Technical White Paper

HP Thunderbolt 4 Ultra 180W/280W G6 Dock

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Introduction

The World's Most Advanced Thunderbolt™ 4 Docks[1]

Work without interruptions and maximize productivity with ultimate power delivery from the HP Thunderbolt™ 4 Ultra G6 Docks. Effortlessly manage, connect, and power the devices you love with state-of-the-art security and connectivity.

Find true momentum with uninterrupted connections to your devices. HP Quick Connect[1] wakes your devices before you even take a seat. Stay in your flow all day with up to 280W[3] of power delivery and 40 Gbps of data transfer speeds via Thunderbolt™ 4 technology[2] and all the ports you need to connect your setup.

Cloud manageability with Poly Lens[4] unlocks hands-off management from anywhere. Administer automatic firmware updates anytime and easily monitor telemetry and analytics to optimize workspaces and support users effectively.

Prevent potential threats with HP Wolf Security[5], interlacing HP Sure Start[6] and Zero Trust Framework to provide complete end-to-end security. Work and rest easy knowing everything from the dock to the cloud is protected.

Lastly, these docks are durably crafted[7] with replaceable parts to maximize your fleet's lifecycle. Built with a power consumption module to monitor your energy consumption and consciously wrapped in plastic-free packaging[8].

1. HP Quick Connect must be enabled on the PC's BIOs and on the dock. HP Quick Connect is available on select HP G11 Intel and G12 Intel and AMD PCs. Bluetooth® required. Not available on TAA versions. Contact your local sales representative to learn more.
2. For full data and video capability, the PC must support either: DisplayPort™ alt mode, Thunderbolt™ 3 alt mode, or USB4 through its USB-C® port. Charging and port replication are supported on Notebooks that have implemented the USB-C® Power Delivery specifications. HP Quick Connect, Wake-on LAN from warm and cold dock, Wake-on LAN from S4/S5, and MAC Address Pass-Through, S0, S3, S4, S5 warm and cold dock features only function on HP or HP supported Notebooks. HP does not provide Ethernet and audio drivers on Mac PCs. Power button to turn off or to wake the system depends on implementation of the related and optional Power Delivery specification.
3. Up to 280W power delivery through the Thunderbolt™ 4 cable available on PCs that support PD 3.1.
4. Poly Lens is a cloud-based device management solution that provides actionable insights and analytics around unified communications endpoints like Poly voice, video, headset devices, and select HP docking stations and can be sold as a stand-alone service. Internet access is required. Not available on TAA versions. Visit lens.poly.com to set up an account.
5. HP Wolf Security for Business requires Windows 10 or 11 Pro and higher, includes various HP security features, and is available on HP Pro, Elite, RPOS, and Workstation products. See product details for included security features.
6. Based on HP's internal analysis of docking stations that are Thunderbolt™ 4, have auto validating and self-healing firmware, meet NIST SP 800-193 requirements, the ability to disable the RJ-45, and a BIOS MAPT authorized list. HP Sure Start on HP Thunderbolt G6 dock supports firmware integrity verification and recovery during dock start-up and disconnect. It does not include real-time and runtime protections or Microsoft SCCM integration typically found on HP Sure Start in HP Notebooks.
7. HP Total Test Process testing is not a guarantee of future performance under these test conditions. Damage under the HP Total Test Process test conditions or any accidental damage requires an optional HP Accidental Damage Protection Care Pack.
8. HP packaging for this product is reported by suppliers as plastic free. Packaging refers to the primary product box and all materials inside, excluding any additional boxes provided by third parties, bulk packaging, and packaging for accessories and spare parts.

Specification Summary

SKUs	HP Thunderbolt 4 Ultra 180W G6 Dock (9X481UT) HP Thunderbolt 4 Ultra 180W TAA G6 Dock (9X4A1AA) HP Thunderbolt 4 Ultra 280W G6 Dock (AW5M5UT, includes combo cable) HP Thunderbolt 4 Ultra 280W TAA G6 Dock (AW5N3AA, includes combo cable)
Design	Cube modular design
Power button on dock[1]	Mechanical Power button
Cable length and AMO options	Default 1meter cables
USB-C® ports USB 3.2 Gen 2	1x Thunderbolt™ 4 ports (back) 1x alt mode & data port (back) 1x data and power port (front) 1x data and power port (right)
USB-A ports USB 3.2	1x USB-A 3.2 gen 2 (10 Gbps) port with charging (left) 2x USB-A 3.2 Gen 2 (10 Gbps) port with 1x charging (right) 2x USB-A 3.2 Gen 1 (5 Gbps) with charging (back)
Video ports	2x DisplayPort 1.4 1x HDMI 2.1 1x Thunderbolt™ 4 1x USB-C 3.2 Gen 2 DisplayPort
Number of monitors supported[2]	Up to 4 external (+Notebook display)
Video resolutions[2]	Non-Thunderbolt™ with multi-function PCs[3]: 1 x 4K UHD @ 120Hz; 2 x QHD @ 120Hz; 3 x FHD @ 120Hz; 1 x FHD @ 360Hz Non-Thunderbolt™ with high-resolution PCs[3]: 2 x 4K UHD @ 120Hz; 3 x QHD @ 120Hz; 2 x FHD @ 360Hz; 1 x QHD @ 360Hz Thunderbolt™ with dual DisplayPort™ streams[3]: 4 x 4K UHD @ 60Hz; 2 x 3K UHD @ 120Hz; 3 x QHD @ 120Hz; 2 x FHD @ 360Hz; 1 x QHD @ 360Hz Thunderbolt™ with single DisplayPort™ stream[3]: 4 x 4K UHD @ 60Hz; 2 x 4K UHD @ 120Hz; 3 x QHD @ 120Hz; 2 x FHD @ 360Hz; 1 x QHD @ 360Hz
Ethernet support[4]	Realtek 2.5 Gbps / Intel® 2.5 Gbps
Management software	Poly Lens[5] HP CMSL HP WMI provider
Network Manageability features	Disconnected firmware updates eTag PxE Boot Wake on LAN (from the Off, Sleep, or Hibernation state)[6] MAC address pass-through (from the On, Off, Sleep, or Hibernation state)[7] WLAN-LAN switching Disable LAN Event messaging Intel® Wired vPro
System compatibility[8]	Compatible with Thunderbolt™ systems and USB-C® alt mode systems with data, power and video
Operating systems[9]	Windows 10, Windows 11, ChromeOS, macOS, Linux, ThinPro
Power to system thru USB-C®	HP Thunderbolt 4 Ultra 180W G6 Dock: Up to 180W5 via USB-C[10] HP Thunderbolt4 Ultra 280W G6 Dock: Up to 280W via power barrel or 180W5 via USB-C[10]
Software included	HP Quick Connect[11] myHP

1. The dock Power button may support non-HP Notebooks that have implemented USB Power Delivery specification to support Extended Alert messages.
2. Video resolution and support are dependent on the maximum capability of the Notebook.
3. Requires DisplayPort 1.4 support with Display Stream Compression.
4. For Thunderbolt™ Host systems with Intel VPRO ®support, dock will use Intel 2.5 Gbps NIC. For USB 4.0 host, non-VPRO, and non-Thunderbolt™ Multi-Function Host systems, dock will use Realtek 2.5 Gbps NIC. To reach 2.5 Gbps speed, it requires infrastructure that supports 2.5 Gbps Ethernet speeds. **Note: The Ethernet driver is needed on the host system. The host connection to the HP Thunderbolt Ultra G6 dock will determine which Ethernet NIC is active inside the dock. For Thunderbolt™ connections with Intel VPRO capable Notebooks, the Intel® I226 LMvP device is active. For USB 4.0 connections with no Intel VPRO support, for USB-C®, or if Thunderbolt™ mode is turned off, then the Realtek 2.5 Gbps Ethernet NIC is active. Only one Ethernet is active at one time. Use the host-side device manager to view Ethernet status.**
5. Poly Lens is a cloud-based device management solution that provides actionable insights and analytics around unified communications endpoints like Poly voice, video, headset devices, and select HP docking stations and can be sold as a stand-alone service. Internet access is required. Not available on TAA versions. Visit lens.poly.com to set up an account. Utilizes a Wireless 802.1 2.4/5 GHz + Bluetooth® combo card on the dock to function. This card is not available on TAA versions, and therefore Poly Lens is also not available.
6. Your computer might support Wake on LAN from the Off, Sleep, or Hibernate state, or only when the computer is in Sleep.
7. Your computer might support MAC address pass-through in the On, Off, Sleep, or Hibernate state, or only when the computer is On or in Sleep. Thunderbolt™ host systems require Thunderbolt™ software (minimum SW17.x). Ethernet drivers need to be installed separately on non-HP Windows systems for headset auto switching functionality. Drivers available on HP website. For Apple PCs, HP does not provide Ethernet and audio drivers. Firmware updates on Windows-based host systems or Linux host systems via Linux Vendor Firmware Service only. Certain features are not functional on non-HP supported nor non-HP Notebooks:
    - Power button to turn on or wake the system unless the USB Power Delivery specification to support Extended Alert messages is enabled on the system.
    - Wake on LAN from warm and cold dock.
    - Wake on LAN from S4/S5.
    - MAC Address pass-through S0, S3, S4, S5 warm and cold dock.
8. For full data and video capability, the PC must support either: DisplayPort alt mode, Thunderbolt 3 alt mode, or USB4 through its USB-C port. Charging and port replication are supported on Notebooks that have implemented the USB-C Power Delivery specifications. HP Quick Connect, Wake-on LAN from warm and cold dock, Wake-on LAN from S4/S5, and MAC Address Pass-Through, S0, S3, S4, S5 warm and cold dock features only function on HP or HP supported Notebooks. HP does not provide Ethernet and audio drivers on Mac PCs. Power button to turn off or to wake the system depends on implementation of the related and optional Power Delivery specification.
9. Operating systems supported: Windows 10 22H2 and up, Win 10 IoT Enterprise LTSC 2021, Windows 11 23H2 and up, ChromeOS M133 and up, Ubuntu Linux 22.04 LTS with 5.15 kernel, ThinPro OS 8.0, and MacOS Sonoma 14. Not all features work with all operating systems; ask your sales representative about compatibility with your PC. Linux, ChromeOS, MacOS, and ThinPro OS testing currently underway and expected to be completed after launch.
10. Up to 180W power delivery through the Thunderbolt 4 cable available on PCs that support the Extended Power Range (EPR) as part of the USB Type-C PD 3.1 specification.
11. HP Quick Connect must be enabled on the PC's BIOs and on the dock. HP Quick Connect is available on select HP G11 Intel and G12 Intel and AMD PCs. Bluetooth required. Not available on TAA versions. Contact your local sales representative to learn more.

Ports

Figure A: HP Thunderbolt 4 Ultra 180W/280W G6 Dock (Front, Left).

1. (1) USB 3.2 Gen 2 (10 Gbps) charging port
2. (1) USB 3.2 Gen 2 (10 Gbps) charging port
3. (1) Power button[1]
4. (1) USB Type-C® 3.2 Gen 2 (10 Gbps) port with data and power out (15W)
5. (1) 4.5 mm power barrel (delivering up to 280W power to host)
6. (1) USB-C® cable to connect to host system (1 m cable length), delivering up to 180W[2] power

[1]The dock power button is not functional when connected to non-supported HP Notebooks or non-HP Notebooks.

[2]180W delivery supported on hosts that support Extended Power Range (EPR).

Figure B: HP Thunderbolt 4 Ultra 180W/280W G6 Dock (Rear, Right).

1. (1) USB 3.2 Gen 2 (10 Gbps) charging port
2. (1) USB Type-C® 3.2 Gen 2 (10 Gbps) port with data and power out (15W)
3. (1) Nano security lock slot[1]
4. (1) USB 3.2 Gen 1 (5 Gbps) charging port
5. (1) USB 3.2 Gen 2 DisplayPort alt mode
6. (2) DisplayPort 1.4
7. (1) HDMI 2.1
8. (1) Thunderbolt 4
9. (1) USB 3.2 Gen 1 (5 Gbps) charging port
10. (1) Ethernet port (2.5 Gbps) [2]

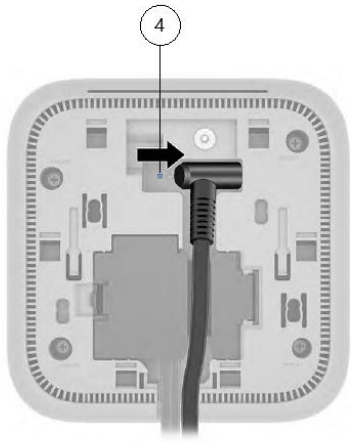
[1]Compatible with the following HP locks: 63B28AA HP Nano Combination Cable Lock, 63B31AA HP Essential Nano Combination Cable Lock.

[2]Requires infrastructure that supports 2.5 GB Ethernet speeds.

Figure C: HP Thunderbolt Ultra G6 Dock - 180W/280W (Bottom).

1. Cable connection port
2. Bottom cover latch
3. (1) RGB LED bar

HP Thunderbolt Ultra G6 Dock - 180W/280W (Bottom, cover removed).



4. AC adapter LED (will be ON only if supported power supply connected)

First-Time Connection

Connecting to a Thunderbolt™ host

When connecting a new HP Thunderbolt 4 Ultra 180W/280W G6 Dock to your Notebook for the first time, you may need to authorize the Thunderbolt device. See Figure D.

NOTE: You must be logged on as an administrator of the local computer. In some Thunderbolt™ security level settings, the dialog box may not appear (see the *Thunderbolt Security Level* section).

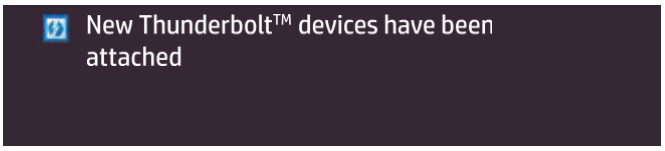


Figure D: Dialog box requesting administrative approval of a new Thunderbolt™ device.

Approving Thunderbolt™ device connection

A second dialog box opens for approving the new Thunderbolt™ device connection. See Figure E.

Select one of the following options:

- **Do Not Connect**—prevents the dock from connecting to the Notebook.
- **Connect Only Once**—allows the dock to connect to the Notebook until it is disconnected. Each time the dock is disconnected and reconnected, you must be logged on as an administrator to allow access to the dock.
- **Always Connect**—allows the dock to connect to the Notebook automatically after it is disconnected and reconnected, even if you are not logged on as an administrator.

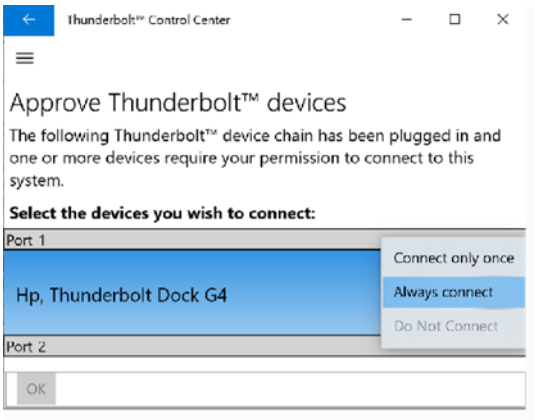


Figure E: Dialog box to configure connection settings of a new Thunderbolt™ device.

If the new Thunderbolt™ Devices dialog box (Figure E) is missed or does not pop up, go to the system tray to relaunch *Approve Attached Devices* from the Intel Thunderbolt™ Center.

1. Right-click the **Thunderbolt™** icon on the system tray.
2. Select **Approve Attached Devices** from the pop-up menu.

