

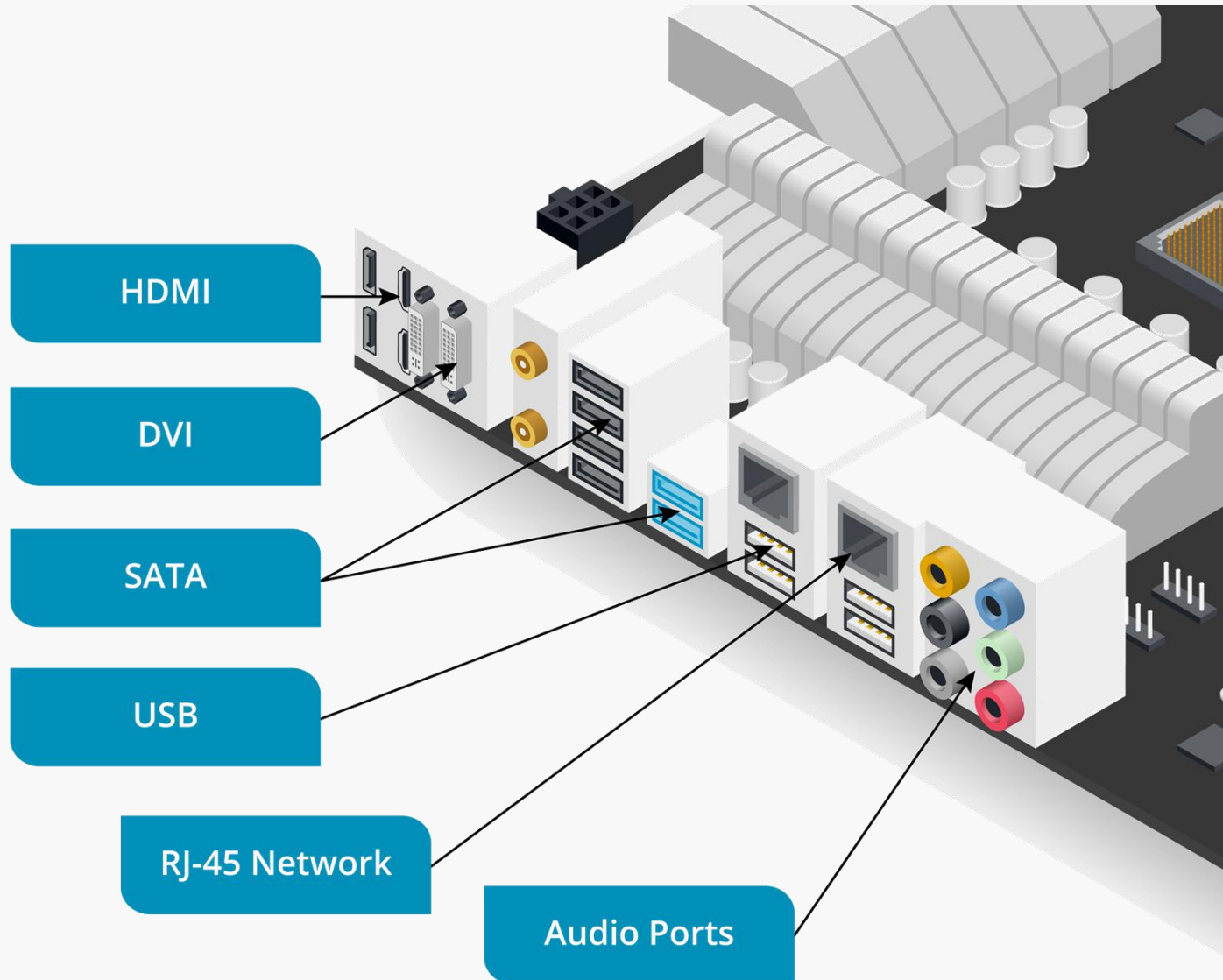
CompTIA IT Fundamentals+ (Exam FC0-U61)

Module 3 / Unit 2 / Using Device Interfaces

Objectives

- Distinguish peripheral, graphics, and networking interfaces and their uses
- Install and configure input devices

