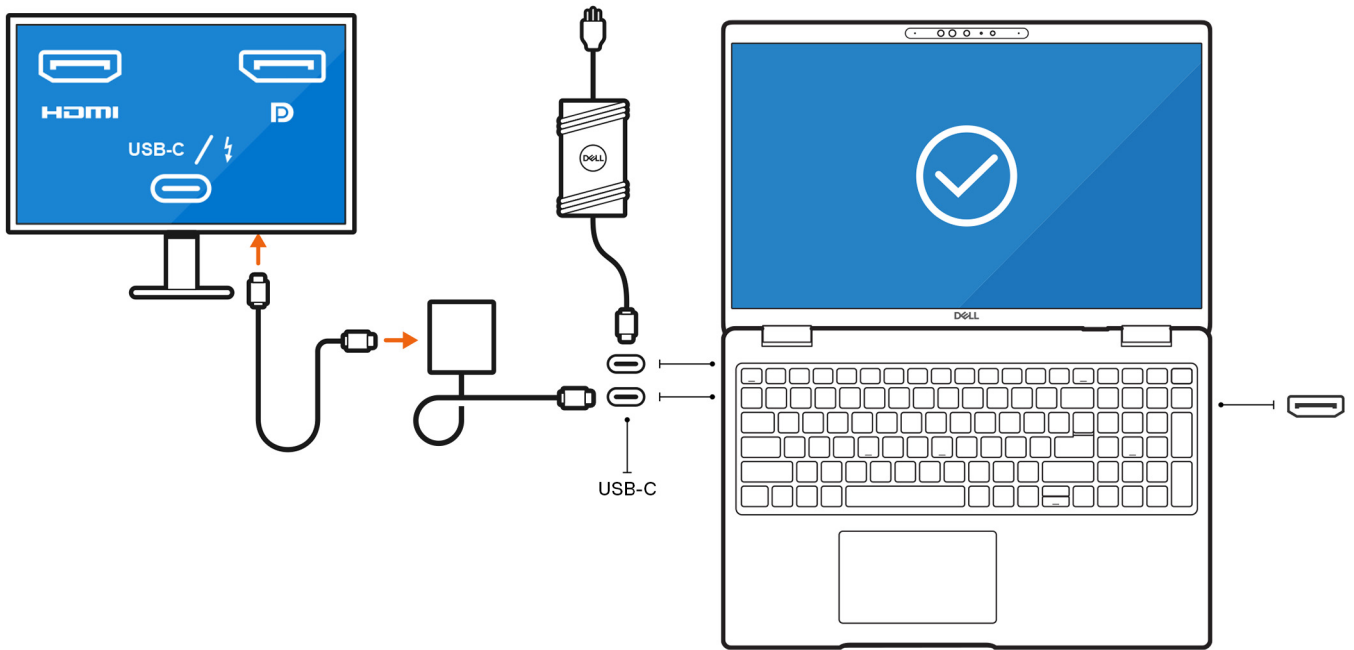
**Figure 2. Connect an external display using a direct USB-C or Thunderbolt cable**

- Connect an external display using a direct HDMI cable:



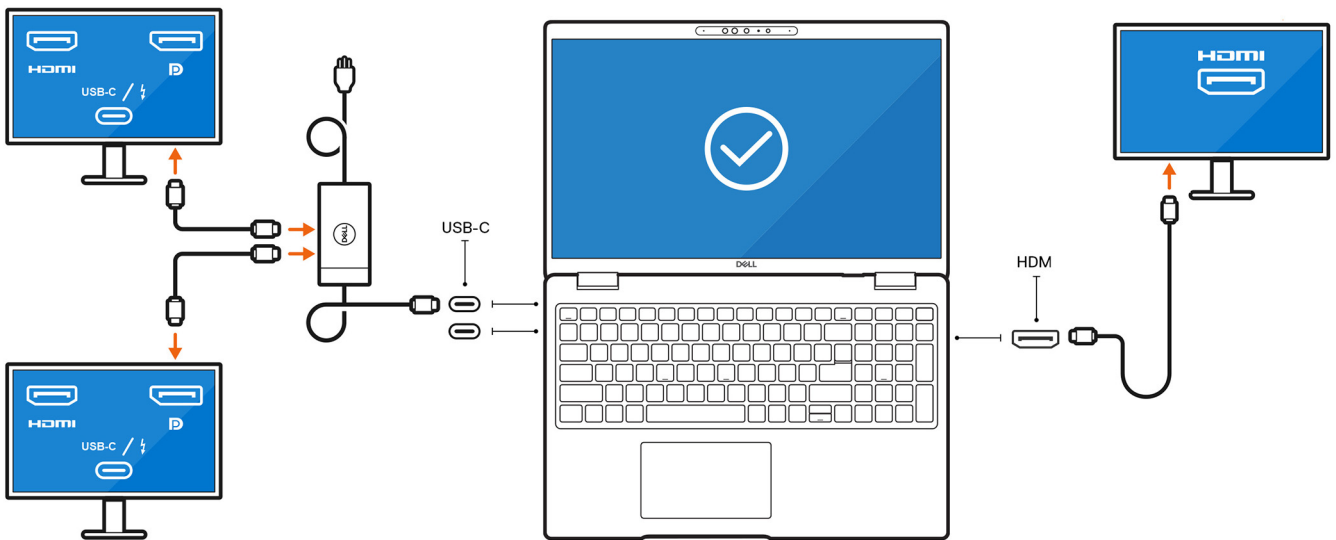
**Figure 3. Connect an external display using a direct HDMI cable**