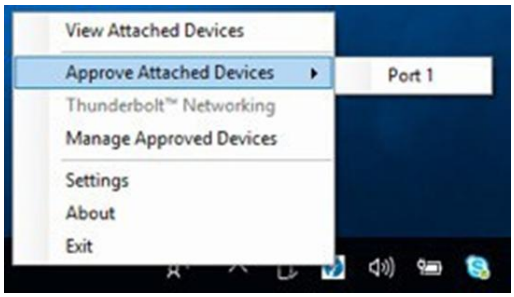


Figure F. Thunderbolt pop-up menu.

3. Click the port in which the Thunderbolt™ device is connected. See Figure F above.
4. The Approve Thunderbolt™ Devices dialog box should now appear, allowing you to approve your Thunderbolt™ dock. See Figure D above.
5. If you miss this dialog box, you may reopen it by clicking the **Message** icon in your system tray. See Figure G.

Figure G: Message icon in system tray.

Supported Modes (Multi-function and Thunderbolt™ 4 / USB 4 / Thunderbolt™ 3)

The HP Thunderbolt 4 Ultra 180W/280W G6 Dock can connect to systems without Thunderbolt™ through either the Multi-function mode or USB mode.

Depending on the host capabilities, the dock then will connect as follows:

- If the Host has Thunderbolt™ capabilities, the dock connects as a Thunderbolt™ dock.
- If the host has only USB4 capabilities, the dock connects as a USB4 dock.
- If the host does not have Thunderbolt™ or USB4 capabilities, the dock connects as a USB-C® dock (Multi-function mode)

When you connect via the Thunderbolt™ cable to the host, the host capabilities will define the throughput speed of the dock. The below table compares connectivity of an HP Thunderbolt 4 Ultra 180W/280W G6 Dock to various hosts.

	Thunderbolt™ 4	**USB4 Host with no Intel vPro® support**	**Thunderbolt™ 3 Host**	**USB3/DP Host (Multi-function mode)**	**USB3/DP Host (High Resolution mode)**
Overall port bandwidth	40 Gb/s	40 Gb/s	40 Gb/s	10 Gb/s	10 Gb/s
Maximum PCIe bandwidth	PCIe 32 Gb/s	PCIe 32 Gb/s	PCIe 16 Gb/s	NA	NA
Maximum USB bandwidth	USB 3.2 -10 Gb/s	USB 3.2 -10 Gb/s	USB 3.2 -10 Gb/s	USB 3.2 -5 Gb/s	USB 2.0 480 mb/s
Max DP bandwidth	2 DP streams x 4 lanes	2 DP streams x 4 lanes	2 DP streams x 4 lanes	1 DP stream x 2 lanes	1 DP stream x 4 lanes
NIC	Intel®	Realtek	Intel®	Realtek	Realtek
Intel vPro® support*	Yes (Intel® Notebooks only)	No	No	No	No

* Feature is only applicable for Notebooks that support Intel® vPro® technology.

There are three main differences between the Thunderbolt™ mode of the HP Thunderbolt 4 Ultra 180W/280W G6 Dock and Multi-function mode:

- The Thunderbolt™ port on the back of the unit will behave as USB 3.1 Gen 2 with video.
- The Thunderbolt™ port is only fully functional with a Thunderbolt™/ USB4 host connected.
- The number of independent video streams is decreased from two DP x4 to one DP x2.

Pre-Boot Support

The HP Thunderbolt 4 Ultra 180W/280W G6 Dock supports pre-OS environment only in Thunderbolt™ Security Level 0 and Security Level 1 (refer to the *Security Levels – Available Functions and Ports* section for more details about Thunderbolt™ security level settings).

Supported Features

- USB peripherals (such as keyboards, mouse, and flash drives) connected to the docking station
- Pre-boot Execution Environment (PXE)
- External displays (the internal panel must be closed for external panels to function at pre-boot)

NOTE: For any pre-boot support with the HP Thunderbolt 4 Ultra 180W/280W G6 Dock and an HP Notebook, you will be required to disable FastBoot in HP BIOS settings (F10).

Disabling FastBoot in HP BIOS

1. Press the **Power** button to turn on the unit.
2. At the HP logo screen, press **F10** to enter the BIOS Settings menu.
3. On the **Advanced** tab, select **Boot Options**.
4. Unselect the **FastBoot** option.
5. Click **Save** and then **Exit**.

NOTE: Be sure you are running the latest drivers, BIOS, and firmware to enable full functionality of all features.

Power Button Functionality and Dock LED Behaviour

Dock Power button

Pressing the dock's Power button when connected to a Notebook
On HP commercial Notebook systems, the Power button on the dock will simulate the Power button on the host system.

On non-HP Notebooks, Apple, Chrome, or non-supported HP Notebooks, the dock Power button and power LED do not control or reflect the status of the host.

NOTE: On non-HP Notebooks, Chrome or non-supported HP Notebooks can have the same behavior as HP-supported Notebooks. If they have implemented the "Extended Alert Event Type" from the industry standard Universal Serial Bus Power Delivery Specification, revision 3.1 and above, then the dock Power button and power LED will behave similarly to the power LED of the host. The below table reflects expected behaviour when pressing the dock's Power button while attached to a Notebook.

Notebook's power state	Dock's Power button LED	Behaviour after pressing dock's Power button
OFF (S5)	OFF	Notebook will power ON*
Hibernation (S4)	OFF	Notebook will power ON and resume from Hibernation state*
Sleep (S1-S3, Modern Standby)	Breathing (white)	Notebook will resume from Sleep state*
On (S0)	ON (white)	Action will follow the operating system defined Power button setting*

* Non-HP notebook can support this functionality if the "Extended Alert Event Type" from the industry standard Universal Serial Bus Power Delivery Specification, revision 3.1 or higher, has been implemented.

Pressing the dock's Power button when not connected to a Notebook
Certain dock functionalities, including LED behaviour on the Power button and the front base LED bar, vary based on how the Power button is pressed. The below table outlines the corresponding functions when not connected to a Notebook.

Pressing Power button	Functionality	Power button (behaviour and colour)	Front base LED bar (behaviour and colour)
For 5 seconds	Will set the dock as a wireless access point (for more info on using dock's access point)	Breathing blue	Breathing blue
For 15 seconds	Will initiate a dock reset to factory default (for more info on resetting dock to defaults)	Breathing white	Breathing white
Once	Notifies user by displaying an On-Screen-Display (OSD) notification stating there's no notebook connected (for OSD functionality and notifications, please check)	OFF, an image will appear on the external display (if attached) informing user that no Notebook is connected	OFF, an image will appear on the external display (if attached) informing user that no Notebook is connected
Twice	Will start a Single Onboarding by PIN process to initiate provisioning to Poly Lens (for more information on management)	Blinking blue	Blinking blue

Dock's visual notifications

The HP Thunderbolt 4 Ultra 180W/280W G6 Dock incorporates different LED blinking and breathing patterns to notify the user of different functionalities occurring on the dock depending on the usage. This behavior also includes On-Screen-Display notifications that can be displayed on an external monitor, if connected.

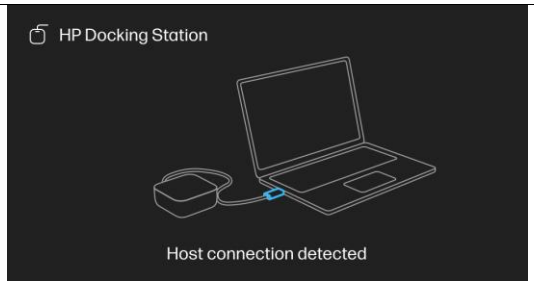
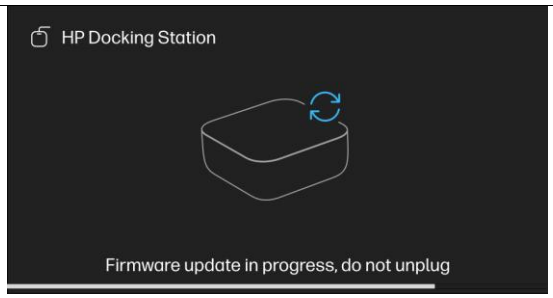
NOTE: On-Screen-Display images are supported by HDMI, DisplayPort, and DisplayPort alt mode connections. A monitor attached to the Thunderbolt™ will not support displaying an On-Screen-Display notification.

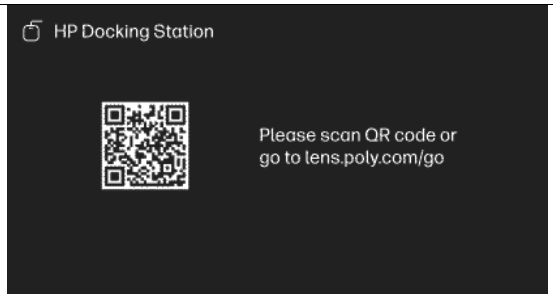
The below table outlines all supported LED behaviours.

Condition	Front base LED bar (behaviour and colour)	Power button LED (behaviour and colour)
Connect or disconnect the Notebook to a dock (while in any power state)	Breathe white, one time	Breathe white, one time
Wi-Fi AP mode active	Breathe blue, until host connects to dock's SSID, then turns off	Breathe blue, until host connects to dock's SSID
Notebook connected to dock's Wi-Fi	Solid blue, for 3 seconds, then turns off	Solid blue, for 3 seconds, then turns off
Dock's Wi-Fi connecting to a router	Blink blue, until connection completed, then turns off	Blink blue, until connection completed, then turns off
Firmware update completed	Solid, green	Solid, green
Firmware update failed	Solid, red	Solid, red
Quick Connect – Warm up (Pre-Alert zone)	Breathe, white	Breathe, white
Device onboarding to Poly Lens	Breathe, blue	Breathe, blue
Device onboarding success	Solid, blue (3 seconds)	Solid, blue (3 seconds)
Factory reset	Blink, white (~40 seconds)	Blink, white (~40 seconds)

Catastrophic failure	Blink, red (until firmware recovery completed)	Blink, red (until firmware recovery completed)

The below table outlines all supported conditions that include LED behaviours and their current associated On-Screen-Display notification:

Condition:	**Front base LED bar (behaviour and colour)**	**Power button LED (behaviour and colour)**	**On-Screen-Display notification**
Unable to detect a host attached when pressing dock's Power button	OFF	OFF	
Connect a Notebook while in Off or Hibernation state	Breathe white, one time	Breathe white, one time	
Notebook booting up while connected to dock	Solid white	Solid white	
Firmware Update in progress	Breathe, amber	Breathe, amber	

Quick Connect – Ready (Alert zone)	Solid, white	Solid, white	
Device onboarding Fail	Solid, red (3 seconds)	Solid, red (3 seconds)	
Initiate Single Onboarding by pressing Power button twice	Blink, blue	Blink, blue	

NOTE: On-Screen-Display notifications are supported on the HDMI, DisplayPort, and DisplayPort alt mode ports. The Thunderbolt™ port is not supported.

Dock's Charging Support and Capabilities

AC Adapter LED

Located under the dock bottom cover, the AC Adapter LED indicates a valid adapter is connected to the dock.

The bottom white LED lights up if an HP adapter of 230w or larger is connected to the dock. Other adapters are rejected, the LED remains off, and the dock will not function.

Extended Power Range (EPR) support

The HP Thunderbolt 4 Ultra 180W/280W G6 Dock provides support for Extended Power Range (EPR), providing up to 180W to EPR supported hosts through the Type-C® connection. For non-EPR hosts, the Thunderbolt 4 Ultra 180W/280W will provide up to 100W through the Type-C® connection.

Power to host

- Type-C® power to host: 5V/3A, 9V/3A, 12V/5A, 15V/5A, 20V/5A
- Type-C® power to EPR supported host: 28V/5A, 36V/5A
- Power over AC combo cable (barrel connection): 280W

Power matrix per USB ports

The below tables display supported power capabilities per port.

USB-C®	Type and power output
Port (back)* See figure D	1 USB-C® Thunderbolt pass-through USB PD; 3A @ 5V (max 15W)
Port (Back) See figure D	1 USB-C® USB 3.2 Gen 2 USB PD; 3A @ 5V (max 15W)
Port (front) See figure A	1 USB-C® USB 3.2 Gen 2 USB PD; 3A@ 5V (max 15W)
Port (right) See Figure D	1 USB-C® USB 3.2 Gen 2 USB PD; 3A@ 5V (max 15W)

USB-A	Type and power output
Ports (back)	USB Type-A port 3.0 BCS1.2 (1.5A @ 5V) - CHARGING
Port (right side)	USB Type-A port 3.2 Gen 2 BCS1.2 (1.5A @ 5V) - CHARGING)
Port (left side)	USB Type-A port 3.2 Gen 2 BCS1.2 (1.5A @ 5V) - CHARGING

HP Thunderbolt 4 Ultra G6 Dock power delivery

The HP Thunderbolt 4 Ultra G6 Dock comes in two different configurations – HP Thunderbolt 4 Ultra 180W G6 Dock and HP Thunderbolt 4 Ultra 280W G6 Dock. The difference lies in the cables offered and power delivery. The 180W version provides up to 180W power delivery to Notebooks that support PD 3.1 standards (180W for EPR supported hosts, 100W for non-EPR supported hosts). The USB-C® cable on this version is configured and electronically marked to support 40 Gbps Thunderbolt™ speeds, video, and 5 ampere capabilities. The 280W version provides power two ways: 1) Through the power barrel, up to 280W of power can be delivered to mobile workstations that require it; and 2) The USB-C® cable transmits video and 40 Gbps Thunderbolt™ data transfer speeds. If plugging in just the USB-C® cable, the cable supports 40 Gbps Thunderbolt™ speeds, video support, and up to 180W power delivery to Notebooks that support PD 3.1.

NOTE: If the cable must be replaced, please contact HP Support for replacement. Failure to use the designated Thunderbolt™ cable may result in decreased Thunderbolt™ performance and capabilities. Other 3rd party USB-C® cables may not support 40 Gbps Thunderbolt™ speeds or currents over 3 amperes.

Non-workstation version

An HP 230W AC adapter and an attached USB-C® Thunderbolt™ cable that supports up to 36 volts, 5 amperes (180W) are provided. The HP 230W AC adapter is the minimum required power supply, and anything less than this will be rejected. An HP adapter that supports 19.5V and is larger than 230W is acceptable and usable.

Workstation

An HP 330W AC adapter and an attached USB-C®/Barrel Thunderbolt™ cable is provided. An optional cable that can split the USB-C® and barrel connection may be provided. These cables provide connections to the USB-C® port and the barrel connector on mobile workstations. The USB-C® connection still supports up to 180W (36 volts, 5 amperes) for host supporting EPR, for non-EPR hosts, the USB-C® connection will provide up to 100W but is not used by the host when the barrel connector is used. The barrel connector only works when a 330W or above adapter is attached. If an adapter less than 330W but greater than 180W is used, only the USB-C® connection is used for charging.

Note for the HP EliteBook Ultra G1q and HP EliteBook Ultra G1q8 AI PC

Due to system architecture limitations, users can either enable the dock to charge the PC or allow the PC to charge external devices through USB-C® ports when in S4 (Hibernation) or S5 (Off) state. The “USB-C Charging” BIOS (F10) is currently set to Disabled, which allows the dock to charge the PC but disables the PC’s capability to charge external devices through USB-C® ports in S4/S5. Devices can be charged via USB-A on the PC or any USB port on the dock. To change this, set the “USB-C Charging” option in F10 and to Enabled and connect the PC’s AC adapter to continue use with the dock.

Display Capabilities

Port limitations

When used with a USB Type-C® Multi-function host, port 5 (USB Type-C® Thunderbolt™ port) will behave as a USB 3.1Gen 2 port with video. See Figure B.