Computer Port and Connector Types

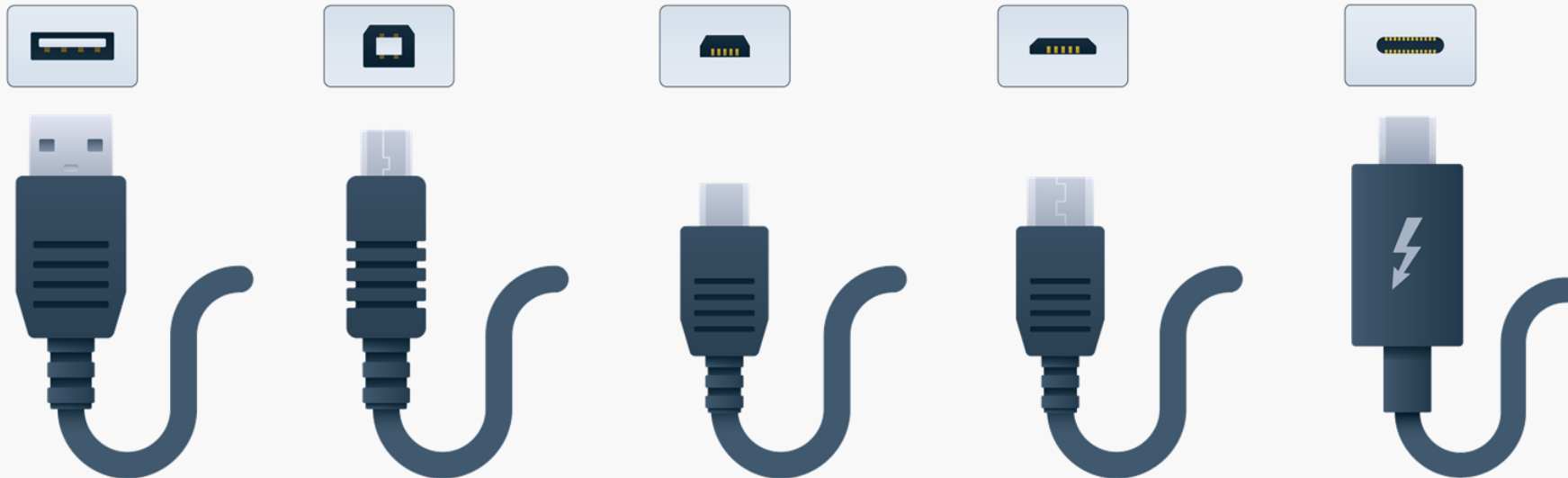


Universal Serial Bus (USB)

- Plug-and-Play interface
- Supplies enough power for small peripherals
- Versions and data rates
 - 1.1 – 12 Mbps
 - 2.0 – 480 Mbps
 - 3.0 – 5 Gbps
 - 3.1 – 10 Gbps

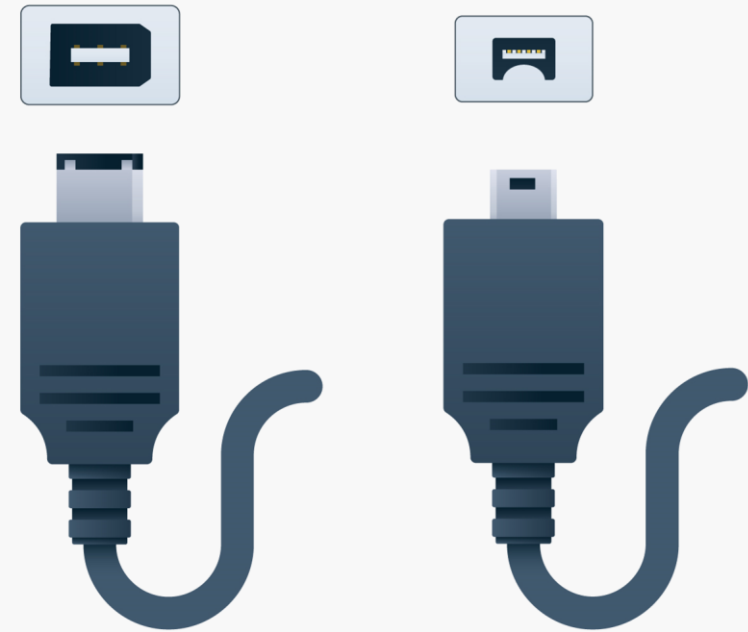
A user has two USB drives connected to her PC. She complains that when she copies large files to both drives at the same time, it seems to take much longer. Why might this be?

True or false? USB cables have the same connectors at either end.



Firewire

- Similar to USB but not widely adopted on PCs
- Data rate of 400 Mbps
- 6-pin and unpowered 4-pin connectors



Graphics Devices - Resolution

- Video card or graphics adapter generates the signal to send to a display device (monitor)
- Most motherboards have integrated adapters
- High performance adapters can be fitted through an expansion card
- Video card often has its own CPU (GPU or Graphics Processing Unit) and memory
- Resolution and color depth
- VGA (Video Graphics Array) standards
- Standard 4:3 versus widescreen (16:10) resolutions
- High Definition (HD) and 4K resolutions

You want to purchase a flat panel monitor that can show widescreen movies. You are considering models with native resolutions of 1400x1050 and 1920x1200. Which should you choose?