- Connect an external display using a USB-C to Thunderbolt/HDMI/DisplayPort adapter:



**Figure 4. Connect an external display using a USB-C to Thunderbolt/HDMI/DisplayPort adapter**

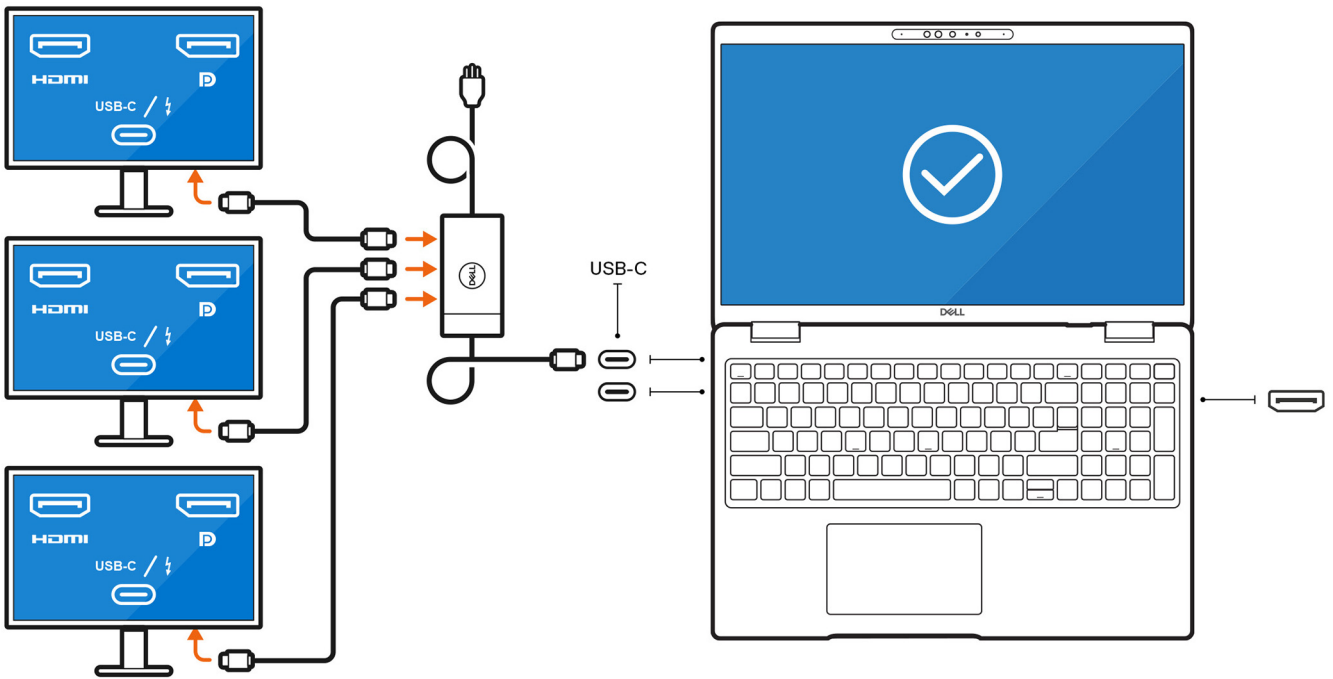
- Connect up to two external displays using a USB-C docking station:



**Figure 5. Connect up to two external displays using a USB-C docking station**

- Connect up to three external displays using direct USB-C or Thunderbolt cables and a direct HDMI cable:





**Figure 6. Connect up to three external displays using direct USB-C or Thunderbolt cables and a direct HDMI cable**

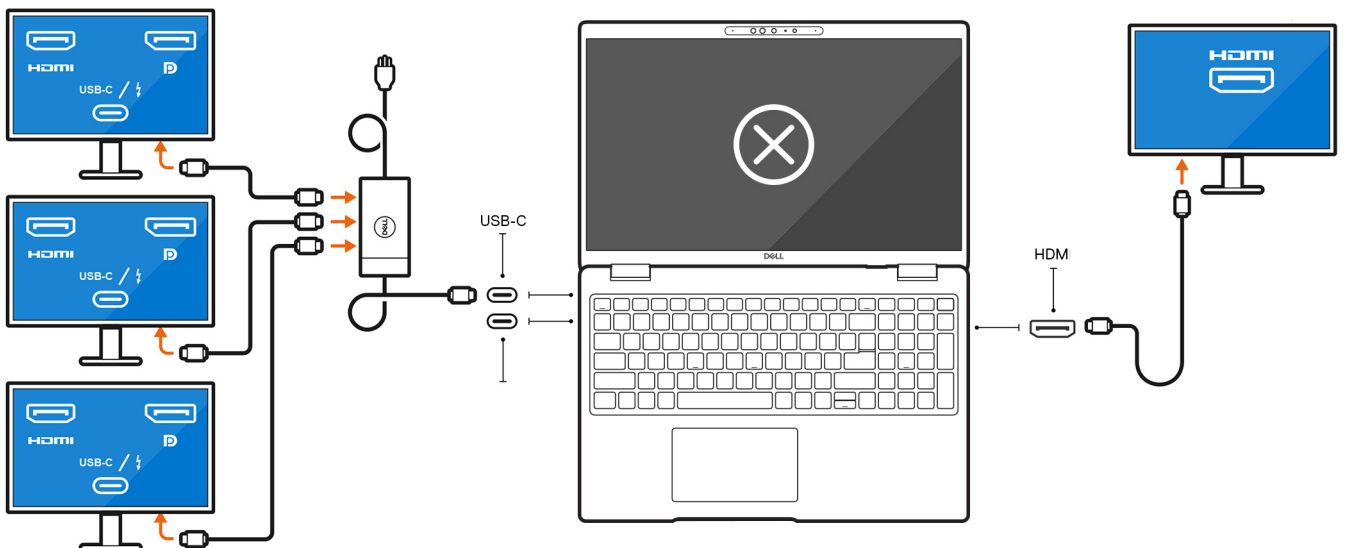
- Connect up to three external displays using a USB-C docking station.

## With the computer display turned off

- NOTE:** Ensure that you turn off the computer's internal display before connecting the external displays. For more information, see Turn-off the internal display.
- NOTE:** Connect and configure at least one external display before disabling the computer internal display.

You can connect external displays using the Thunderbolt 4 (USB-C) ports and HDMI port.

- Connect up to four external displays using a USB-C docking station and a direct HDMI cable:



**Figure 7. Connect up to four external displays using a USB-C docking station and a direct HDMI cable**

- Connect two external displays using a docking station and two more external displays using a USB-C to HDMI/DisplayPort/Thunderbolt 4 adapter:

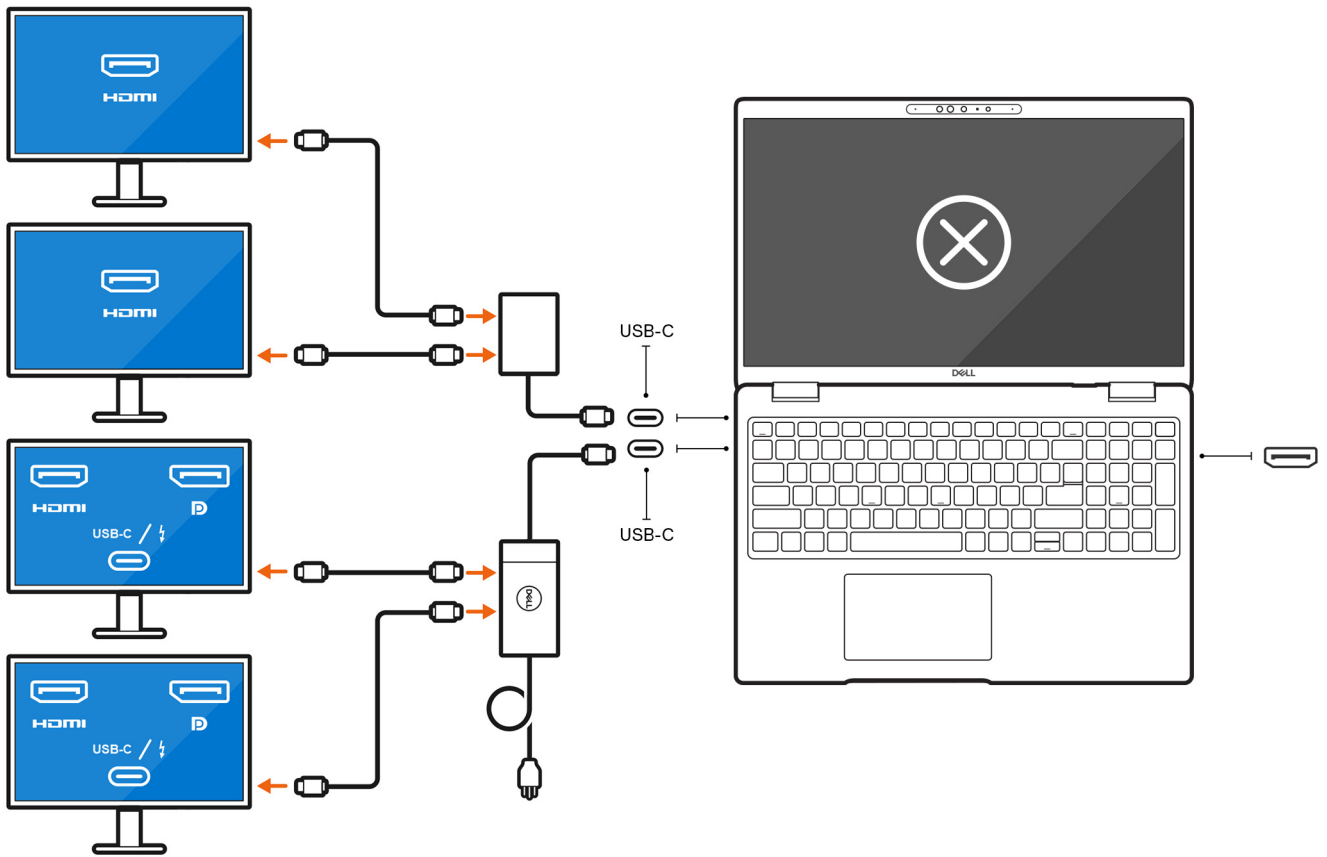


Figure 8. Connect two external displays using a docking station and two more external displays using a USB-C to HDMI/DisplayPort/Thunderbolt 4 adapter

## Troubleshooting

The display output resolution cannot reach 4K@60 Hz while connecting the display monitor with a HDMI-to-DP or DP-to-HDMI dongle from the docking station to the computer

### Question

When I connect a display monitor to the computer using an HDMI-to-DP or DP-to-HDMI dongle from a Dell WD19/WD22 Thunderbolt docking station, the display output resolution cannot reach 4K@60 Hz (only 4K@30 Hz).

### Cause

This is due to a hardware limitation while connecting dongles to the Dell WD19/WD22 (Limited Graphic bandwidth) Thunderbolt docking station.

### Workaround


Connect the monitor directly to the HDMI or DP ports on the Thunderbolt docking station.

# 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 3. Self-help resources**

Self-help resources	Resource location
Information about Dell products and services	<a href="http://www.dell.com">www.dell.com</a>
Tips	
Contact Support	In Windows search, type <code>Contact Support</code> , and press Enter.
Online help for operating system	<a href="http://www.dell.com/support/windows">www.dell.com/support/windows</a> <a href="http://www.dell.com/support/linux">www.dell.com/support/linux</a>
Access top solutions, diagnostics, drivers and downloads, and learn more about your computer through videos, manuals, and documents.	Your Dell computer is uniquely identified using a Service Tag or Express Service Code. To view relevant support resources for your Dell computer, enter the Service Tag or Express Service Code at <a href="http://www.dell.com/support">www.dell.com/support</a> . For more information about how to find the Service Tag for your computer, see <a href="#">Locate the Service Tag on your computer</a> .
Dell knowledge base articles	<ol style="list-style-type: none"> <li>1. Go to <a href="http://www.dell.com/support">www.dell.com/support</a>.</li> <li>2. On the menu bar at the top of the Support page, select <b>Support &gt; Support Library</b>.</li> <li>3. In the Search field on the Support Library page, type the keyword, topic, or model number, and then click or tap the search icon to view the related articles.</li> </ol>

## Contacting Dell

To contact Dell for sales, technical support, or customer service issues, see [www.dell.com/contactdell](http://www.dell.com/contactdell).

 **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.