Max number of monitors

Non-Thunderbolt™ with Multi-function PCs[3]:

1 x 4K UHD @ 120Hz; 2 x QHD @ 120Hz; 3 x FHD @ 120Hz; 1 x FHD @ 360Hz

Non-Thunderbolt™ with high-resolution PCs[3]:

2 x 4K UHD @ 120Hz; 3 x QHD @ 120Hz; 2 x FHD @ 360Hz; 1 x QHD @ 360Hz

Thunderbolt™ with dual DisplayPort™ streams[3]:

4 x 4K UHD @ 60Hz; 2 x 3K UHD @ 120Hz; 3 x QHD @ 120Hz; 2 x FHD @ 360Hz; 1 x QHD @ 360Hz

Thunderbolt™ with single DisplayPort™ stream[3]:

4 x 4K UHD @ 60Hz; 2 x 4K UHD @ 120Hz; 3 x QHD @ 120Hz; 2 x FHD @ 360Hz; 1 x QHD @ 360Hz

The Thunderbolt 4 Ultra G6 Docks can support up to two external displays in extend mode (1x 4k @ 60Hz, 1x 2k @ 60Hz) with MacBook Pros (M4, M4 Pro, and M4 Max chipsets). To achieve this, one of display must be plugged into the dock's Thunderbolt™ 4 port while the other display can be plugged into any of the DisplayPort™ or HDMI® ports.

Display Resolution Table

Host specification	Number of displays on dock	Resolution	Supported configuration
DP 1.2 non-DSC Thunderbolt™ host	1	(1) 4096 x 2160 @ 60Hz	1 DP or 1 TB or 1 USB-C® alt mode 1 HDMI*
	2	(2) 3840 x 2160 @ 60Hz	1 DP + 1 TB port or 1 USB-C® Alt mode port + 1 TB port or 1 HDMI* + 1 TB port
	3	(3) 2560 x 1440 @ 60Hz	1 2560 x 1440 @ 60Hz from TB port and 2 2560 x1440 @ 60Hz from any 2 of the non-TB video ports.
	4	(1) 2560 x 1440 @ 60Hz + (3) 1920 x 1080 @ 60Hz+	(1) 2560 x 1440 @ 60Hz from TB port (3) 1920 x 1080 @ 60Hz from any 3 of the non-TB video ports

Host specification	Number of displays on dock	Resolution	Supported configuration
DP 1.2 non-DSC Multi-function host (High Res enabled)	1	(1) 4096 x 2160 @ 60Hz	1 DP or 1 USB-C® alt mode or 1 HDMI*
	2	(2) 2560 x 1440 @ 60Hz	Any of the 2 non-TBT video ports

	3	(3) 1920 x 1080 @ 60Hz	Any 3 of the non-TBT video ports

Host specification	Number of displays on dock	Resolution	Supported configuration
DP 1.2 non-DSC Multi-Function host (High Res disabled)	1	(1) 2560 x 1440 @ 60Hz	1 DP or 1 USB-C® alt mode or 1 HDMI
	1	(1) 4096 x 2160 @ 30Hz	1 DP or 1 USB-C® alt mode or 1 HDMI
	2	(2) 1920 x 1080 @ 60Hz	Any 2 non-thunderbolt™ ports
	3	(3) 1920 x 1080 @ 30Hz	(3) Any 3 of the non-TBT video ports

Host specification	Number of displays on dock	Resolution	Supported configuration
DP 1.4 non-DSC Thunderbolt™ host	1	(1) **5120 × 2880 @ 60Hz	1 DP or 1 TB or 1 USB-C® alt mode 1 HDMI
	2	(2) 3840 x 2160 @ 60Hz	1 TB + 1 non-TB video port 2 non-TB video ports
	3	(2) 3840 x 2160 @ 60Hz + (1) 2560 x 1440 @ 60Hz	(2) 3840 x 2160 @ 60Hz from any non-TB video port (1) 2560x1440 @ 60Hz from TB port
	4	(4) 2560 x 1440 @ 60Hz	(3) 2560x1440 @ 60Hz from any non-TB video port (1) 2560x1440 @ 60Hz from TB port

Host specification	Number of displays on dock	Resolution	Supported configuration
DP 1.4 DSC Thunderbolt™ host	1	(1) 7680 × 4320 @ 60Hz	1 TB (must be a DSC display) or 1 USB-C® alt mode
	1	(1) **5120 x 2880 @ 60Hz	1 DP
	1	(1) 3840 x 2160 @ 60Hz	1 HDMI
	2	(2) 3840 x 2160 @ 60Hz	1 TB + 1 HDMI or 1 TB + 1 USB-C® alt mode or 1 DP + 1 HDMI or 1 HDMI + USB-C® alt mode
	4	(4) 3840 x 2160 @ 60Hz	(4) 3840 x 2160 @ 60Hz to any combination of all display ports (HDMI/ DP/Type-C alt mode and Thunderbolt)

Host specification	Number of displays on dock	Resolution	Supported configuration
DP 1.4 non-DSC Multi-function host (High Res enabled)	1	(1) 3840 × 2160 @ 60Hz	1 DP or 1 USB-C® alt mode 1 *HDMI
	2	(2) 2560 x 1600 @ 60Hz	Any 2 non-TB video ports

	3	(3) 1920 x 1080 @ 60Hz	Any 3 non-TB video ports

Host specification	Number of displays on dock	Resolution	Supported configuration
DP 1.4 DSC Multi-function host (High Res enabled)	1	(1) 7680 × 4320 @ 60Hz	1 USB-C® alt mode
	3	(3) 3840 x 2160 @ 60Hz	Any 3 non-TB video ports

Host specification	Number of displays on dock	Resolution	Supported configuration
DP 1.4 DSC Multi-function host (High Res disabled)	1	(1) **5120 × 2880 @ 60Hz	1 DP or 1 USB-C® alt mode
	2	(2) 3840 x 2160 @ 60Hz	Any 2 non-Thunderbolt™ video ports
	3	(3) 2560 x 1440 @ 60Hz	Any 3 non-Thunderbolt™ video ports

** 5K monitor using a single cable connection with DSC or DP1.4 HBR3 support. Not for 5K with 2 cable connections. This chart is based on 8bit displays.

Enabling High-Resolution mode in an HP Notebook system

1. Enter **HP BIOS Setup** by pressing the **F10** key.
2. On the **Advanced** tab, select **System Options**.
3. Enable High Resolution mode when connected to a USB-C® alt mode dock option."
4. Save setting change by pressing the **F10** key again.

The HP Thunderbolt™ 4 Ultra 180W/280W G6 Dock is DSC ready.

NOTE: To fully support DP1.4 DSC, customers must be using a host platform that fully supports the DP 1.4 DSC.

HP Sure Start for Docks

HP Sure Start for Docks is a comprehensive firmware security and advanced firmware resilience solution to protect against firmware attacks and/or accidental corruption for all critical docking station firmware. HP Sure Start for Docks can automatically detect and recover from attacks or corruption without IT intervention and with little or no interruption to user productivity. Every time the dock powers on, HP Sure Start for Docks automatically validates the integrity of the firmware to help ensure that the dock is safeguarded from malicious attacks. In the case of an attack, the dock can self-heal using an isolated "golden copy" of the firmware in minutes. HP Sure Start for Dock docks are the only docking stations in the world that fully meets NIST SP 800-193 requirements.

Thunderbolt™ Security Levels – Available Functions and Ports

The Thunderbolt™ interface supports Direct Memory Access (DMA), which some customers consider a security risk. The HP BIOS-based settings described here for the Thunderbolt™ connection policy allow the customer to select the appropriate trade-off between convenience and security for the Thunderbolt™ capable Type-C® interface port on the PC.

The Thunderbolt™ security level that controls the Thunderbolt™ connection policy of any Type-C® connectors on the PC can be changed in the BIOS settings, accessed by pressing the **F10** key when booting the PC. The policies are also remotely manageable via Public WMI interfaces.

PCIe and DisplayPort – No Security (Level 0)

- Any Thunderbolt™ device attached to the PC Type-C® port or the HP Thunderbolt 4 Ultra G6 Dock Type-C® port will automatically be enabled without local user approval.
- External displays will function when attached directly to the PC Type-C® port or the dock through display or USB Type-C® ports.

PCIe and DisplayPort – User Authorization (Level 1)

- This is the default BIOS policy.
- Same functionality as Security level 0, but the local user is prompted to approve the connection via a dialog box in Windows before the Thunderbolt™ device it is connected to the system. The local user also has the option of suppressing the prompt for subsequent connections of the same device.
- Each Thunderbolt™ peripheral, including the HP Thunderbolt 4 Ultra G6 Dock, has a unique GUID that is saved on the PC and used to determine if the device has been previously connected. In the event the user has chosen to suppress future prompts for that particular GUID (device), the Thunderbolt™ device will automatically be enabled when attached.
- This policy also applies to any Thunderbolt™ peripherals attached "behind" the HP Thunderbolt 4 Ultra G6 Dock via the Type-C® connector on the dock.

PCIe and DisplayPort – Secure Connect (Level 2)

- Same options as Security level 1 if the device contains a security certificate/chip.
- This option offers enhanced protection for authenticating a previously connected Thunderbolt™ device beyond relying on a GUID provided by the attached Thunderbolt™ peripheral.
- When this policy is enabled and the user chooses to suppress future prompts for connection approval, the Thunderbolt™ driver stack software on the PC will generate a unique secret that is sent to that Thunderbolt™ device and stored securely in non-volatile memory. Each time that peripheral is subsequently connected, the PC will not only verify that the GUID has been approved for auto-connect, but it will also use a challenge-response to the peripheral device to verify that the device is in possession of the previously provisioned secret. The Thunderbolt™ interface will only be enabled if it can prove that it possesses the previously provisioned secret.

DisplayPort and USB (Level 3)

- All Thunderbolt™ functionality of the Type-C® connectors on the PC is disabled.
- The HP Thunderbolt 4 Ultra G6 Dock provides all peripheral device functionality via a Thunderbolt™ interface. Thus, none of the ports on the HP Thunderbolt 4 Ultra G6 dock will function in this mode.
- The only Type-C® peripherals that will be functional when connected to the PC Type-C® port are those that use a Native Type-C® USB mode or DisplayPort alt mode that uses DisplayPort interfaces (and in some cases, USB).

Daisy Chaining Disabled (only applies to some models) (Level 4)

- Same functionality as Security level 3, but the local user is prompted to approve the connection via a dialog box in Windows before the Thunderbolt™ device is connected to the system. The local user also has the option of suppressing the prompt for subsequent connections of the same device.
- Each Thunderbolt™ peripheral, including the HP Thunderbolt 4 Ultra G6 dock, has a unique GUID that is saved on the PC and used to determine if the device has been previously connected. In the event the user has chosen to suppress future prompts for that GUID (device), the Thunderbolt™ device will automatically be enabled when attached.
- When this policy is enabled, the user will not be able to daisy chain Thunderbolt™ devices from USB-C® port B.

Dock Manageability

Firmware updates

The HP Thunderbolt 4 Ultra G6 Dock supports different methods to update its firmware, depending on the user environment. The HP Thunderbolt 4 Ultra G6 provides flexibility to ensure the dock's firmware can be updated accordingly.

Visual notifications while updating the firmware on the HP Thunderbolt 4 Ultra G6 Dock

Regardless of the method used to update the firmware, the HP Thunderbolt 4 Ultra G6 Dock provides the user with visual notifications as the firmware update is occurring. This includes the Power button LED, the front base LED bar, and an On-Screen-Display notification on an external monitor, if attached (for more information about On-Screen Display notifications).

Condition	Front base LED bar (behaviour and colour)	Power button LED (behaviour and colour)	External monitor (if attached)
Firmware Update (download)	No notification, the dock is still functional	No notification, the dock is still functional	No notification, the dock is still functional
Firmware Update in Progress	Breathe, amber (dock becomes disconnected from host)	Breathe, amber (dock becomes disconnected from host)	"Firmware Update In progress, do not unplug" image includes progress bar
Firmware Update Completed	Solid, green	Solid, green	Not applicable
Firmware Update Failed	Solid, red	Solid, red	Not applicable

HP One-Click Installer (OCI) for Windows users

The HP One-Click Installer (OCI) allows for seamless firmware update of all HP Thunderbolt 4 Ultra G6 Docks. The OCI installer dashboard displays the existing and latest firmware version of the dock firmware for a user-friendly experience. This generation of the installer no longer requires an external display attached to flash the display hub firmware as in previous generations. There is also a "Force All" option to allow installation of older firmware, as needed.

NOTE: HP Thunderbolt 4 Ultra G6 Docks also incorporate the option to "Update on Peripheral Disconnect." By selecting this checkbox, the dock firmware will start the firmware update process once the user disconnects the dock from the host.

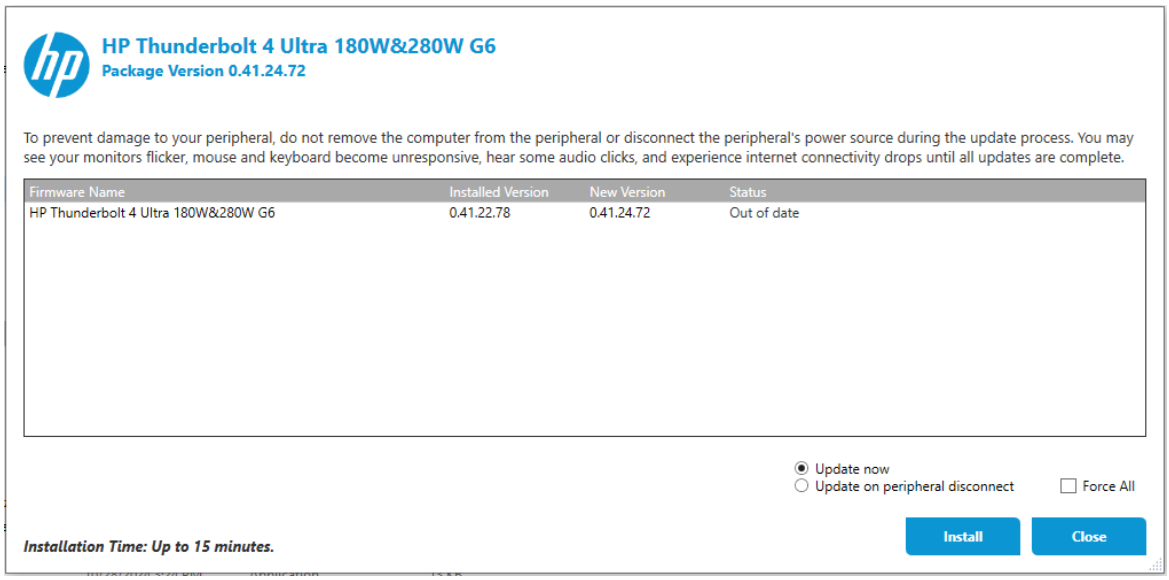
Firmware requirements

- Windows 10 and Windows 11. The HP One-Click Installer (OCI) does not support ChromeOS/Linux/ThinPro/macOS
- Remove all devices connected to the USB 3.0 ports, except USB keyboard and mouse
- Net Framework 4.5 or higher installed

Supported installer modes

- Interactive mode – User action required with UI
- Silent mode – Recommended for ITDM administrator usage
- Non-interactive mode – Suggested for SSM support Th(allows the user to auto-advance through the user interface)
- Without user interaction – This is like a silent install but will the user interface will display an alert that firmware is being installed.

The below screen capture shows the HP One-Click Installer user interface when launched in Interactive mode.