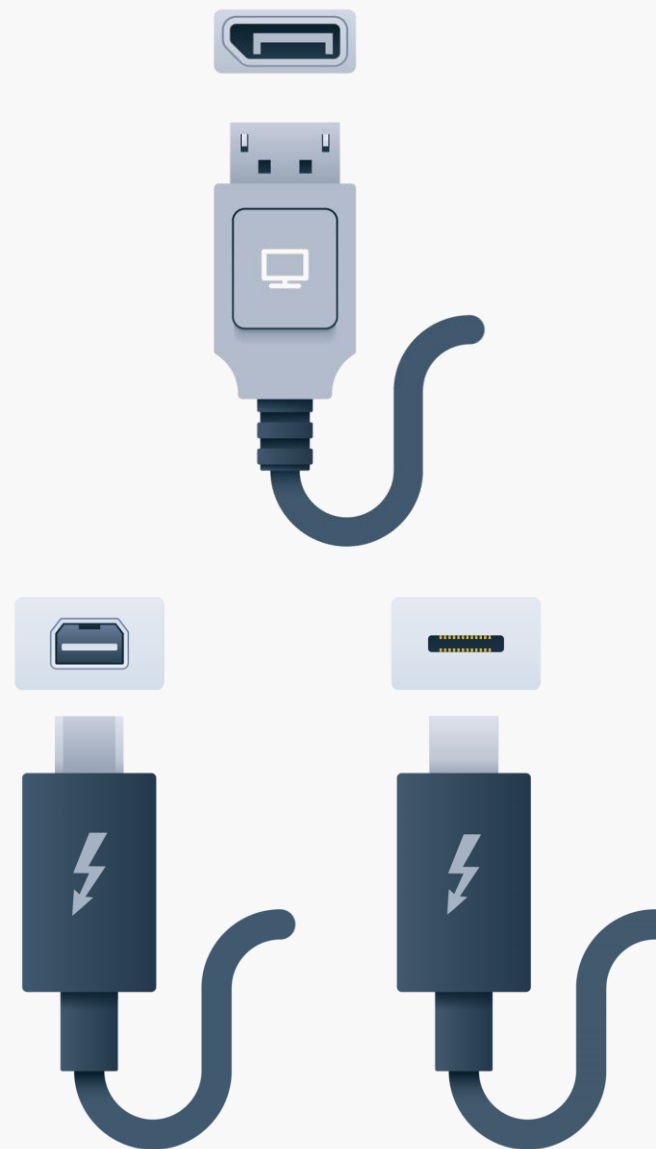
High Definition Multimedia Interface (HDMI)



- Very widely used on computers and consumer electronics
- Sufficient bandwidth for HD resolution (and 4K)
- Mini and micro connectors also available

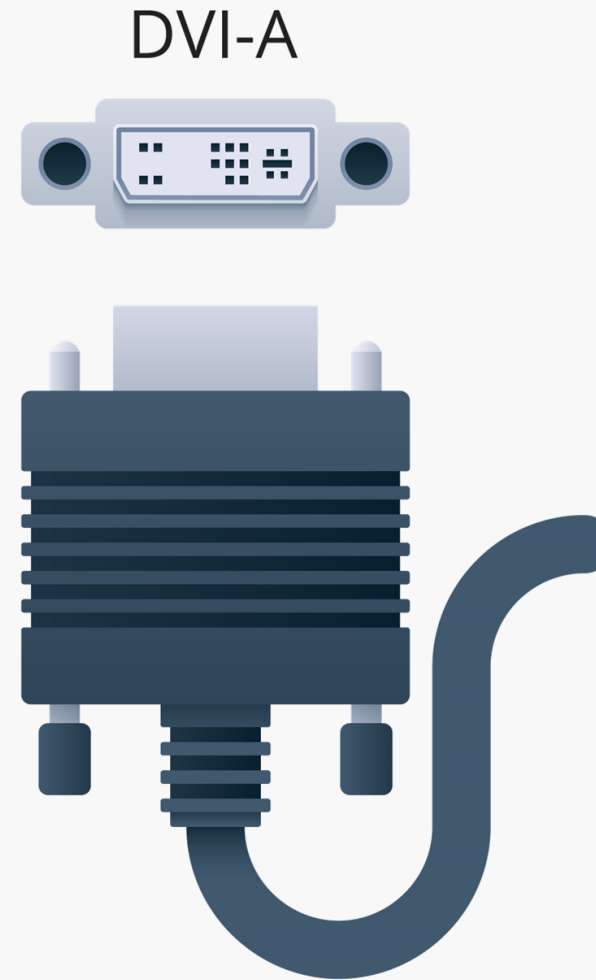
DisplayPort and Thunderbolt

- Competitor technologies to HDMI
- Support for daisy-chaining monitors
- Used on Apple Macs and some PCs—especially Thunderbolt 3
- Thunderbolt 2
 - 20 Gbps over a MiniDP physical interface
- Thunderbolt 3
 - 40 Gbps over a USB-C physical interface (with 0.5m cable)



