Dell

Business Client

Re-Image "How-To" Guide

Latitude Ultrabook, E-Family, Latitude 2 in 1 &

Mobile Precision Notebook

Revision 1.0

A05

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Contents

1   Overview

This document is a quick guidance for re-image OS on Dell Latitude, Latitude 2 in 1, & Mobile Precision notebooks. Failure to install drivers and applications in this document may result in undesirable performance. These drivers are required to enable new technologies and features.

Reinstalled images should be built from Windows clean installation then following steps in this guide. Dell does not recommend starting from an image built on previous generations of products or other computer systems.

This "How-To" guide applies to following Systems, and support Windows OS list in below

	Windows 10 64bit	Windows 8.1 64bit*	Windows 7 64bit*	Windows 7 32bit*
Latitude E5280/5288	Yes	No	No	No
Latitude E5480/5488	Yes	No	No	No
Latitude E5580	Yes	No	No	No
Latitude E7280	Yes	No	No	No
Latitude E7480	Yes	No	No	No
Mobile Precision 3520	Yes	No	No	No
Mobile Precision 5520	Yes	No	No	No
Latitude 3180/3189	Yes	No	No	No
Latitude 5285 2-in-1	Yes	No	No	No
Latitude 5289	Yes	No	No	No
Latitude 7285	Yes	No	No	No

*NOTE: Before attempting to install Windows 7 or 8.1, check your processor type. Systems with 7th Generation Intel® Core™ i7 Processors are **NOT** eligible for Windows 7/8.1 downgrades**.**

NOTE: Dell *highly recommends* you turn on Windows Update after Windows OS clean installation. The best way to keep your computer current is to turn on automatic updates. With automatic updates via internet, you don't have to search for updates online or possibly miss critical fixes or device drivers for your Windows PC. Windows Update automatically installs important updates and latest drivers as they become available. Read here for more detail

NOTE: To enable internet access, please install Ethernet controller driver first.

Search for your system model name under Select a Product selection, or enter the service tag of your system to locate Drivers & Downloads page on the Dell Support Website. Change the Operating System to view all available updates for your system. Select *Intel I2xx/825xx Gigabit Ethernet Network Controller Drivers* under "Network" category.

2   "How-To"

2.1   Auto Installation Application

Dell *highly recommends* **Dell Command | Update application (DCU)** to automate the installation of BIOS, firmware, driver and critical updates specific to your system. The application is available to download on **Dell Support Website Driver & Downloads page**. Pick your system type from the list or enter the service tag of your system to get the right version for your computer.

The DCU is supported on Precision, XPS and Latitude notebooks. The Dell Command | Update tool allows you to keep your system up to date without you having to know every driver or update needed. It will automatically interrogate your system and compare it to the available updates on dell.com/support for your specific system.

Read here for more detail about How to use Dell Command | Update to update all drivers BIOS and firmware for your system

> **NOTE**: Older BIOS versions and drivers could result in your computer or not functioning optimally.

2.2   Manual Installation Order

Alternatively, Dell recommends installing the following BIOS, firmware and drivers step-by-step in the prescribed order to ensure optimal performance.

Search for your system model name under Select a Product selection, or enter the service tag of your system to locate Drivers & Downloads page on the Dell Support Website. Change the Operating System to view all available updates for your system.

> **NOTE**: Dell *highly recommends* that you install BIOS, firmware, driver and critical updates via **Microsoft Windows Update** (in session 1) or **Dell Command I Update application** (in session 2.1, available since Feb.2017). Manual installation is only recommended when auto installation applications are not available.

> **NOTE**: Following above, Dell also recommends you install firmware, driver of **Dock WD15** and **Thunderbolt Dock TB16** via **Dell Command I Update** application. More information of **WD15**, please refer to *Dell WD15 docking Station Installation Guide* here or *Video tutorials* here. More information of **TB16**, please refer Dell Thunderbolt Dock TB16 Driver Installation Guide or *Video tutorials* here

> **NOTE**: Dell recommends restarting your system between each driver, firmware installation.