For more details on how to run the HP One-Click Installer and option usage, refer to the *HP Firmware Installer Deployment User Guide* located at:

https://ftp.ext.hp.com/pub/caps-softpaq/cmit/whitepapers/HP_Firmware_Installer_for_Docks_L33010-004.pdf

HP Firmware Installer deployment reminder

The following two installation options are available with further customization of each:

- **Immediate installation of firmware onto the device**
  This solution requires the device to be connected to the host platform when the installer is executed. HP Firmware Installer will determine which firmware on the device is out of date and flash to the latest. This method can be run silently, loud, or non-interactively, which shows progress to the user but does not require action.
- **Staging of firmware onto the host platform**
  This solution is used to deploy firmware to machines that may or may not be connected to the device at time of installation of the package. HP Firmware Installer will be installed onto the host platform via Windows Installer in the same manner as any other software deliverable. The software installed will also contain the latest firmware binaries. When a compatible device is connected, the software will determine if a firmware update is needed. When the firmware update is run, a user interface displays what to expect from the firmware update, as well as the option to postpone.

NOTE: A user must be aware and consent to a firmware update, so that they can prevent disconnection of the device during the update.

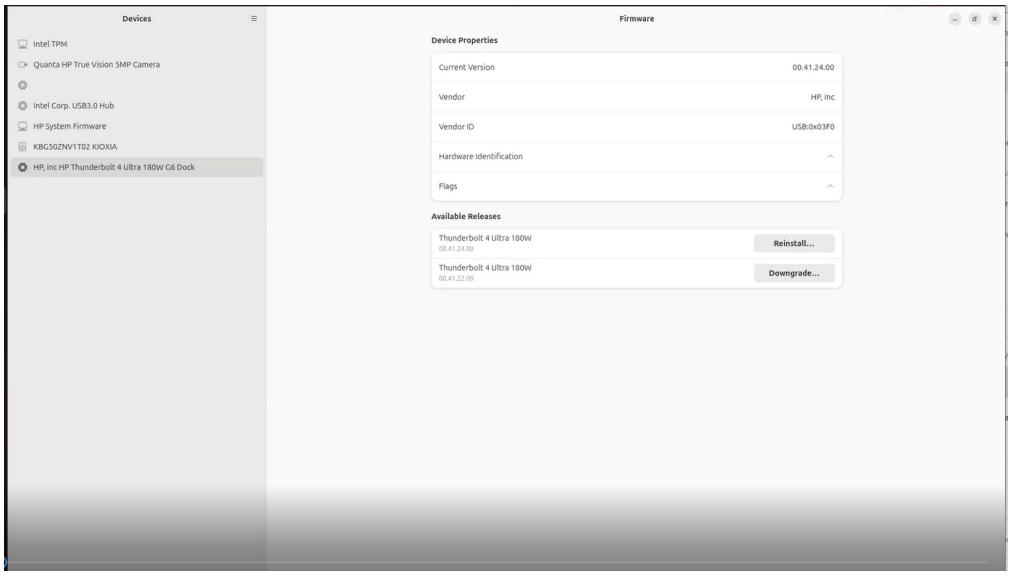
An *HP Firmware Installer Deployment User Guide* can be found at:
https://ftp.ext.hp.com/pub/caps-softpaq/cmit/whitepapers/HP_Firmware_Installer_for_Docks_L33010-004.pdf

Firmware update for Linux OS users

Linux users can update the HP Thunderbolt 4 Ultra G6 Dock's firmware using the Linux Vendor Firmware Service (LVFS), which supports Gnome-Firmware updates.

NOTE: To be able to update the HP Thunderbolt 4 Ultra G6 Dock's firmware, the operating system must contain the Linux Firmware Updater (Fwudp), version 2.0.2 or later.

The below screen capture shows the HP Thunderbolt 4 Ultra G6 Dock being listed in Gnome, allowing the user to upgrade/re-install or downgrade the firmware.



More information about Linux Vendor Firmware Service (LFVS) can be found at https://fwupd.org/

Firmware update for ChromeOS users

ChromeOS users can update the HP Thunderbolt™ 4 Ultra G6 Dock firmware as follows:

1. Go to **Settings** in the Chrome app.
2. Select the "About ChromeOS" option.
3. Select the "Update firmware for external devices" option.
4. Click **Update** for the "HP Thunderbolt 4 Ultra 180/280 G6" option and follow the instructions.

Firmware updates will be available with ChromeOS version M133 or later.

For more information on how to update firmware for devices, refer to https://lvfs.readthedocs.io/en/latest/chromeos.html

Firmware update through the dock's wireless using the Dock's Configuration web page

The HP Thunderbolt 4 Ultra G6 Dock supports a built-in Configuration web page accessible through the dock's wireless card. The Configuration feature allows users to check for available updates, initiate firmware updates, and schedule firmware updates.

For comprehensive details on firmware Configuration settings, including firmware updates, follow this link.

Firmware updates by cloud management using Poly Lens

The HP Thunderbolt 4 Ultra G6 Dock offers functionality through wireless and NIC connections via Poly Lens, enhancing visibility into Poly devices and HP docking stations across the organization. IT professionals can remotely conduct inventory, monitor performance, update firmware, and troubleshoot Poly Lens and HP docking devices from a centralized location.

When the dock's firmware is being managed by Poly Lens, then firmware updates via the HP One-Click Installer (OCI), LVFS, or the Dock Configuration web page will not function. For more detailed information about dock management interfaces, follow this link.

For comprehensive details on using the HP Thunderbolt 4 Ultra G6 Dock with Poly Lens, including firmware updates, follow this link.

Dock eTag and dock settings

Empower your IT team to manage and track your docks by product name, serial number, firmware version, and MAC Address from anywhere with the time-saving, easy-to-use Electronic Tag (eTag) asset management tool.

Installing eTag information

This information is installed in the dock during HP's factory process before shipping to customers. The eTag contains the following data:

- **Serial Number**
  Used for asset tracking and tech inventory reconciliation. Availability of this information means saving time by virtually inventorying docks.
- **Product Name**
  Identifies which dock IT is managing (ex: HP Thunderbolt 4 Ultra 180W G6 Dock or HP Thunderbolt 4 Ultra 280W G6 Dock). This information is helpful to customers that own a mixed fleet of docks.
- **Firmware Package Version**
  Identifies the dock's current firmware version. This is used to determine if a firmware update is needed. In case dock support is required for any issue, the firmware version will be useful to HP Support in resolving the customer issue.
- **MAC Address**
  Provides a unique hardware address for the dock when connected on a local area network (LAN). This enables the Network Security team to take corrective action, if needed.
- **Dock Asset Tag**
  Allows a user to add any identifier to the dock for easier tracking and management of a dock.

Collecting eTag information

The following methods can be used for eTag data collection from the dock:

- **Standalone script**: Microsoft PowerShell scripting is used by most customers versus other scripting tools. For example: *Get-WmiObject -Class HP_DockAccessory -Namespace root/HP/InstrumentedServices/v1 -ComputerName.*
- **Management software**: Third-party solutions can be used to send the script query to the dock to collect ETag information. This functionality is also part of the HP Manageability Integration Kit.

For more information on how to collect eTag information, set changes, and manage the dock by creating a unique password, refer to the Technical White Paper, HP Firmware Installer for Docks, under the "WMI Provider" section.

Changing settings on the HP Thunderbolt 4 Ultra G6 Dock

The HP Thunderbolt 4 Ultra G6 Dock now allows users to change settings using the HP WMI Provider. This feature enables end-users to configure the dock according to their needs and includes support for a Dock Firmware Password to protect these settings.

The below table shows a list of settings the HP Thunderbolt 4 Ultra G6 Dock supports.

Setting name:	Description	Default value	Possible values	Type
Beacon Enable	Enable/Disable docks Bluetooth beaconing	True	False/True	Boolean
Bluetooth Enable	Enable/Disable Bluetooth device	True	False/True	Boolean
InstaDock Enable	Enable/Disable Quick Connect	True	False/True	Boolean
Insta Notebook PowerOn	Enable/Disable Notebook power ON when Quick Connect with dock occurs	True	False/True	Boolean
NIC Enable	Enable/Disable dock's NIC	True	False/True	Boolean
Router Connect	Shows status if dock wireless is connected to a router (read only)	False	False/True	Boolean
Time Server Enable	Enable/Disable dock's time to be configured by a time server	True	False/True	Boolean
WLAN Enable	Enable/Disable dock's WLAN card	True	False/True	Boolean

Asset Tag	Used to program the Dock's Asset Tag	Blank	String, up to 48 characters	Text
FW Schedule	Used to schedule firmware updates	Blank	Cadence: <Daily / Weekly / Monthly> <Day of the week> Time: <xx:xx in 24 hours format> Example: "Weekly Sat 03:00"	Text
FW Server	Used to select a download firmware server	Blank	String, example: "ftp.hp.com"	Text
InstaDock	Provides Quick Connect status information (read only)	Blank	String, QuickConnect information	Text
InstalDock Clear	Clears Quick Connect information from the dock (write only)	False	True	Boolean
instalDock Distance	Used to set near or far distance to save proximity and walkway threshold"	Far	Far/Near	Text
RouterCA	Used to write router CA information (write only)	Blank	Byte data	Byte
Router Cert	Used to write router certificate (write only)	Blank	Byte data	Byte
Router Client Key	Used to write router client key information (write only)	Blank	Byte data	Byte
Router Option	Used to select router option	Blank	Text: "NORMAL" "PEAP" "TLS" "TTLS" "FAST"	Text
Router password	Used to provide the router password the dock will connect to (write only)	Blank	String	Text
Router PEAP ID	Used to set the router PEAP ID	Blank	String	Text
Router PEAP Password	Used to set the Router PEAP ID password (write only)	Blank	String	Text
Router SSID	Name of the router the dock will connect to	Blank	String	Text
Router Connect	Status of the dock's connection with the router (read only)	False	False/True	Text
Time Server	Add a time server	Blank	URL string	Text
Time Zone	Add a time zone	Blank	2-byte integer for the time zone identifier (for Time Zone identifiers)	Text
Time DST	Used to enable/disable Day Light Savings	False	True/False	Text
WLAN STA MAC	MAC address for WLAN while in Station mode	MAC Address in STA mode	Dock's MAC address while in STA mode	Text
WLAN AP MAC	MAC address for WLAN while in Access Point mode	MAC Address in AP mode	Dock's MAC address while in AP mode	Text
WLAN STA IP	IP address	Wireless IP address	Dock's wireless IP address	Text
WLAN Mode	Refers to the WLAN mode while in use (read only)	NONE	AP / STA / CONCURRENT / NONE	Text

Manager	Returns current manageability owner	None	USB-C© (owned by setting password using HP WMI Provider) Cloud (owned by Poly Lens)/ None	Text

Using HP CMSL

The Client Management Script Library (CMSL) currently incorporates several modules, like BIOS, Softpaqs, and Display, among others, adding support for the HP Thunderbolt™ 4 Ultra G6 Dock. The HP CMSL will also add a Docks module, which allows users to get dock information, trigger firmware updates, etc.

CMSL is supported on 64-bit PowerShell 5.1 and higher. It supports Windows 10, version 1809 and higher, and Windows 11. For more information on using HP CMSL, visit Client Management Script Library | hp's Developer Portal and go to the "Dock's" section.

Resetting dock to factory defaults

The HP Thunderbolt 4 Ultra G6 Dock allows user to reset the dock to factory defaults settings, returning to its original state.

CAUTION: Be aware of the impacts once this action is taken, as described below.

After resetting defaults, the following parameters will be cleared:

- Passwords
- HP Quick Connect registrations
- Wi-Fi and network-related settings
- Dock Asset Tag
- Provisioning settings

After resetting defaults, the following parameters will be restored to their default values:

- Dock settings
- Dock time

Upon resetting defaults, the following will occur:

- The Power button LED and the front base LED bar will blink white for around 40-45 seconds, which is the amount of time it takes to complete this process
- Until completion, the dock will not be accessible/usable; once blinking has stopped, the dock will be usable again.

Methods to trigger a reset to factory defaults

1. Manual (requires user's physical presence):
   a. Unplug AC from the dock and make sure it is not connected to any Notebook.
   b. Press the **Power** button on the dock.
   c. While pressing the **Power** button, apply AC to the dock.
   d. Keep pressing the **Power** button for around 15 seconds.
   e. When the **Power** button LED and the front base LED bar start to blink white, release the **Power** button. At this time, the dock is resetting to factory defaults settings.
   f. The blinking pattern will last for around 30 seconds. Once it stops, the reset to defaults action has completed.
2. Using the Dock Configuration web page
   a. Access the Dock Configuration web page (follow link for instructions).
   b. In the main menu, select "Factory Restore" and follow the instructions.

Wired manageability

MAC Address Pass Through (MAPT)

The HP Thunderbolt 4 Ultra G6 Dock supports MAC Address Pass Through with select Notebooks, which allows the Notebook to override the dock's NIC factory MAC address with a "host-based" unique MAC address (HBMA). This allows the

Notebook to be uniquely identified on the network when it is using the HP Thunderbolt 4 Ultra G6 Dock's NIC to connect to the network using just the HBMA address.

There is also a user-defined "custom" MAC address that can be used for MAC Address Pass Through purposes instead of the System HBMA address. Optionally, on systems that have an embedded LAN, the user can choose to "Reuse the embedded LAN Address" instead of the system and custom HBMA addresses. This allows the same MAC address to be used if either the embedded LAN or the HP Thunderbolt 4 Ultra G6 Dock is connected to the network. The MAC Address Pass Through address is stored in BIOS at the factory and is configurable via F10, BIOS Settings.

The MAC Address Pass Through feature supports UEFI PXE boot, Legacy PXE boot, Windows PE, Windows 10, and Windows 11. However, it is not supported on macOS, ChromeOS, or any Linux supported distribution.

The MAC Address Pass Through is supported when the Notebook is On and the dock is attached and transitions to Sleep, Hibernate, or Off states, and when the dock is attached after the Notebook is already in the Sleep, Hibernate, or Off state.

NOTE: The *MAC Address Pass Through Technical White Paper* is located at:
http://h20195.www2.hp.com/v2/GetDocument.aspx?docname=4AA7-0690ENW

Intel vPro® support through the HP Thunderbolt 4 Ultra G6 Dock (MAPT)

The HP Thunderbolt 4 Ultra G6 Dock leverages the Intel® vPro® Technology feature, Active Management Technology (AMT). When a Thunderbolt™ connection is established with the host, then the dock uses the Intel® Ethernet Controller I226-LMvP, which will provide Intel® vPro® support.

NOTE: This support feature is only applicable for Notebooks that support Intel vPro® technology.

For more information about Intel® vPro® technology, refer to the Intel website:

https://www.intel.com/content/www/us/en/architecture-and-technology/vpro/vpro-platform-general.html

Automatic switching between NICs (Intel 2.5 Gbps and Realtek 2.5 Gbps)

The automatic switching function depends on the type of connection between the host and the dock. If the host supports Intel vPro® and a Thunderbolt™ connection, then the connection will automatically switch to use the Intel® Ethernet Controller I226-LMvP. If the host disables the Thunderbolt™ connection or does not support a Thunderbolt™ connection (Multi-function mode), or is a USB 4 host, then the connection will use the USB 2.5Gbps Realtek USB GbE Family Controller.

The below tables provide detailed auto-switching scenarios.

Host	BIOS F10 menu	Functional NIC
Thunderbolt™ 4 with vPro support	Thunderbolt™ Mode Enabled Thunderbolt™ Mode Disabled	Intel® 2.5 Gbps Realtek 2.5 Gbps
Thunderbolt™ 4 with no vPro support	Thunderbolt™ Mode Enabled Thunderbolt™ Mode Disabled	Realtek 2.5 Gbps Realtek 2.5 Gbps
Thunderbolt™ 3 host	Thunderbolt™ Mode Enabled Thunderbolt™ Mode Disabled	Intel® 2.5 Gbps Realtek 2.5 Gbps
Non-Thunderbolt™ (Multi-function) host	Not applicable	Realtek 2.5 Gbps
USB 4.0 host	Not applicable	Realtek 2.5 Gbps

Ethernet driver installation

Both the host and the dock must be ON and attached to be able to install the dock Ethernet driver. Windows OS carries the Realtek Ethernet driver, but for the Intel® I226-LMvP Ethernet device, the driver must be downloaded and installed.