Digital Visual Interface (DVI)

- Preceded HDMI as the principal display interface for PCs
- DVI can support both digital and analog monitors
- Single and dual-link versions
- Most interfaces are DVI-I dual-link
- Bulky connectors mean that this interface is rapidly falling out of favor
- **HDMI is backward-compatible with DVI-D using a suitable adapter cable**



DVI-A



DVI-D (single link)



DVI-I (single link)



DVI-D (dual link)



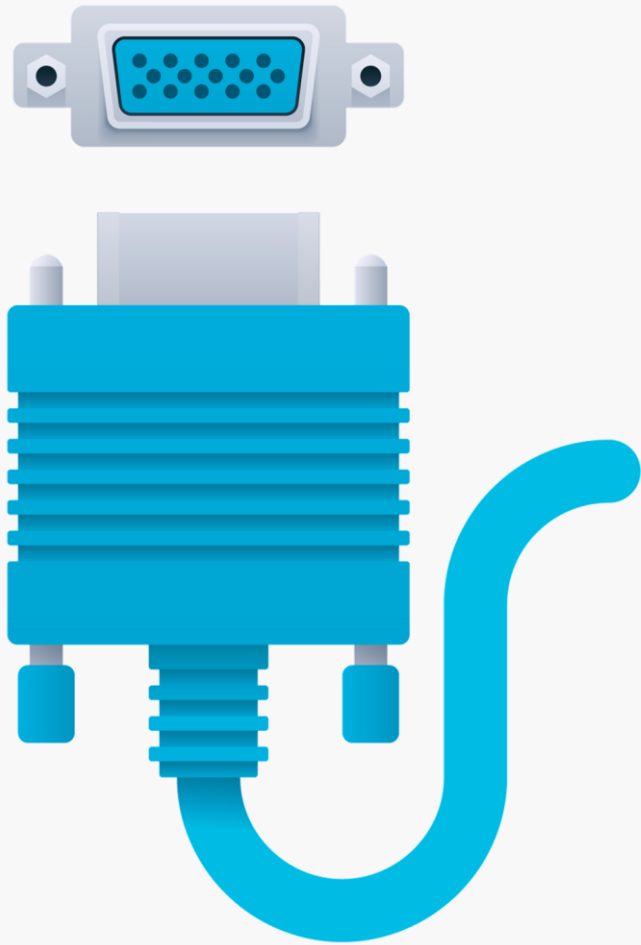
DVI-I (dual link)



True or false? HDMI is the only type of display interface that supports High Definition picture resolutions.

False—there is also DisplayPort and Thunderbolt and some DVI formats also support HD resolutions.

Video Graphics Array (VGA)