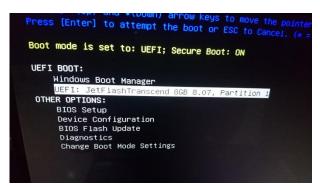| Title	Category	Latitude E5280/5480/5580 E5288/5488/5289 E7280/7480	Mobile Precision 3520	Mobile Precision 5520	Latitude 3189/3180	Latitude 2-in-1 5285	Latitude 2-in-1 7285	Note
BIOS								
DELL System BIOS	BIOS	●	●	●	●	●	●	All config. required
Driver & Firmware - onboard Devices								
Intel Chipset Device Software Driver	Chipset	●	●	●	●	●	●	All config. required
Intel I2xx/825xx Gigabit Ethernet Network Controller Driver	Network	O	●	●				Required for Intel LAN config.
Intel Device Manager Diagnostics Utility (DMIX)	Network	O	●	●				Required for Intel LAN config.
Intel HID Event Filter Driver	Chipset	●	●	●	●	●	●	All config. required
Alps Touchpad Driver	Input	●	●	●				All config. Required, except 7285/5285/3189/3:
Intel HD Graphics - Driver	Video	●	●	●	●	●	●	All config. required
Intel Rapid Storage Technology Driver and Management Console	Serial ATA	●	●	●		O	●	All config. Required, except 5285 NVMe config
Realtek ALC3246 Audio Driver	Audio	●	●	●	●	●	●	All config. required
Realtek RTS5242/5330 Card Reader Driver	SD Card	●	●	●		●	●	All config. required
Intel(R) Dynamic Platform and Thermal Framework	Chipset	●	●	●	●	●	●	All config. required
Intel(R) Management Engine Components	Chipset	●	●	●		●	●	All config. required
ST Microelectronics Accelerometer	Chipset	O	O	O				Required for spindle HDD config.
Intel(R) Thunderbolt(TM) Controller Driver	Chipset	O	O	O				Required for Thunderbolt config.
Intel Thunderbolt 3 Firmware Update	Chipset	O	O	O			●	Required for Thunderbolt config.
Dell ControlVault2 Driver and Firmware	Security	O	O	O		●		Required for USH config.
nVidia Video - Driver	Video	O	O	O				Required for Discrete Gfx config.
Realtek IR Camera Driver	Input	O	O	O		●		Required for IR Camara config.
Intel Trusted Execution Engine Components	Chipset				●			Required for 3189/3180
Intel Serial IO Driver	Chipset				●	●	●	All config. Required for 3189/3180/5285/7285
Intel Integrated Sensor Solution Driver	Chipset	O			O	●	●	Required 360 2 in 1 config.
Intel Virtual Buttons Driver	Chipset				O	●	●	Required 360 2 in 1 config.
Intel 2D Imaging Driver	Input				●	●	●	Required Intel 2D camera config. 7285 2D imag
Driver & Firmware - Communication Devices								
Intel 18265/8265/7265(SD)/3165 WiFi Driver	Network	O	O	O	●	O	O	Required for Intel 8265/18265 Wireless card *Latitude 3180/3189 Intel 7265 Wireless card only
Intel 8265/8260/7265/7260/3165/18265/18260/17265 Bluetooth Driver	Network	O	O	O	●	O	O	Required for Intel 8265/18265 Wireless card *Latitude 3180/3189 Intel 7265 Wireless card only
Intel 18265/18260/17265 WiGig Application	Network	O	O	O		O	O	Required for Intel 18265 Wireless card
Dell Wireless 1810/1820 WiFi/Bluetooth Driver	Network	O	O	O		O		Required for DELL 1820 Wireless card
Dell Wireless 5811e LTE Mobile Broadband and GPS Driver	Communication	O	O	O		O	O	Required for DELL 5811 LTE card
DW5814E LTE Mobile Broadband Driver	Communication	O	O	O		O		Required for DELL 5814 LTE card
DW5816E LTE Mobile Broadband Driver	Communication						O	Required for DELL 5816 LTE card
Driver & Firmware - Dock Stands								
DELL Wired Dock(WD15)/Docking Monitor Stand(FS1000) Firmware Update Utility	Docks/Stands	O	O	O			●	(2) connect AC adapter to dock then attach the Type-C cable to system before installation
ASMedia USB 3.0 Extended Host Controller Driver	Docks/Stands	O	O	O			●	Required for TB16 dock
RealTek USB GBE Ethernet Controller Driver	Docks/Stands	O	O	O	●	●	●	Required for TB16 and WD15 dock
Realtek USB Audio Driver for Dell Wireless Dock, Dell Thunderbolt Dock, Dell Docking Monitor Stand and Dell Dock	Docks/Stands	O	O	O		●	●	Required for TB16 and WD15 dock
ASIX USB to Serial / Parallel Port Driver	Docks/Stands	O	O	O		●	●	Required for LD17 dock
Applications								
Dell Command	Power Manager (DCPM)	System Utilities	●	●	●	●	●	●	All config. required
Dell Command	Update (DCU)	System Management	●	●	●	●	●	●	All config. required
Dell Command	Configure (DCC)	System Management	O	O	O	O	●	●	Option for IT management
Dell Command	Integration Suite (DCIS)	System Management	O	O	O	O	●	●	Option for IT management
Dell Command	Intel vPro (DCIV) (Aurora)	System Management	O	O	O		●	●	Option for IT management
Dell Command	Monitor (DCM)	System Management	O	O	O	O	●	●	Option for IT management
Dell Command	Powershell Provider (DCPP)	System Management	O	O	O	O	●	●	Option for IT management
DELL Data Protection	Encryption	DELL Data Protection	O	O	O	O	●	●	Required for storage encryption and PBA features
Dell Foundation Services - Application	Application	O	O	O	O			Option for IT management
Dell Update	Application	O	O	O	O			Option for IT management
Dell Digital Delivery Application	Application	●	●	●	●	●	●	All config. required
Dell Precision Optimizer (DPO)	Application		●	●				Mobile Precision Required