Drivers can be installed by using Windows Update services or by downloading and installing the latest Softpaq from HP.com through the HP Thunderbolt™ 4 Ultra G6 Dock page or any supported Notebook support page.

NOTES:

1. For supported HP systems, PXE boot will be supported regardless of the NIC being used from the dock.
2. For Apple systems, PXE boot (referred to as BSDP) will work if using the Realtek NIC from the dock.
3. For Chromebook systems, there is no PXE boot support.

Wake on LAN

The HP Thunderbolt™ 4 Ultra G6 Dock supports the Wake-on-Lan (WoL) feature with select Notebooks from all the system sleep states (Sleep, Modern Standby, Hibernate, and Off) and with MAC Address Pass Through feature enabled or disabled.

WoL is supported regardless of whether the dock connection with the host is via Thunderbolt™/USB4 or Multi-function mode.

Both the NIC network adapter and the WoL parameter needs to be configured to enable WoL.

From Windows Device Manager and within the NIC network adaptor Properties dialog box, the "Allow the device to wake the computer" option must be checked under the Power Management option. The BIOS WoL parameter is located under the built-in BIOS F10 menu. By default, WoL is enabled and set to "Boot to Hard Drive."

On Modern Standby enabled Notebooks, there is no traditional Sleep state. However, WoL will continue to work when those Notebooks are in Hibernate or Off states.

NOTE: For non-HP systems, the WoL feature will have the following limitations:

- On Apple systems: WoL only works from Standby state, if the system enters Standby while attached to the dock with network cable connected.
- WoL is not supported on Chromebook systems.

Using the Dock Configuration web page

The HP Thunderbolt™ 4 Ultra G6 Dock supports a built-in Configuration web page that allows users to manage dock parameters and settings. For example, this is where passwords are set or changed, and firmware updates are scheduled.

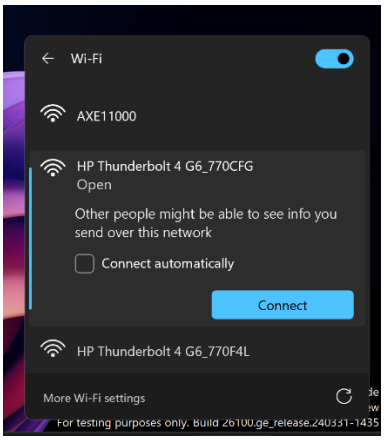
Launching the Dock Configuration web page and first-time connection

With any host that can run a web browser, a user can access the Dock Configuration web page by following these steps:

1. Before starting, remove the button cover for the HP Thunderbolt™ Ultra dock and locate the dock's service tag. Make a note of the dock's serial number and the WIFI password.

   NOTE: When reading the service tag, be careful not to press the top of the dock to avoid accidentally hitting the Power button.

2. Ensure the dock has power and is not connected to any host by the dock's type-C® connection.
3. Press and hold the **Power** button on the dock for around 5 seconds until the **Power** button and the front base LED bar start to breathe blue. This will set the dock to enter Wi-Fi AP mode.
4. From the host, scan for wireless networks. Your dock's wireless SSID name will be "HP Thunderbolt 4 G6 + last 6 digits of the dock's serial number." Once located it in the list, select the name and click **Connect**.



The above screen capture shows the Dock's SSID listed in the available wireless networks. This interface might vary depending on the operating system used by the host.

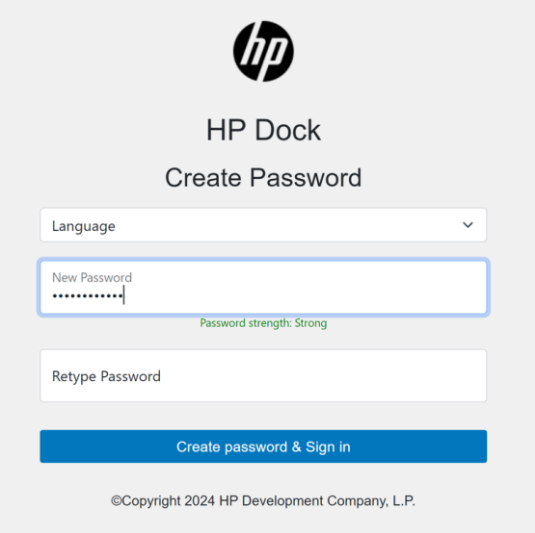
5. Provide the **WIFI password**. This can be found by removing the bottom cover of the dock and locating the Wi-Fi password printed on the bottom of the dock.

NOTE: You can change the SSID password if desired.

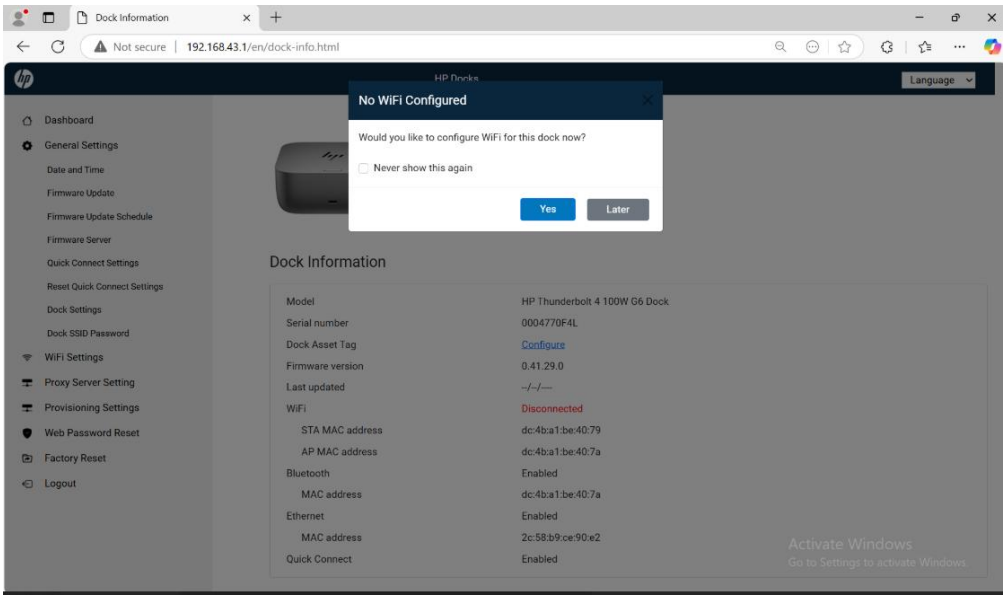
6. Once the host connects to the dock's wireless network, the Dock Configuration web page will launch automatically in the host's web browser.

   NOTE: If the Dock Configuration web page does not launch automatically, then manually open the web browser and type http://hpdock/local/ in the address bar to launch it.

7. When first connecting, users will be required to create a Login password. HP strongly recommends following these password guidelines:
   - At least one uppercase and one lowercase letter
   - At least one number
   - At least one special character
   - A length of at least 12 characters



8. Upon first logon, the Dock Configuration web page will prompt users to configure the dock's Wi-Fi to connect to a router and schedule firmware updates. This is optional and can be done later.



NOTE: Once completed, it is recommended that the user disconnect the host from the dock's SSID by finding the dock's SSID in the wireless network list, and then selecting **Disconnect**.

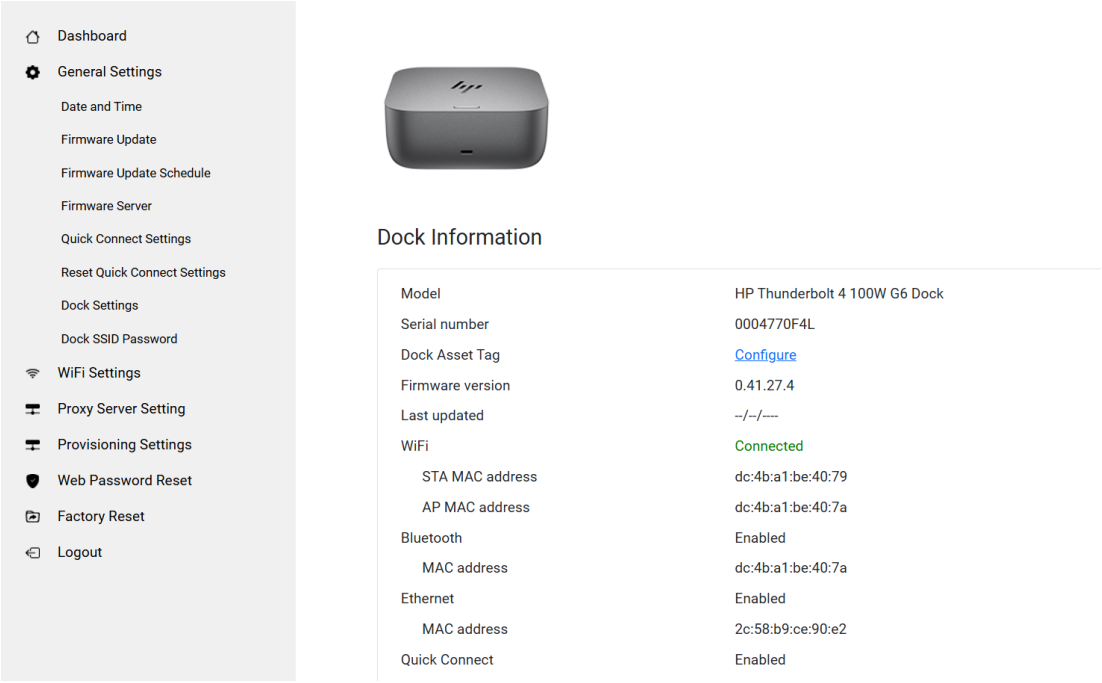
Navigating the Dock Configuration web page and functionality

The Dock Configuration web page provides a wide range of dock-related information and functions that allow users to set preferences, passwords, and other settings.

Dashboard:

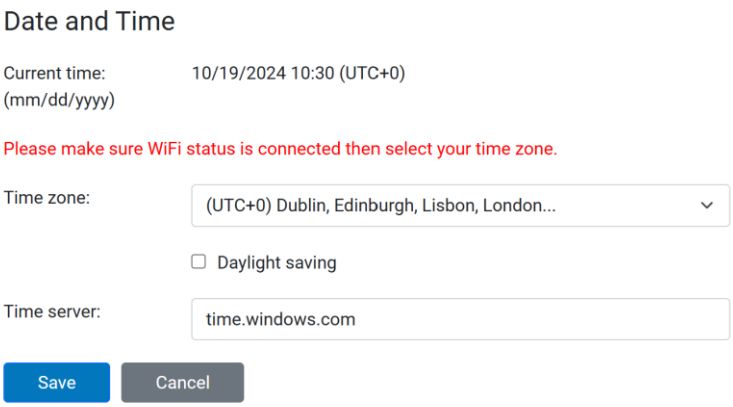
Users can view the dock's system information, which includes Serial Number, Dock Asset Tag, Firmware Version, Last Firmware Update, Wi-Fi MAC, Bluetooth MAC, and Quick Connect status.

Most of this information is display-only. However, users are allowed to modify the Dock Asset Tag.



Date and Time:

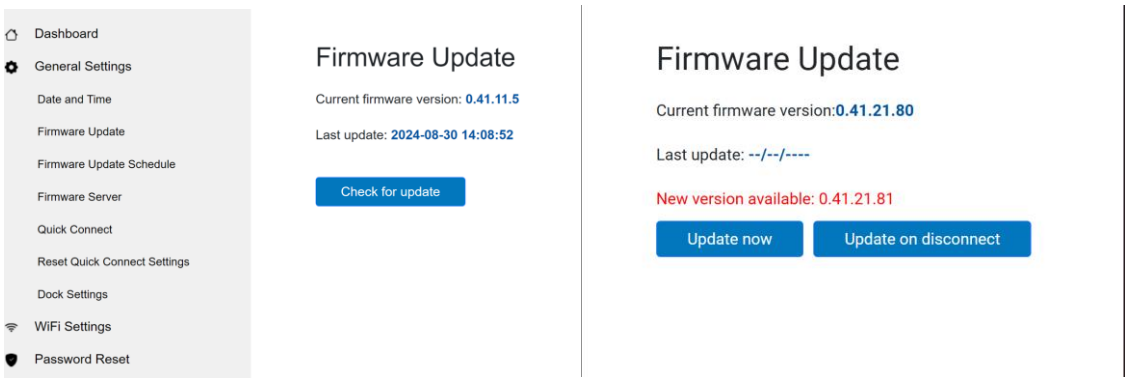
User can manually set the date and time, or choose to use an internet time server.



NOTE: When setting the time manually, if the dock's power is disconnected or lost, then the dock time will go back to its default (12:00:00, 1/1/2001).

Firmware Update:
Users can check if a dock's firmware is up to date or not, and upgrade the firmware if needed.

Users can choose "Update now" to immediately start a firmware update, or to update the dock's firmware once the dock is disconnected from the host.

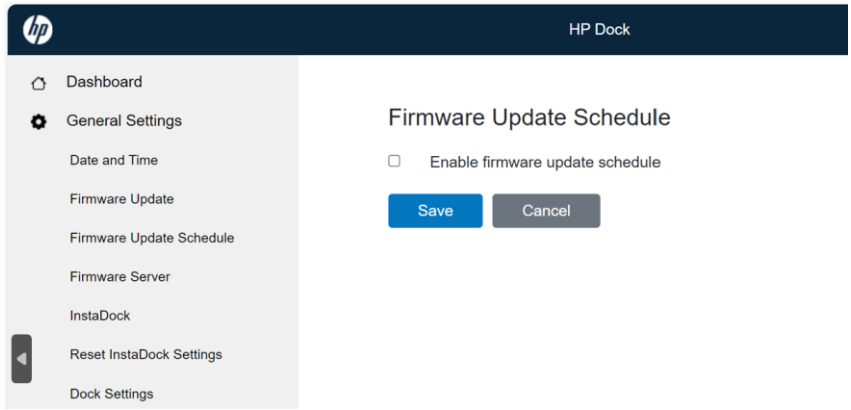


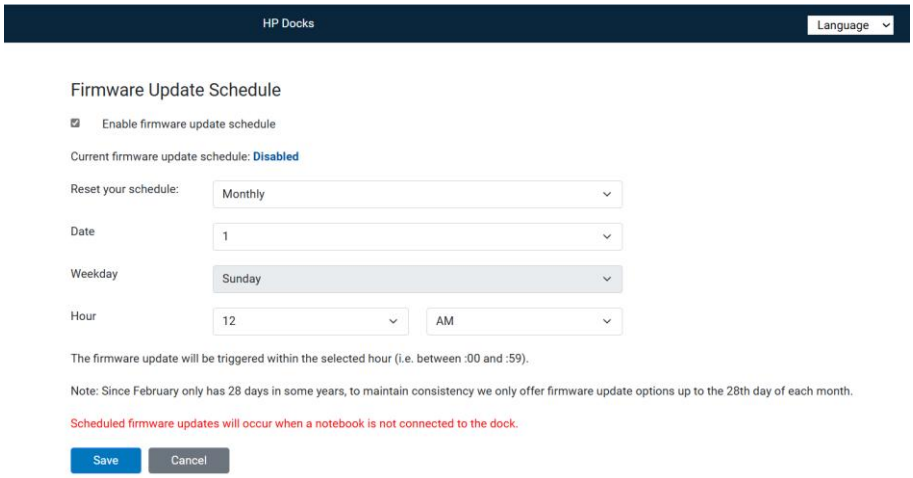
If a user chooses to update the dock's firmware, then below screen will appear indicating update progress.

NOTE: While the dock is updating the firmware, the dock is not usable until the firmware update is completed.
To use this functionality, the dock's wireless must be configured to be connected to a router with internet connection.