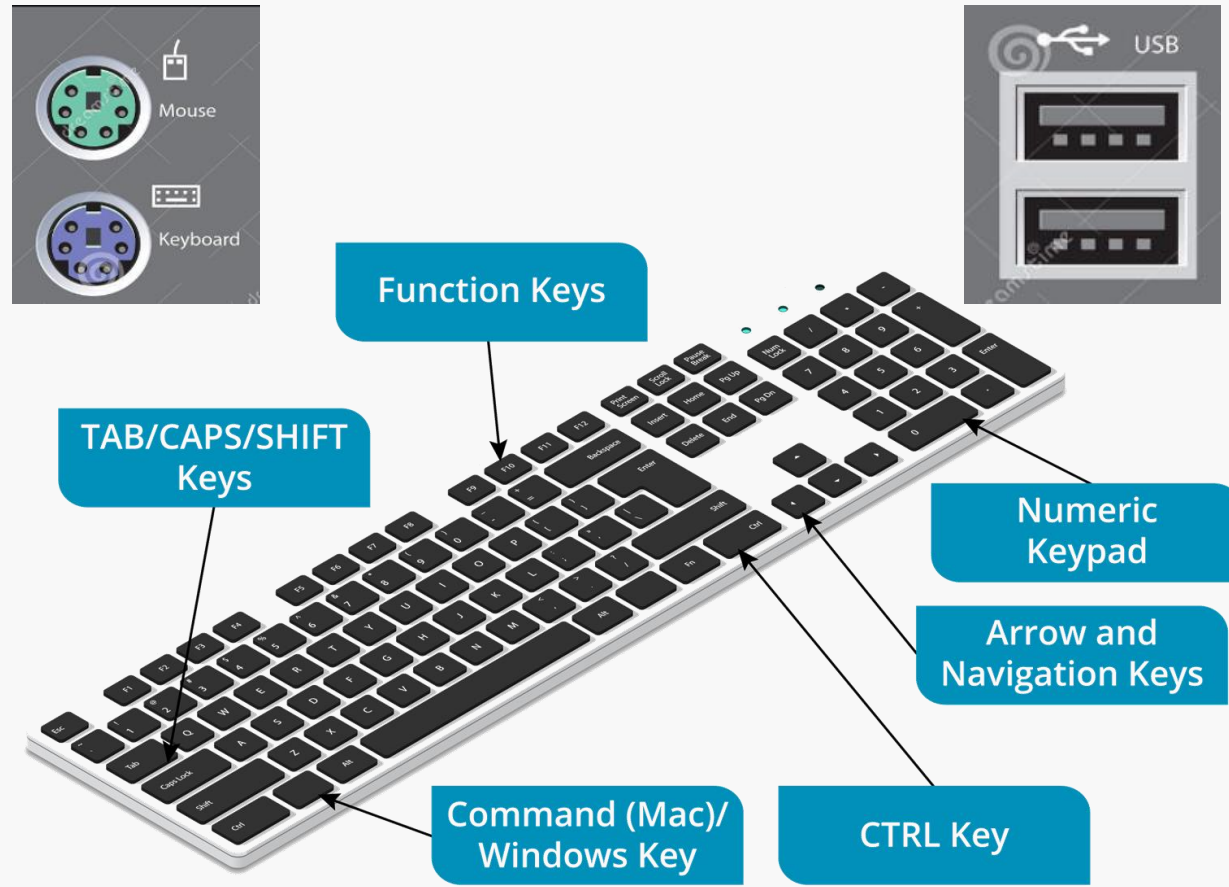
- Blue, 15-pin port (HD15F/DE-15)
- Legacy analog interface—used principally with old Cathode Ray Tube (CRT) monitors
- Some flat-panel displays and graphics adapters continue to provide VGA ports

You are considering buying a new display device. The model you are considering accepts digital inputs only. Your computer's graphics adapter has a blue port with 15 holes. Would this flat-panel be a wise purchase?

Probably not, as this connector is VGA, which supports analog output only. It is possible to buy converters, however.

Input Devices (1)

- Human Interface Devices (HID)
- Keyboard
 - USB/Bluetooth (or legacy PS/2)
 - Layout and region
- Mouse
 - USB/Bluetooth (or legacy PS/2)
 - Optical and laser designs (or legacy mechanical mice)
 - Optional extra buttons and scroll wheel



True or false? Mice and keyboards must be connected to a computer via PS/2 ports.



What type of mouse would you recommend for someone who uses their computer principally to play computer games and why?

Laser mouse—this registers cursor movements more quickly and accurately.



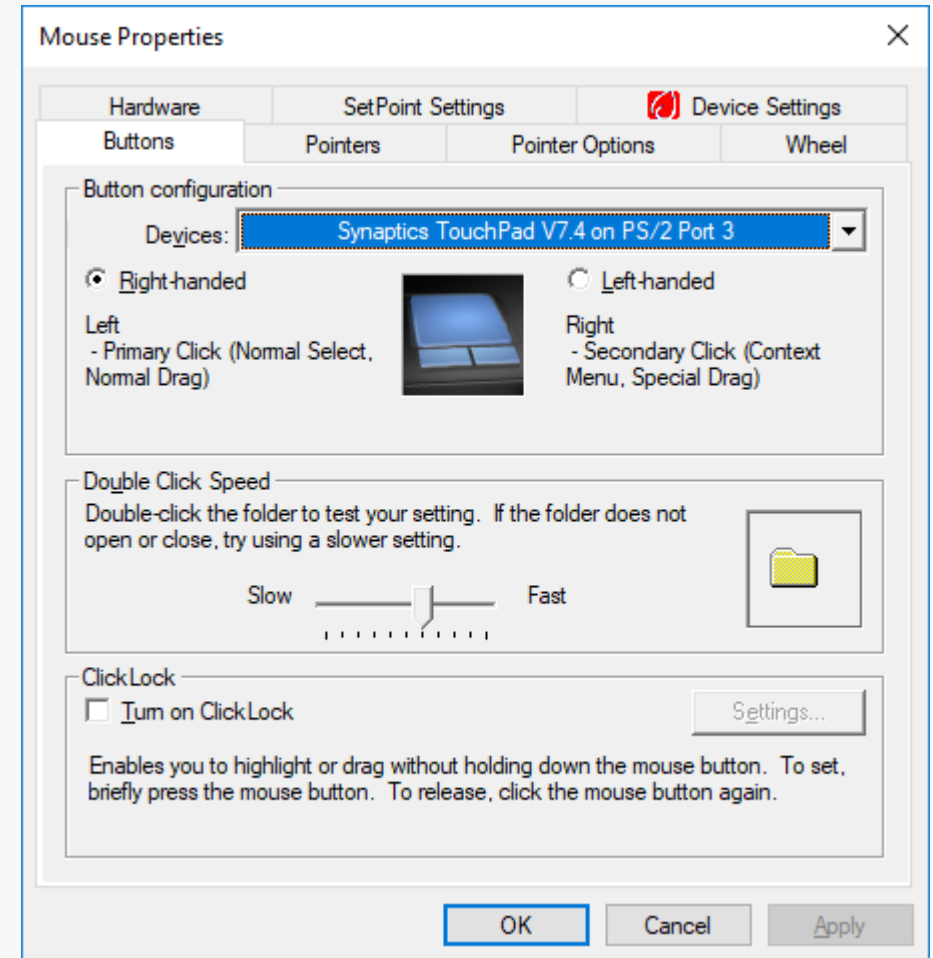
Input Devices (2)