2.3   7285 Dual PCIe/NVMe SSD Storages Sku Notice – Important

▪ If your 7285 has dual PCIe/NVMe SSDs in your system, please be noted that this section is very important. If your system only has one SSD, you can ignore. To make sure you will re-install system image in C drive, please read this section carefully, and any data in D drive must be backup before you starting re-image system. Because of platform design, there's only one port supporting PCIE remapping in RAID mode. Platform supports two SSDs on shipping, OS will be installed on primary SSD, second one is the same slot of WWAN which is used for DATA storage. You may not see the primary SSD before loading IRST driver, in this case, secondary SSD is enumerated by default which will let you install the OS onto the secondary drive wrongly. The existing DATA storage would be formatted when selecting the wrong disk to re-image.

In order to install OS on the RAID/PCIE remapping port/Primary SSD slot correctly, please follow the steps below.

Refer to below procedures to install OS/re-image onto the primary SSD.

1. During POST/Dell LOGO, press F12 to select Boot Device. Ex. UEFI: JetFalshTranscend ….. which is the bootable USB drive with OS source.
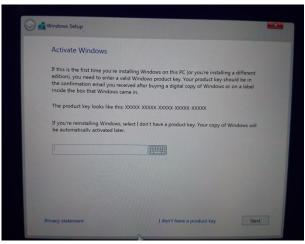

2. Follow the instructions to install OS –

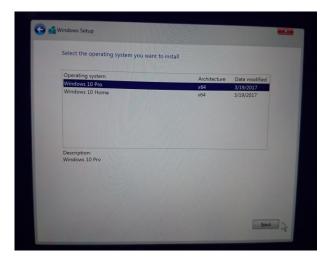   a. The first screen will be about Install Now -

   b. Then to select the preferred language to use from Windows Setup – Language to install… Click Next to continue.
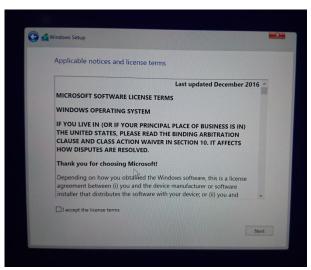

   c. Enter the product key to activate Windows

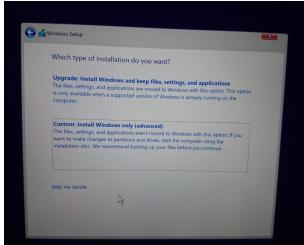d. Select the OS edition to install, press Next to continue.

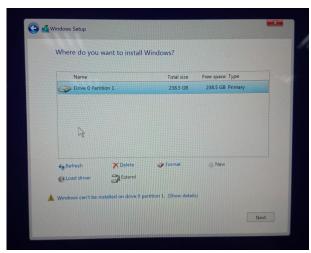e. License Terms, check to accept then click Next to continue.