Firmware Update Schedule:
Users have the flexibility to configure and schedule firmware updates; this includes Monthly/Daily and time choices.

Scheduled firmware updates will occur when a Notebook is not attached to the dock. thus, it is recommended to use a day/time that the dock is not normally in use.



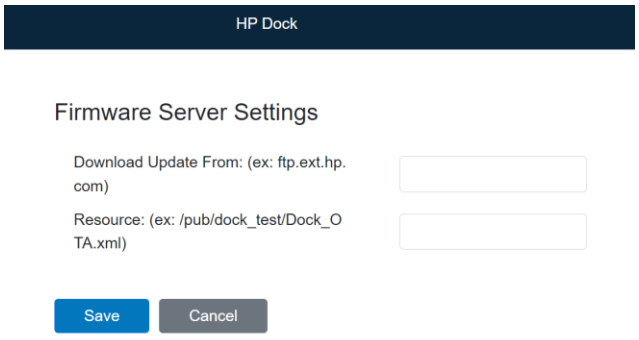


Firmware Server:

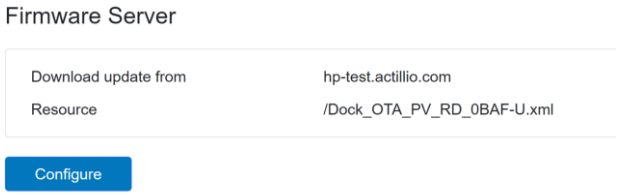
For all firmware releases, HP will upload all the binaries to a dedicated HP server, and by default the HP dock will search the HP server for firmware updates.

If a user wishes to use their own server to host the dock's firmware binaries, then they can user the Dock Configuration web page. This allows customization of the server's name and path where the binaries will be located for their environment.

For reference, below is the current XML file for the HP Thunderbolt™ Ultra G6 and its default location.



Below is a sample of a customized server/path location:

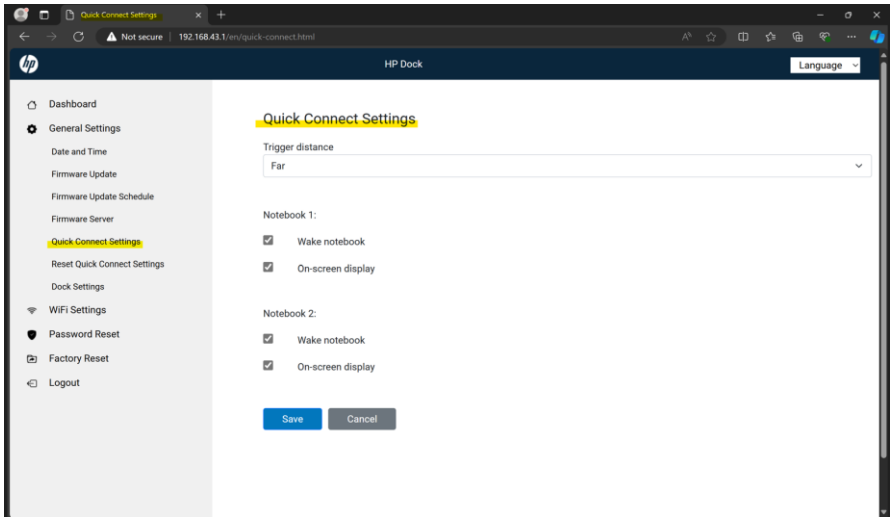


Customized server and resource path requirements are as follows:

- If a user chooses to use their own server, make sure the server can provide HTTP or FTP access.
- The resource path must be a valid location in the server pointing to the dock's XML file to use. All the firmware binaries should be located in the same path as the XML file (the dock's XML and binaries can always be downloaded from the HP server default location).
- Users can use the same XML file and binaries from the HP default location and copy to their customized resource path.

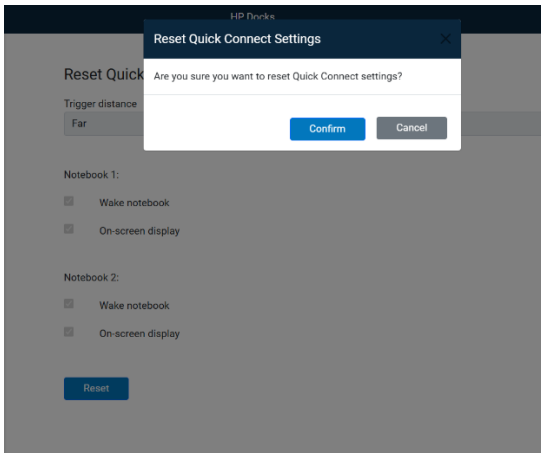
NOTE: When triggering or scheduling a firmware update, the dock will automatically choose the latest firmware version, as reported in the XML file.

HP Quick Connect Settings:
Users can configure HP Quick Connect related settings. This includes Trigger distance, enable/disable wake Notebook, and enable/disable On-Screen Display.



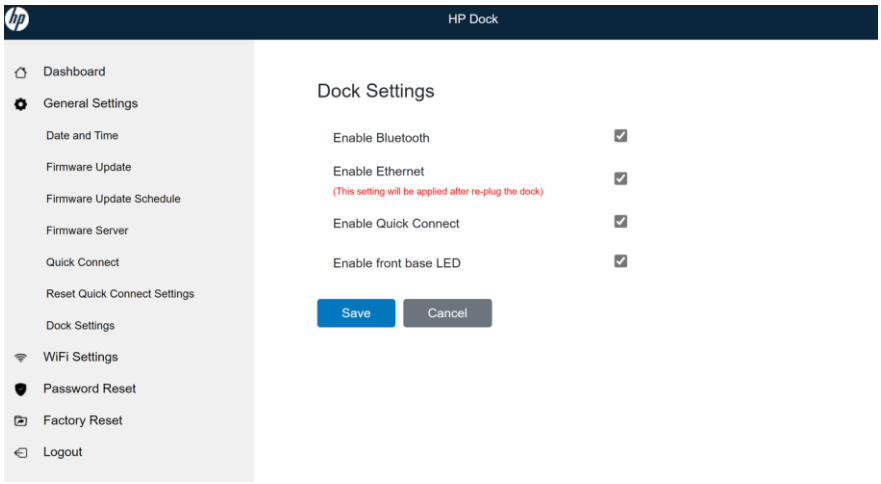
For more information on HP Quick Connect, follow the link.

Reset HP Quick Connect Settings:
User can reset HP Quick Connect settings to defaults.



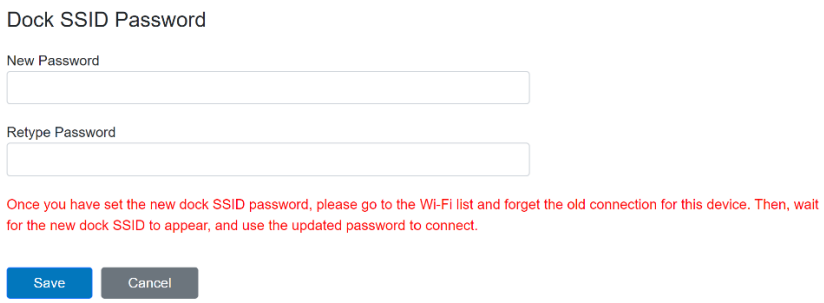
For more information on HP Quick Connect, follow the link.

Dock Settings:
Users can enable/disable dock features: Bluetooth, Ethernet, Quick Connect, and Front Base LED.



Dock SSID password:
Users can change the dock's SSID password.

NOTE: When changing the dock's SSID password, be sure to "forget" this network in your Wi-Fi list on your host. This is to avoid your host automatically attempting to connect to the dock's SSID using the previous SSID password.

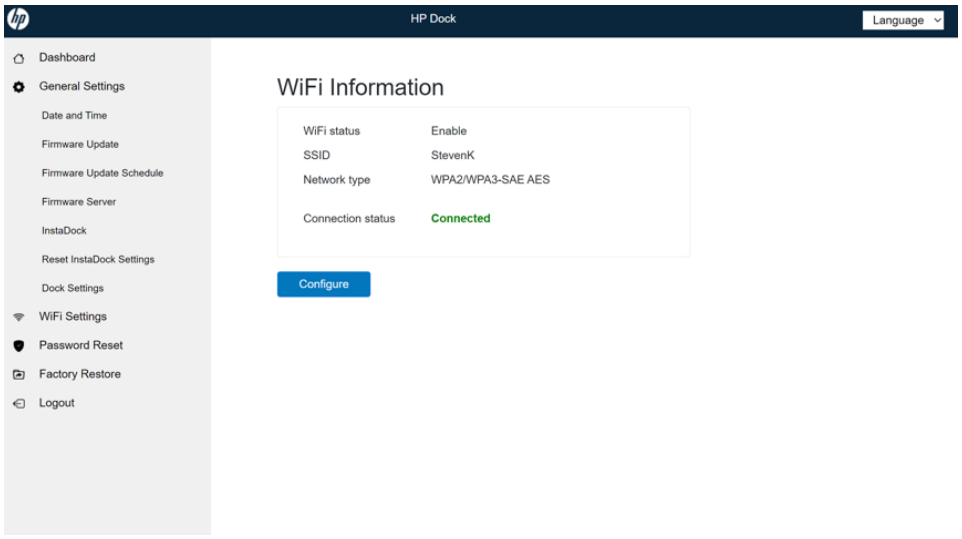


Wi-Fi settings:
Users can configure the dock's Wi-Fi to connect to a router.

The following type of connections are supported:

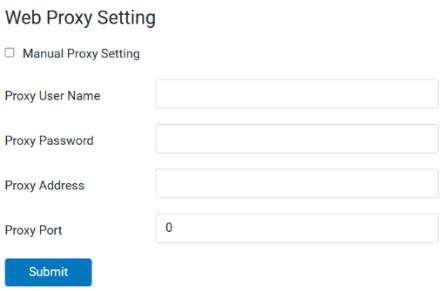
- WPA2-Personal
- WPA2 enterprise limit support
  - Dock can support the following EAP security types: EAP-FAST, EAP-TLS, PEAPv0/EAP-MSCHAPv2, EAP-TTLS/MSCHAPv2
- WPA3-Personal

Once the Wi-Fi information has been configured, the status will be displayed.



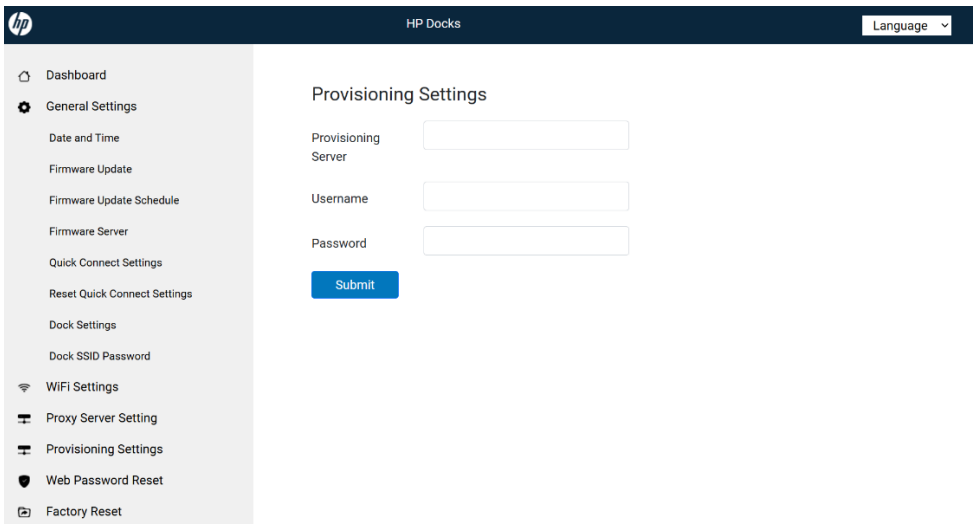
NOTE: While the dock's Wi-Fi is connecting to the router, the connection from the host to the Dock Configuration web page will be interrupted. Depending on the host settings, it will re-connect automatically; if this does not occur, follow the steps to connect to the dock's SSID again.

Web Proxy Settings:
Users can configure Web Proxy settings for their network environment.

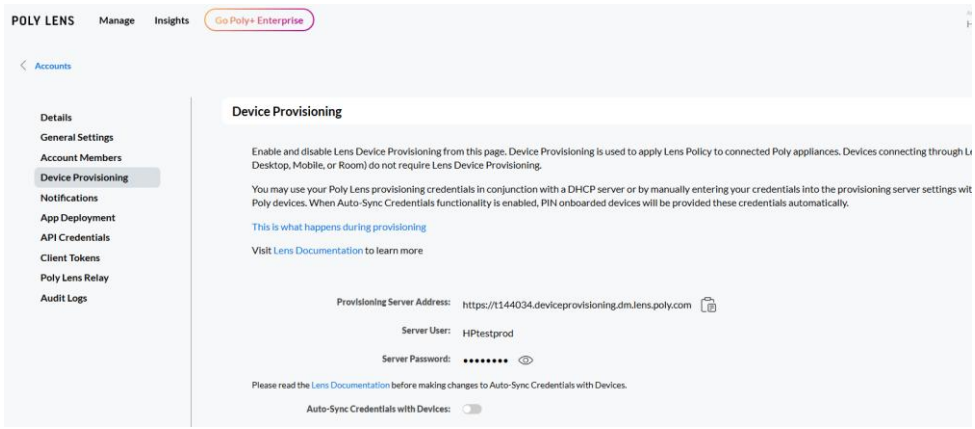


NOTE: PAC file processing is currently under development and will be released after product launch.

Provisioning Settings:
Users can onboard a dock to the Poly Lens environment.



Relevant information can be obtained from the Poly account details, as shown in the below example.



NOTE: For information regarding provisioning to Poly Lens, refer to this link.

Web Password Reset:
Users can resets/change the Dock Configuration web page password.

Factory Reset:
Users can reset dock settings to the factory defaults.

After resetting defaults, the following parameters will be cleared:

- Passwords
- Quick Connect registrations
- Wi-Fi and network-related setting
- Dock Asset Tag
- Provisioning settings

After resetting defaults, the following parameters will be restored to their default values:

- Dock settings
- Dock time

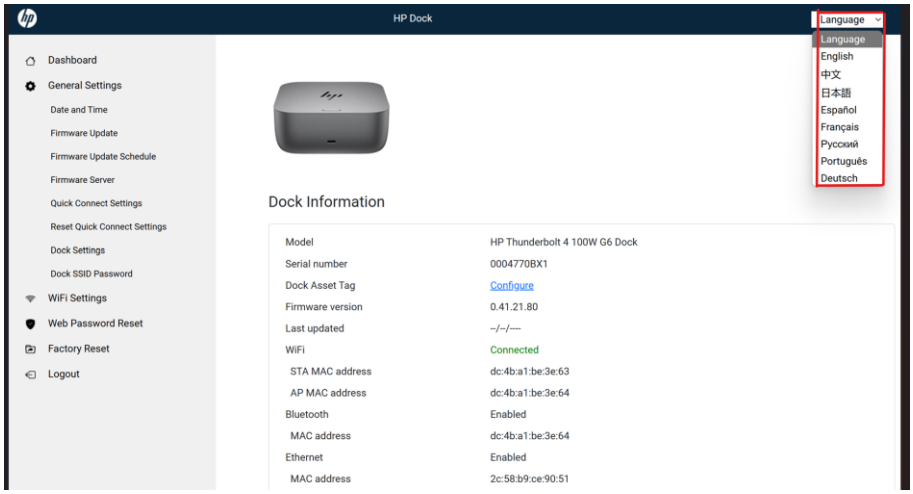
Upon resetting defaults, the following will occur:

- The Power button LED and the front base LED bar will blink white for around 40-45 seconds, which is the amount of time it takes to complete this process.
- Until completion, the dock will not be accessible/usable. Once blinking has stopped, the dock will be available again.