- Laptop keyboards and touchpads
 - Fn switch for laptop keys
 - Touchpad gesture support
- Stylus pen

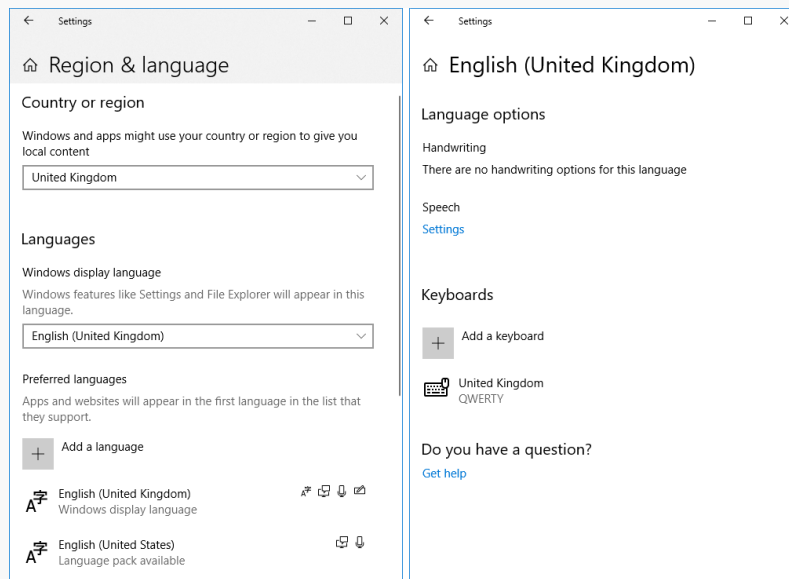
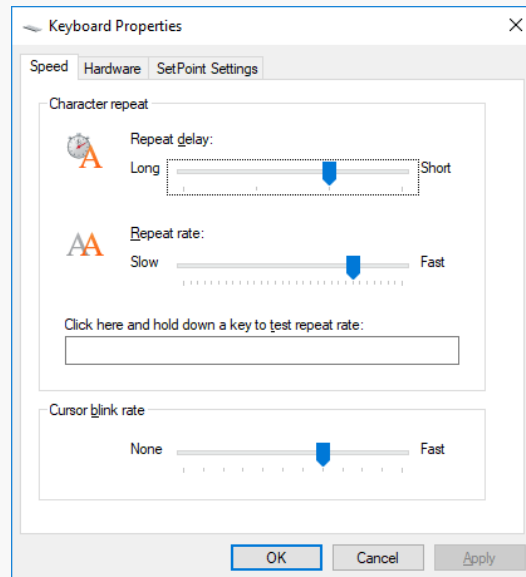
Configuring a Mouse - Demo

- Connect to an appropriate port
 - PS/2
 - USB
 - Wireless
- Install vendor driver for custom settings
- Configure using Mouse applet