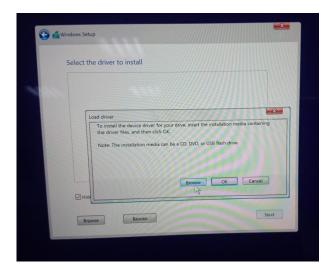f. Select which kind of installation is wanted.

When doing Re-image and completely renew, select Custom that all of the files will be formatted.
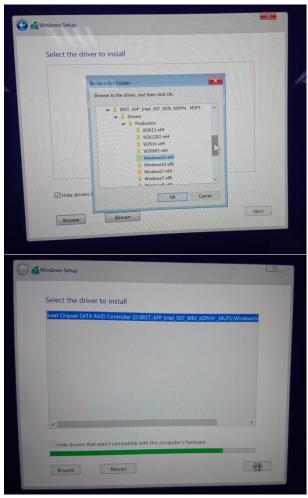
g. ATTENTION : at this screen, the listed disk is the secondary SSD which is not dependent onto IRST and enumerated as a NVME SSD. Primary SSD is not listed until IRST driver is loaded.
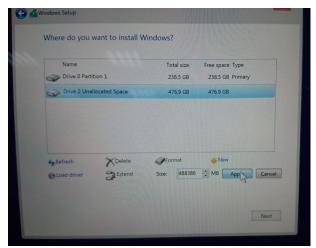

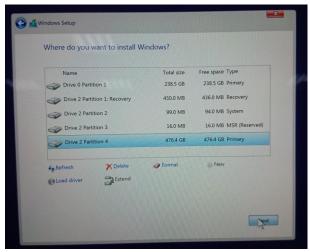h. Load driver then to browse the folder which IRST driver is located
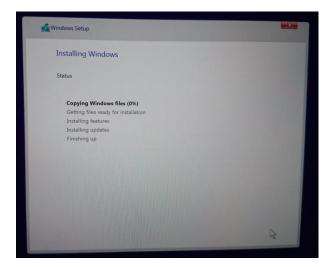
i. Select the driver to install

j. Then the additional drive will be listed. The example here is that the disk is enumerated as Drive 2, to delete/format the drive then to install OS -

k. The additional partitions will be created automatically after the prompt. Start to install OS by clicking Next to continue-

I. Start installing OS

Appendix

Appendix A

How to create and use the Dell Windows recovery image

After you download the Windows recovery image file, follow these instructions to create a bootable USB drive or DVD, copy the recovery image onto your bootable media, and then use the media to reinstall Windows on your Dell device.

Warning: These advanced steps are intended primarily for system administrators and those familiar with command line and/or comfortable following technical tutorials.

Note: To print this document, expand the required section before you click the printer icon at the top of this document.

How to create Windows 10 installation media

Create USB installation media

Step 1: Format your USB drive as a bootable drive

Make sure that you use 8 GB or larger USB drive (32 GB Maximum) and backup any important data on it. When the drive is formatted, all existing data will be deleted.

1. Connect the USB drive to the PC where you'll be creating the installation media.
2. Open the Command Prompt window by right-clicking the **Start** button and then select **Command Prompt (Admin)** to run in administrator mode.
3. At the command prompt, type **diskpart** and press **Enter**.
4. Next, type **list volume** and press **Enter**.
5. From the list, determine which volume number is the connected USB drive. The volume type should be marked as Removable.
6. Type **select volume X**, where X is the number obtained in the previous step. For example, **select volume 9**.
7. Type **clean** and press **Enter**.
8. Type **create partition primary** and press **Enter**.
9. Type **format fs=fat32 label='OS install' quick** and press **Enter**.
10. Type **active** and press **Enter**.
11. To close the Command Prompt window, type **exit** and press **Enter**.

Step 2: Copy the recovery image to your bootable USB drive

1. Go to the location where you saved the recovery image.
2. Right-click the recovery image file (.iso) and on the options menu, select **Mount**.
3. Windows will open the contents of the image in File Explorer.
4. Copy the contents of the image to your bootable device.

Create DVD installation media

1. Insert the DVD into the disc drive of the PC where you'll be copying the recovery image to DVD. Make sure that the disc drive has burning capabilities.
2. Navigate to the folder where you saved the recovery image and double-click the iso file.
3. Either the Windows ISO media creation tool or installed third-party disc burning software will open.
4. Follow the on-screen instruction to burn the ISO to the DVD. When the process completes, you will have created bootable installation media.