Logout:
After a user logs out, the browser will go back to the login page.

After a logout, it is recommended to disconnect the host from the Dock's SSID.

Language:
Users can select a preferred language for the Dock Configuration web page.



Dock manageability priority

The HP Thunderbolt 4 Ultra G6 Dock can be managed through three different interfaces:

- Poly Lens
- Dock Configuration web page
- Dock's HID interface using the HP WMI Provider

NOTE: When any interface manages the dock, users will have limited or no control when using any of the other interfaces to manage the dock.

Table with interface priorities and limitations

Starting managed state	Can Poly Lens start to manage dock or change settings?	Can HID interface (via HP WMI Provider) start to manage dock or change settings?	Dock Configuration web page start to manage dock or change settings
Non-managed	Yes	Yes	Yes
Poly Lens*	Yes	No (read only)	No (read only)
HID interface**	Yes (Poly Lens will start to manage the dock)	Yes	No (read only)
Dock Configuration web page***	Yes (Poly Lens will start to manage the dock)	Yes	Yes

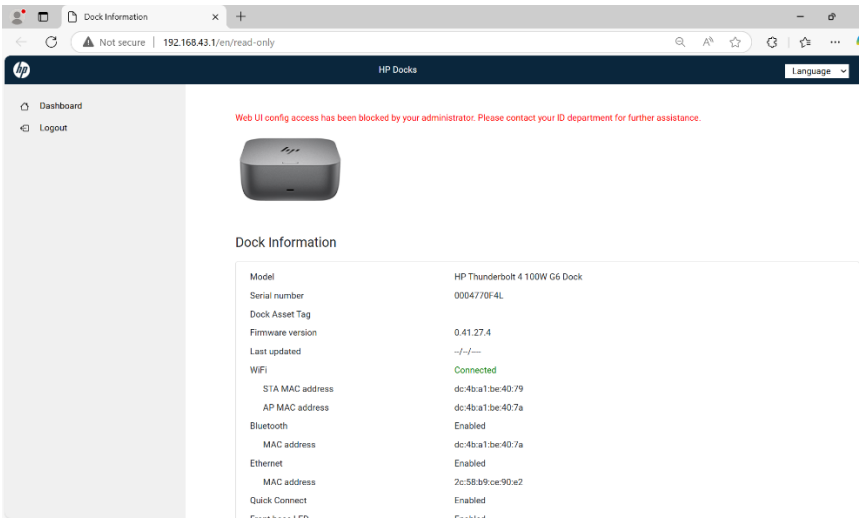
* For Poly Lens management, refer to this link.
** For the dock's management by WMI Provider, refer to this link.
*** For Dock Configuration web page management, refer to this.

Table with transitions between managed interfaces

Starting managed state	To non-managed	To Poly Lens managed	To HID managed (via HP WMI Provider)	To Dock Configuration web page
Non-managed	NA	Provisioning*	Set Authentication to take ownership	There is no setting that makes it Web UI-only. This only means that Web UI login is created, which is needed for accessing the Dock Configuration web page.
Poly Lens*	Dock Factory Reset	NA	-	-
HID (WMI Provider) **	Dock Factory Reset	Provisioning*	NA	-
Dock Configuration web page***	Dock Factory Reset	Provisioning*	Set Authentication to take ownership	NA

* For Poly Lens management, refer to this link.
** For dock management by WMI Provider, refer to this link.
*** For Dock Configuration web page management, refer to this link.

As per the above table, when the dock is managed by Poly Lens or via HID interface (setting password/credentials using the HP WMI Provider), then the Dock Configuration web page will be displayed in Read-Only mode. Only the Dashboard screen becomes accessible.



Firmware updates while dock is being managed
HP One-Click installer and firmware updates using the Dock Configuration web page will not be allowed. This gives the ITDM administrator control of when firmware updates can occur.

NOTE: Future dock firmware releases will add support to allow firmware updates on Poly Lens managed docks by the HP One-Click Installer, if defined by Poly Lens policy usage.

Dock manageability using Poly Lens

Poly Lens allows users to make the most of their workspace and use the basic service for free. Users can self-enroll and begin using the service immediately.

Visit Poly Lens Help to get an overall understanding of Poly Lens support, features, and functionality.

Create an account with Poly Lens
To use Poly Lens, users must set up an Account and log into the application.

- **Create an account**
- **Log in**
- **Permissions**

Network requirements, support. and limitations

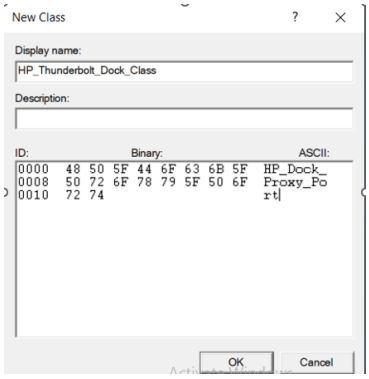
- **Ports and Protocols**
- **Limitations:**
  - A dock can only be Poly Lens managed by the dock's wireless LAN or NIC (using the Realtek NIC); it cannot be managed by both simultaneously.
  - If a dock is Poly Lens managed by the NIC, then if a host is attached to the dock, the NIC will be used by the host and not the dock for manageability. A provisioning policy to allow the dock to keep using the NIC for manageability while docked will be added in a future maintenance release.
  - 802.1x network: Supported by wireless only; NIC (RJ-45) to be supported by future maintenance release.
  - SCEP authentication is not supported.
  - Web Proxy:
    - IOT service support over Web Proxy will be available with the first maintenance release.
    - PAC file support to be available by future maintenance release (see provisioning by DHCP server for alternative options).

Onboarding
Onboard HP Docking Station Devices via the DHCP Auto Discovery

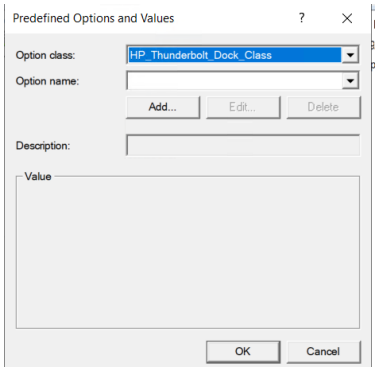
Configuring Web Proxy while onboarding using DHCP Auto Discovery
Through the same DHCP Auto Discovery step, the Web Proxy settings of a network environment can be provided to the dock as the dock is being provisioned, by using options in the DHCP server described below.

1. Ensure the DHCP server is configured as in this link.
2. The following DHCP server changes must also be made, if needed, to support the Web Proxy:
   a. Create a Vendor Class for the HP Thunderbolt™ dock.

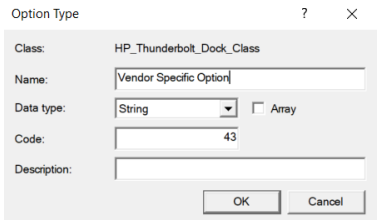
      NOTE: The class must be called "HP_Thunderbolt_Dock_Class," with the added identifier "HP_Dock_Proxy_Port." This is a string value.



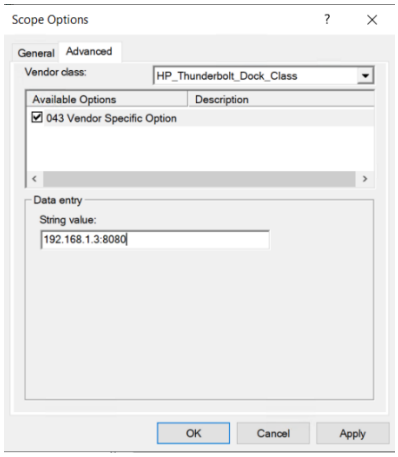
b. Add option **43** for the new created class "HP_Thunderbolt_Class." This option will have the proxy address and the port number for the network environment.
c. On the IPv4 node, right-click and select **Set Predefined Options**.
d. Select the newly added class **HP_Thunderbolt_Class**.
e. Click **Add**.



f. Provide **43** for Code, **String** for Data Type, and then click **OK**".



g. Add the value of option **43** in the DHCP Scope.
h. Go to **Scope Options > Configure Options > Advanced Tab**, and then select **HP_Thunderbolt_Dock_Class**.
i. Select **Option 43**.
j. Add the Value <proxy ip address>:<port> ; for example, 192.168.1.3:8080.
Or
Add the Value <FQDN>:<port> ; for example, www.myproxy.com:8080



This completes configuring Web Proxy on a dock using the DHCP Auto Discovery process.

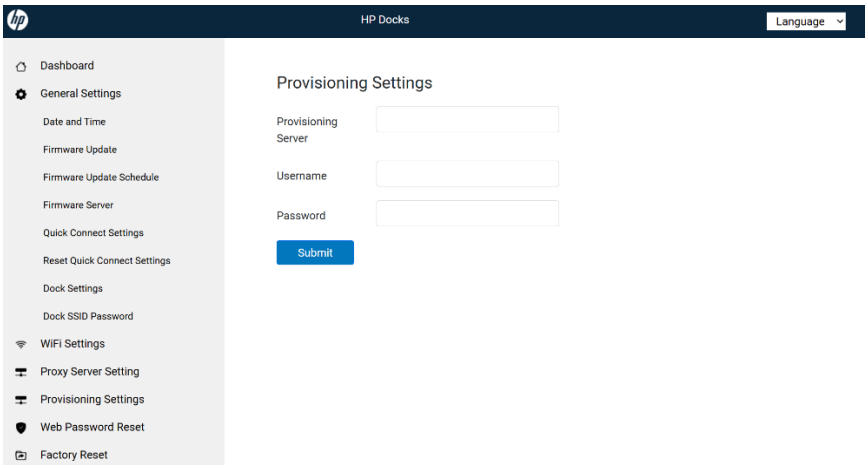
Onboard a single dock device using provisioning through the Dock Configuration web page

User can use the Dock Configuration web page to onboard the dock as follows:

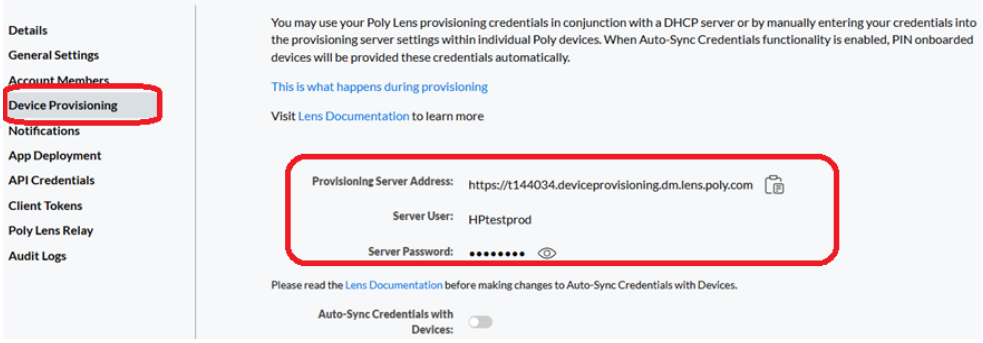
1. Launch the Dock Configuration web page (for steps, follow instructions).
2. Enter login password.

   NOTE: Before providing Provisioning Settings, be sure to configure the dock's WLAN router connection under "Wi-Fi settings" and "Proxy Server Setting," if needed.

3. Go to "Provisioning Settings."



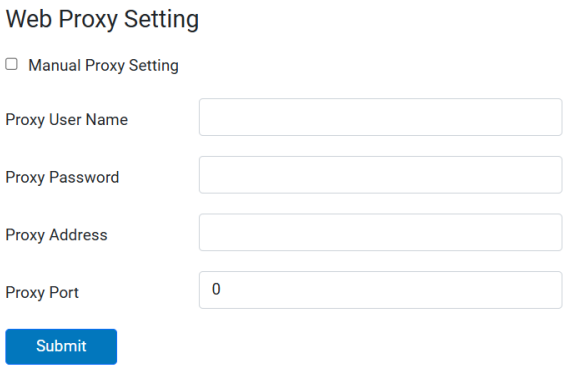
4. Add the provisioning server, username, and password. Then click Submit (this information is now available from Poly Account Settings > Device Provisioning).
5. Once the dock onboarding process starts, LED notifications will occur as described in this document.



Configuring Web Proxy through the Dock Configuration web page

User can configure the Web Proxy settings prior to dock onboarding, using the Dock Configuration web page or DHCP Auto Discovery.

1. Launch the Dock Configuration web page (for steps, follow instructions).
2. Enter login password.
3. Go to "Proxy Server Settings."



4. Enable **Manual Proxy setting,** and then enter the Proxy address, Proxy port, Proxy username and password, if applicable.

NOTE: IOT service support over Web Proxy will be available with the first maintenance release. PAC file support will also be available by first maintenance release (see provisioning by DHCP server for alternative options).

Onboard a HP Docking Station Device with a PIN Code

NOTE: In a Web Proxy environment, onboarding by PIN is not supported. Support will be added by first maintenance release. For single onboarding alternatives, follow the Dock Configuration web page instructions to "Onboard a Single Dock Device using Provisioning ."

Poly Lens Home page
Manage Accounts
Inventory
Device Details – Docking Stations
Settings – Docking Stations
Actions
Policies
Sites
Rooms
Device Groups
Device Users
Software Download
Insights
FAQ (Note: certain topics apply to Device Docks)
Troubleshooting (Note: certain topics apply to Device Docks)

HP Quick Connect

Reduce latency time when connecting to your Notebook with HP Quick Connect. When enabled, HP Quick Connect on the docking station pre-emptively wakes your Notebook, connected accessories, and displays so that your entire workspace is ready before you sit down. All you need to do is plug in and resume your workflow.

When HP Quick Connect is set up with a host, the dock's Bluetooth will detect the Notebook nearby, powering it on or resuming from Hibernation. The dock's monitor will then wake up, displaying an OSD, accelerating the dock's readiness, and starting the host boot process earlier.

Supported models

HP Quick Connect is only supported on HP Commercial Notebooks; this implementation requires the Notebook to use its built-in Bluetooth device. This feature is only supported in Windows OS. The following generations will support Quick Connect:

- HP notebooks G11 with Intel chipsets or newer generations
- HP notebooks G12, G1ix Intel and AMD chipsets or newer generations

The below table shows supported Notebooks available by the HP Thunderbolt 4 Ultra G6 Dock launch date, and provides the minimum firmware and driver requirements. Visit www.hp.com and download the required firmware/software to support the Quick Connect feature.

Product Name	Minimum BIOS version	Minimum Bluetooth driver version	Support available date
HP EliteBook 860/840/830 G11 HP EliteBook x360 830 G11 HP ZBook Firefly 14/16-inch G11	01.05.00	Intel: 23.60.0.1	2/20/2025
HP ProBook 460 14/16-inch G11	01.05.00	Intel: 23.60.0.1 Realtek: 1.10.1061.3021	2/20/2025
HP EliteBook 660/640/630 G11	01.05.00	Intel: 23.60.0.1	2/20/2025
HP ZBook Power 16-inch G11	01.05.00	Intel: 23.70.0.2	2/20/2025
HP EliteBook X Flip G1i 14 HP EliteBook X G1i 14 inch	01.01.08	Intel: 23.110.1.2	2/27/2025
HP Elite x360 1040 14-inch G11 HP EliteBook 1040 14-inch G11	01.05.00	Intel: 23.60.0.1	2/20/2025
HP EliteBook X G1a 14	01.01.03	Mediatek: 2.22.0.68	2/28/2025

Setting up HP Quick Connect (Manual)

Host preparation:

1. Ensure the Notebook is part of the supported list and is up to date with the latest firmware and drivers.
2. Enable Quick Connect in the Notebook by entering the BIOS F10 setup:
   a. Boot up the Notebook and tap the **F10** key.
   b. The BIOS F10 setup will appear.
   c. Go to **Advanced >Built-In device options** and enable “Quick Connect” and “Quick Connect Notebook Wake.”
   d. Save and exit.