Configuring a Keyboard - Demo

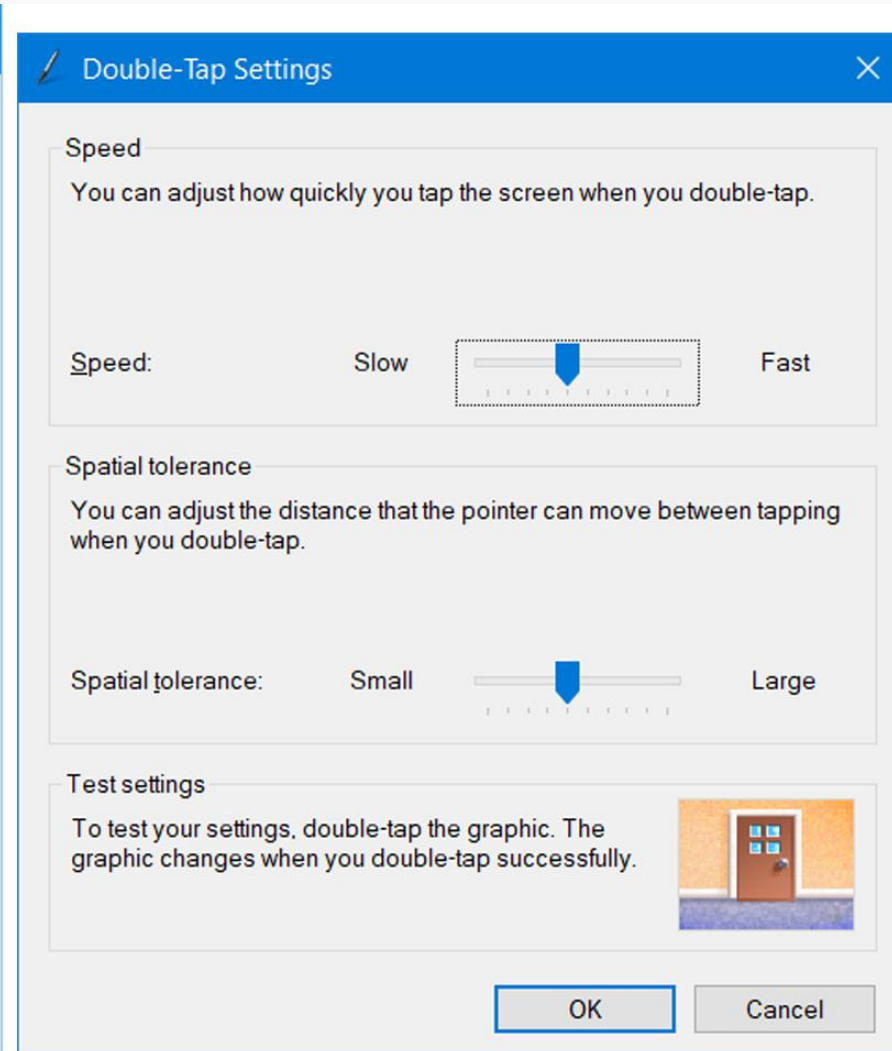
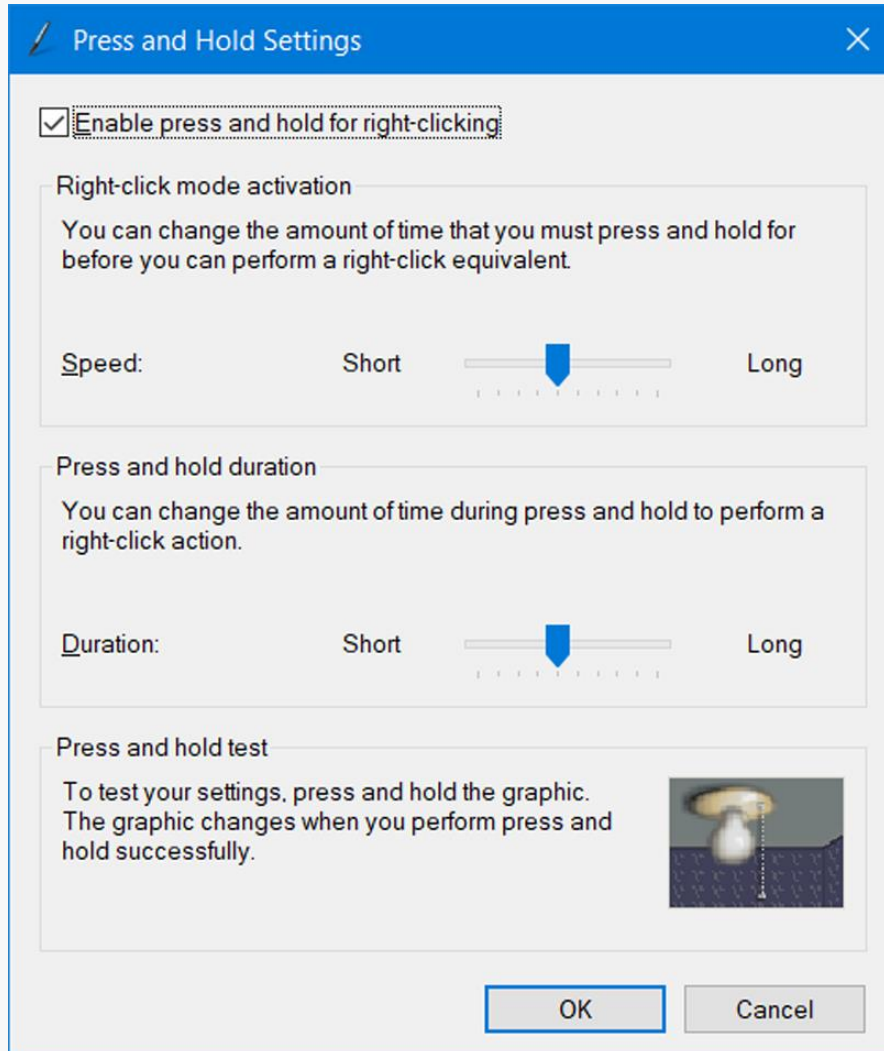
- Connect to an appropriate port
- Configure using Mouse applet
- Set correct region/layout using Settings
- Switch between multiple layouts using Notification icon (START+SPACEBAR)