Using the USB or DVD installation media to reinstall Windows 10

1. Connect the installation media you created to the Dell system where you want to install Windows.
2. Restart the system and when the Dell logo screen appears, tap the **F12** key until you see **Preparing one time boot menu** in the top-right corner of the screen.
3. On the boot menu, under UEFI boot, select your media type (USB or DVD) and enter your language.
4. On the Choose an option screen, select **Troubleshoot**, and then select **Recover from a drive**.
5. Follow the on-screen instructions to finish installing Windows. The installation process will take some time and your computer will restart.

Appendix B

Intel® Rapid Storage Technology

Intel® Rapid Storage Technology offers greater levels of performance, responsiveness, and expandability than ever before. Whether you are using one or multiple serial ATA (SATA) or PCIe drives, you can take advantage of enhanced performance and lower power consumption from the latest storage technologies. Additionally, you can rest easy knowing you have added protection against data loss in the event of a hard drive failure.

- Unleash the Performance of Your Solid-State Drive

Intel Rapid Storage Technology has added support for next generation PCIe storage devices with transfer speeds up to 1 GB/s that maximizes storage performance and improves response time for everyday usages like photo editing, video loading, and office productivity. Dynamic storage accelerator accelerates the performance of your SSD by dynamically adjusting system power management policies to deliver up to 15 percent faster performance1 during heavy multitasking compared to default power management.

- Fast Access to the Files and Applications You Use Most

Intel® Smart Response Technology is a feature of Intel Rapid Storage Technology that recognizes and automatically stores your most frequently used applications and data into a high performance SSD while giving you full access to the large storage capacity of a hard disk drive (HDD). This enables a lower-cost, small-capacity SSD to be used in conjunction with a high-capacity HDD. Intel Smart Response Technology enables your system to perform faster than a system with just a HDD.

Intel Smart Response Technology also supports solid-state hybrid drives (SSHDs). Intel Smart Response Technology boosts SSHD performance by informing the drive which data you use the most so it can store it into the built-in SSD, so your most frequently used data and applications are instantly accessible.

- Performance with Protection: RAID Technology

Most of us don't plan backup storage well in advance. Hard drive failure can be devastating, because it results in irretrievable content. Intel Rapid Storage Technology offers features that improve performance and data reliability for disk-intensive retrieval applications such as editing home video. For the fastest performance, Intel Rapid Storage Technology can combine from two to six drives in a configuration known as RAID 0, so data can be accessed on each drive simultaneously, speeding up response time. For the best reliability, Intel Rapid Storage Technology RAID support includes the following levels of performance and reliability:

RAID level 0 (Striping)

RAID level 1 (Mirroring)

RAID level 5 (Striping with parity)

RAID level 10 (Striping and mirroring)

Multiple drives in a PC can also provide added protection from disastrous hard drive failures by mirroring all data among two or more drives. This configuration is known as RAID 1. RAID 5 and 10 provide additional reliability by mirroring all data among three and four drives respectively.

- Rapid Data Recovery

Intel® Rapid Recover Technology (Intel® RRT) provides a recovery point that can be used to quickly recover a system in the event of hard drive failure or data corruption. The clone can also be mounted as a read-only volume to allow a user to recover individual files.

Intel Smart Response Technology also supports SSHDs. An SSHD is a new type of HDD with a built-in high-performance SSD. Intel Smart Response Technology boosts SSHD performance by informing the drive which data you use the most, so it can store it into the built-in SSD.

You can create, work, and play faster than ever before without paying more for a larger SSD to store your entire digital library.

Appendix C

Dell Client Command Suite

The Dell Client Command Suite is the new name of our industry leading Client Systems Management tools. These tools make Dell commercial client systems the world's most manageable client devices. Click on a link below for more details

> Dell Command | Monitor
> Dell Command | Configure
> Dell Command | Deploy
> Dell Command | Integration Suite for System Center 2012
> Dell Command | Update Catalog
> Dell Command | Update
> Dell Command | Power Manager
> Dell Command | Intel vPro Out of Band
> Dell Command | PowerShell Provider