Dock preparation (if needed):

3. Out of the factory, Quick Connect is enabled by default in the dock’s firmware. In case this feature has been disabled in the dock, follow the below steps.
   - Using the Dock Configuration web page:
     - Connect and login to the Dock Configuration web page (link for steps).
     - Go to the **Quick Connect Settings** and enable “Quick Connect.”
   - Using the HP WMI Provider”
     - Refer to HP WMI Provider usage to enable Quick Connect from the command line using a host attached to the dock.

HP Quick Connect registration

In the Windows OS, hot plug the HP dock to the supported host. The notebook will be automatically registered on the dock with no needed intervention.

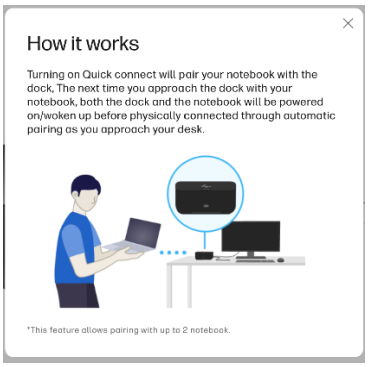
A dock can support up to two hosts simultaneously, and a host can be registered for up to two different docks.

Setting up HP Quick Connect using myHP application

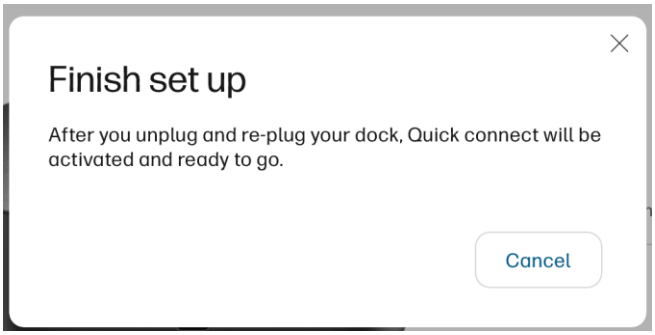
Users can also use the myHP application to enable Quick Connect in their Notebook.

1. Launch the myHP application (for more information about myHP application, follow this link).
2. From the Main menu, go to **Dock Station**, and then select the “HP Thunderbolt 4 Ultra G6 dock.”

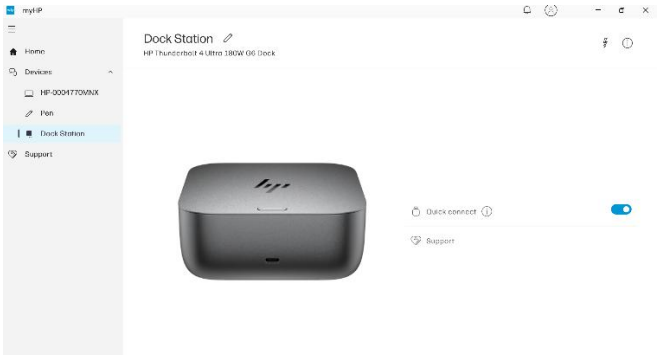
3. If the Notebook supports Quick Connect, then the option to enable Quick Connect will be listed.
   (If this option still missing, ensure the latest version of myHP is downloaded and installed from hp.com).
4. Enable it by sliding switch to the right (you can also refer to the Help icon for more information).



5. A prompt will appear asking to disconnect and re-connect the dock.



6. Once the dock is plugged back in, the Quick Connect registration will be completed, and the user can now start using HP Quick Connect.



Using HP Quick Connect

The next time a user approaches the dock, the dock will recognize their Notebook as a registered host and will send a signal to the Notebook to turn ON (or resume from Hibernation). In parallel, the monitor attached to the dock will turn ON and display the OSD image. This helps to ensure the monitor is already awake when the Notebooks is attached to the dock, thus accelerating the docking effort and improving reliability as well.

Configuring and managing HP Quick Connect

Certain environmental factors may impact the wake-up action on HP Quick Connect. For example, heavy foot traffic of other Bluetooth® devices or heavy walls around the dock's location could delay wake-up timing of the dock and PC.

To address this issue, users can configure HP Quick Connect settings through the Dock Configuration web page. This adjustment will help tailor the experience to better suit the user's environment, and it extends to each Notebook (up to 2 Notebooks) registered to the dock.

The below list of settings are configurable under the HP Quick Connect menu.

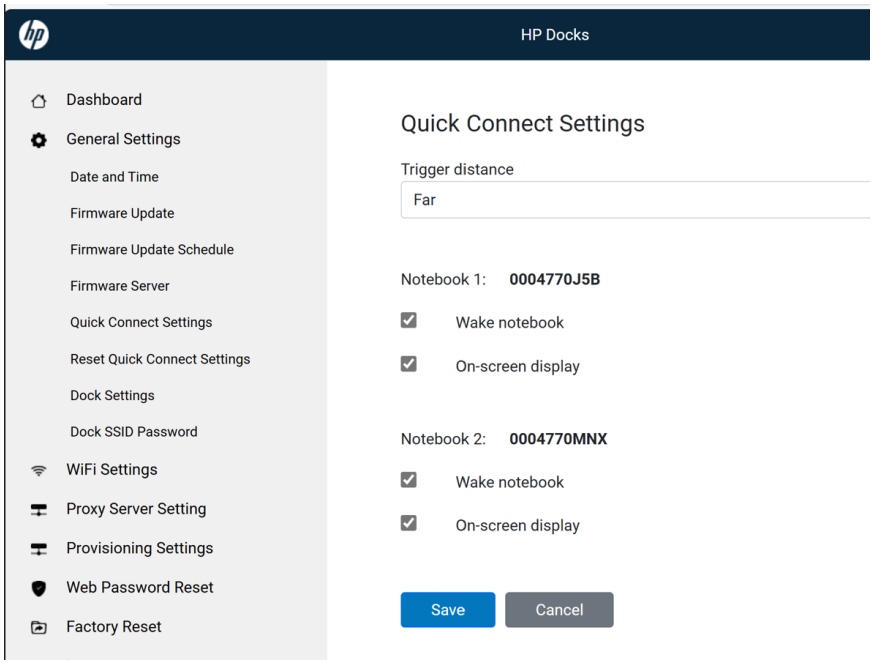
Trigger Distance:
User can select Far or Near as a trigger distance. The exact distance cannot be determined since each environment is different, thus users can select what works best to improve their experience

Wake Notebook:
Allows user to disable/enable "Waking the Notebook" when in proximity to the dock (default is enable), and this can be configured by the registered host.

On-Screen Display:
Allows user to disable/enable showing an On-Screen Display notification when the Notebook is in proximity, and this can be configured by the registered host.

Enable/Disable Quick Connect (under "Dock Settings"):
Listed under the "Dock Settings" menu, users can enable/disable the Quick Connect feature.

Reset Quick Connect settings (under "Reset Quick Connect Settings"):
Allows a user to clear all host registrations in the dock.



The above screen shot shows configurable Quick Connect settings for Notebooks that have been registered to the dock.

Troubleshooting Issues

Each troubleshooting topic may have more than one recovery method. Walk through each recommended step until the issue is resolved.

Cannot enable HDR mode on a display if connected to a host in Multi-function mode, monitor will turn off
This issue can reproduce on a non-DSC monitor attached to the Thunderbolt™ port of the dock using a non-Thunderbolt host (Multi-function host). This is as designed due to a data limitation on this type of connection.

To resolve, do the following:

- Connect the monitor to the DP alt mode (Type-C), DP, or HDMI port of the dock.

No display on monitor attached to the Thunderbolt™ port on the HP Thunderbolt™ 4 Ultra G6 Dock
On a dual monitor setup, the monitor attached to the Thunderbolt™ Type-C® port will not light up, If the dock is connected to a Multi-function host (non-Thunderbolt host), the HDMI/DP or Type-C® alt mode ports will remain working when this issue occurs.

To resolve, do the following:

- Connect the failing monitor to any of the available non-Thunderbolt ports in the dock. This can be the DP alt mode, DP, or HDMI port.

Monitor cannot display or reach 4K by 60Hz resolution when connected to the dock by using a DP to HDMI passive dongle

To resolve, follow these steps:

1. Reduce the monitor resolution to 4K by 30Hz.
2. Switch to an active dongle.

Intermittently, DP 1.4 monitor might not display after hot plugging a host to the dock

To resolve, follow these steps:

1. Set the monitor to DP 1.2 using the monitor's built-in menu.
2. Un-plugging the host from the dock, and then re-plugging could solve this issue.
   NOTE: HP is investigating the issue, and a solution could become available on maintenance release.

The dock or peripherals connected to the dock do not appear in the OS

To resolve, do any of the following:

- Ensure the dock is authenticated properly (see "First Time Connection" section).
- Unplug and re-plug the dock.
- Restart the Notebook or mobile workstation.
- Reset hardware (see description below for more details).

Thunderbolt™ Controller and/or Intel® USB 3.1 Host controller has an error code in Device Manager

This could be the result of reinserting the dock too quickly without full de-enumeration of the dock.

To resolve, follow these steps:

1. To work around this issue, simply unplug the Thunderbolt™ dock from the system. Wait 20 seconds and then re-dock the system.
2. In some rare cases, if the first recover method doesn't work, you can undock and reboot the system.

The HP Thunderbolt 4 Ultra G6 Dock power LED is not in sync with the system Power button LED after resuming from Standby state

Functionally, there is no impact, but the LEDs may be out of sync. The LEDs on the system and the dock are working as expected, just out of sync.

If using Windows 10 build 10586 or earlier and experience a BSOD when resuming from Standby or Hibernation with HP Thunderbolt 4 Ultra G6 attached

Windows 10, revision 10586 or earlier, does not have full support of the USB Type-C® Connector System Software Interface. You must disable the USB Type-C® Connector System Software Interface in the HP BIOS.

To recover, follow these steps:

1. Go to F10 BIOS setup.
2. On the Advanced tab, select System Options.
3. Disable the USB Type-C® Connector System Software Interface.
4. Save and exit.

Internal display corruption when cold boot with VGA monitor attached via USB-C® to VGA dongle

This known issue may occur on HP Thunderbolt™ platforms with Intel graphics running Windows 10 in legacy boot mode.

To avoid this issue, change the boot mode to UEFI in the HP BIOS, as follows:

1. Go to F10 BIOS setup.
2. On the Advanced tab, select Option ROM Launch Policy.
3. Change boot mode to All UEFI.
4. Save and exit.

Thunderbolt™ 3 storage device disappears from "My computer" after restart with device attached
To work around this issue, enable Fast Boot in the HP BIOS, as follows:
1. Go to F10 BIOS setup.
2. On the Advanced tab, select Boot Options.
3. Unselect Fast Boot.
4. Save and exit.

Intermittently USB displays may not appear after restart
To work around this issue, customers may do either of the following:
1. Re-plug the display.
   OR
2. Toggle the display modes from Duplicate to Extended.

USB Type-C® Connector System driver may have an error code in Windows 10 build 16299
To work around this issue, do either of the following:
1. Unplug the HP Thunderbolt™ 4 Ultra G6 and restart.
   OR
2. Reload the USB Type-C® Connector System driver in Device Manager.

Intel® Collage mode may not persist after resuming from Standby or Hibernation
This is due to a latency issue after resuming from a Sleep state. The issue can be recovered by re-enabling Intel® Collage mode from the Intel® Display control panel.

On an HP Thunderbolt™ Notebook with Native PCIe hot plug enabled, the HP Thunderbolt 4 Ultra G6 may not fully enumerate when resuming from a warm dock state
To work around this issue, do the following:
- Unplug and re-plug the HP Thunderbolt™ Dock.

USB device connected to the dock stops functioning
To resolve, follow these steps:
1. Unplug and re-plug the USB device.
2. Unplug and re-plug the dock.
3. Restart the Notebook or mobile workstation.
4. Reset hardware (see description below for more details).

Monitors connected to the HP Thunderbolt Dock 4 Ultra G6 doesn't wake from a Sleep state or on a hot plug with HP display
Some HP displays have a known issue waking from a "Low power" state.

To work around this issue, change the option to "Always Active" on the On-Screen-Display menu, as follows:
1. Open the On-Screen-Display menu on the monitor.
2. Select the Menu option.
3. Select "Input Control."
4. Select "DP Hot-Plug Detection."
5. Select the "Always active" option and save.

To perform a hardware reset of your Notebook or mobile workstation, follow ALL of the below steps. A hardware reset temporarily disconnects the internal battery to fully reset the system.
1. Power off the Notebook or mobile workstation.
2. Remove the AC power cord and all USB cables or devices from the Notebook or mobile workstation.
3. Press and hold the Power button for 15 seconds.

To perform a hardware reset of your dock, do the following:
1. Undock the HP Thunderbolt™ 4 Ultra G6from your Notebook.
2. Unplug the power cable from your dock for 5 seconds.

Unable to view video on 4K HDMI/DP monitor when connected to the USB Type-C® of the HP Thunderbolt™ 4 Ultra G6by using a HDMI/DP to Type-C® dongle

This is a known limitation, with the following workaround:

1. Plug the monitor directly into the DP/HDMI port of the dock instead of the Type-C® port.
   OR
2. Plug the monitor directly into the Thunderbolt™ port of the dock.

On Non-Thunderbolt™ Host, 4k Resolution @60hz is unavailable when computer is docked with 4K monitor attached

This is a known limitation when the dock is in Multi-function mode.

To mitigate this issue, enable the High Resolution mode in the BIOS F10 setup as follows:

1. Go to F10 BIOS Setup.
2. On the Advanced tab, select System Options.
3. Enable "High Resolution mode when connected to a USB-C® alt mode dock option."
4. Save settings by pressing the F10 key.

The system might take around 1 minute to enumerate the HP Thunderbolt 4 Ultra G6 after resuming from Hibernation

To prevent this issue from happening:

1. Short-term solution: Allow system to resume from Hibernation first, and then plug the dock after around 30 seconds.
   OR
2. Long-term solution: Upgrade to latest version of Windows 11, version 21H2.

System audio abnormal behaviour when connected to certain monitors as HP Z34C G3 or HP Z24m while running Win10 OS

The symptoms include:

- Takes a long time (over 10s) to open Camera App
- Click Volume icon under task bar and the response is slow
- Audio output responses slow when switching between Z34C G3 monitor and HDMI monitors
- F6 and F7 keys are unable to control the volume of the notebook

To resolve this issue:

- Download the latest Intel® SST driver from HP.com for your system.

System cannot display on two monitors running at 4K resolution and 144hz frequency. The symptoms include one of the monitors will not display image

To resolve this issue:

1. First, make sure the monitors are not connected to the bottom DP port and Type-C display port, since they are mutually exclusive.
2. Choose from the following scenarios:
   - Scenario 1 (Recommended): Connect one monitor to the Thunderbolt™ port and the 2nd monitor to any other port. The resolution will remain at 4K and 144hz in the Thunderbolt™ port.
   - Scenario 2: Connect both monitors to the DP ports of the dock. The resolution will remain at 4K, but frequency will drop to 60hz.

Cannot get image on both displays when the HP Thunderbolt 4 Ultra G6 is connected to a MacBook Pro 2018

To resolve this issue:

- Avoid connecting both monitors to any of the DP/HDMI/Type-C ports. Instead, connect one monitor to the Thunderbolt™ port and the 2nd monitor to any of the DP/HMDMI/Type-C ports.

MacBook Pro (2018) shows power received from the HP Thunderbolt 4 Ultra G6 to be 75W instead of 100W.

This is as expected for this model. The system should still charge.

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