Appendix D

Dell Dock (WD15) & Dell Thunderbolt Dock (TB16) information

Dell Dock WD15	
Display Ports	VGA, mDP, HDMI
Number Displays Supported	2 [1]
Max Resolution	3840 x 2160 @ 30 Hz, 2560 x 1600 @ 60Hz
USB Ports	USB 2.0 - (2), USB 3.0 - (3)
Thunderbolt 3 Port	None
Audio/Headphone	3.5 mm Combo - (1), 3.5 mm Speaker Out (1)
Network	RJ-45 Gigabit Ethernet
LED Indicators	Power Adapter LED
	Docking Cable Connector LED
	RJ-45 LEDs
Dock Connector	Proprietary Docking Connector to USB Type-C
AC Adapter	130W/180W
Dimensions	155 x 110 x 21 mm
	6.1 x 4.3 x 0.83 inches
Weight	0.93 lbs
	420 g
System Requirements	PC equipped with DisplayPort over USB-Type-C or Thunderbolt 3
Operating Systems	Windows 7/8/8.1/10
Systems Management [2]	Wireless vPro Supported by the Notebook, Tablet or Workstation
Docking Cable Type	DisplayPort over USB Type-C (0.8m)
MAC Address [3]	Pass Thru MAC Address (Dell Systems ONLY)
Warranty	If purchased as a tied laptop accessory the dock shares the system warranty
	If purchased APOS, 1 yr warranty. Advanced Exchange (DAO/APJ), Next business day exchange EMEA

[1]A 3rd display can be connected with the VGA port. The image will be in clone mode vs. Extended Desktop.
[2]Dell Dock WD15 does not support wired vPro. If vPro is needed, then the system host Ethernet port may be used or WiFI vPro within the system.
[3]The dock has the capability to pass through the system MAC address to the network.

Dell Thunderbolt Dock TB16	
Display Ports	VGA, mDP, HDMI, DP, Thunderbolt
Number Displays Supported	3 @ 60Hz [4]

Max Resolution	5120 x 2880 @ 60Hz
USB Ports	USB 2.0 - (2), USB 3.0 - (3)
Thunderbolt 3 Port	USB Type-C
Audio/Headphone	3.5 mm Combo - (1), 3.5 mm Speaker Out (1)
Network	RJ-45 Gigabit Ethernet
LED Indicators	Power Adapter LED
	Docking Cable Connector LED
	RJ-45 LEDs
Dock Connector	Proprietary Docking Connector to USB Type-C
AC Adapter	180W/240W
Dimensions	145 x 145 x 52 mm
	5.7 x 5.7 x 2.05 inches
Weight	1.63 lbs
	740 g
System Requirements	PC equipped with DisplayPort over USB-C or Thunderbolt
Operating Systems	Windows 7/8/8.1/10
Systems Management [2]	Wireless vPro supported by the notebook, tablet, or workstation
Docking Cable Type	USB Type-C Thunderbolt (0.5m)
MAC Address [3]	Pass Thru MAC Address (Dell Systems ONLY)
Warranty	If purchased as a tied laptop accessory the dock shares the system warranty
	If purchased APOS, 1 yr warranty. Advanced Exchange (DAO/APJ), Next business day exchange EMEA

[1] USB-Type C Non-Thunderbolt™ or USB Type-C Universal cable required. The host device must support Thunderbolt™ 3 for Thunderbolt speeds to be supported on the Dell Thunderbolt™ Dock.

[2] Dell Dock and Dell TBT Dock do not support wired vPro. If vPro is needed, the host Ethernet port can be used, or WiFi vPro within the host.

[3] The dock will pass through the NB/Tablet MAC address

[4] With Intel HD Integrated graphics. Some systems with Discrete Graphics (NVidia/AMD) may be able to display additional displays,

but due to bandwidth limitations of the Thunderbolt bus, the refresh rate may have to be reduced to 30 Hz. See the TB16 user guide pg 22

The Dell Thunderbolt Dock TB16 is a device that links all your electronic devices to your laptop computer using Thunderbolt™ 3 (Type-C) cable interface. When you connect the laptop to the docking station, you can gain access to all your peripherals such as the mouse, keyboard, stereo speakers, external hard drive, and large-screen displays without having to plug each one into the laptop.

Key Features:

- Supports up to three FHD displays or two 4K displays @ 60Hz
- Supports faster data transfer of up to 40 Gbps, ideal for large files.
- Common docking experience across platforms with USB-C port(s) having data, video, and power capabilities.
- Single cable for power and data (up to 130w on supported computers only).

For more information about USB Type-C, refer to the knowledgebase article USB Type-C - Frequently Asked Questions.