A friend is asking for your help in using her computer. When he presses the key marked @, a different symbol appears. What could be the cause?

The keyboard is set to use a UK layout—you can correct this using the Language Bar.

Configuring a Pen/Stylus



You need to configure settings for an input device.
What should be your first step?

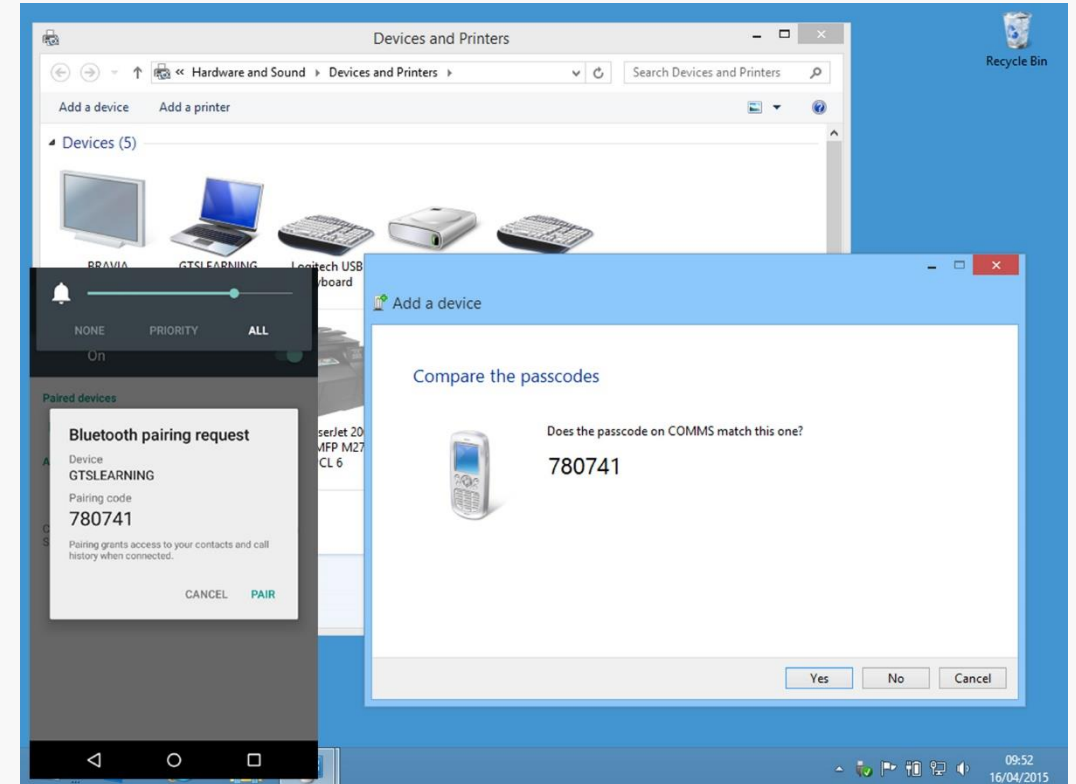
Open the Settings app or Control Panel.

Bluetooth

- Personal Area Networks (PAN)
 - Wireless communications enable short-range connections to peripheral and networks
- Bluetooth
 - Up to 10m
 - 3 Mbps (Bluetooth EDR)
 - 24 Mbps (using HS and Wi-Fi)

Configuring Bluetooth - Demo

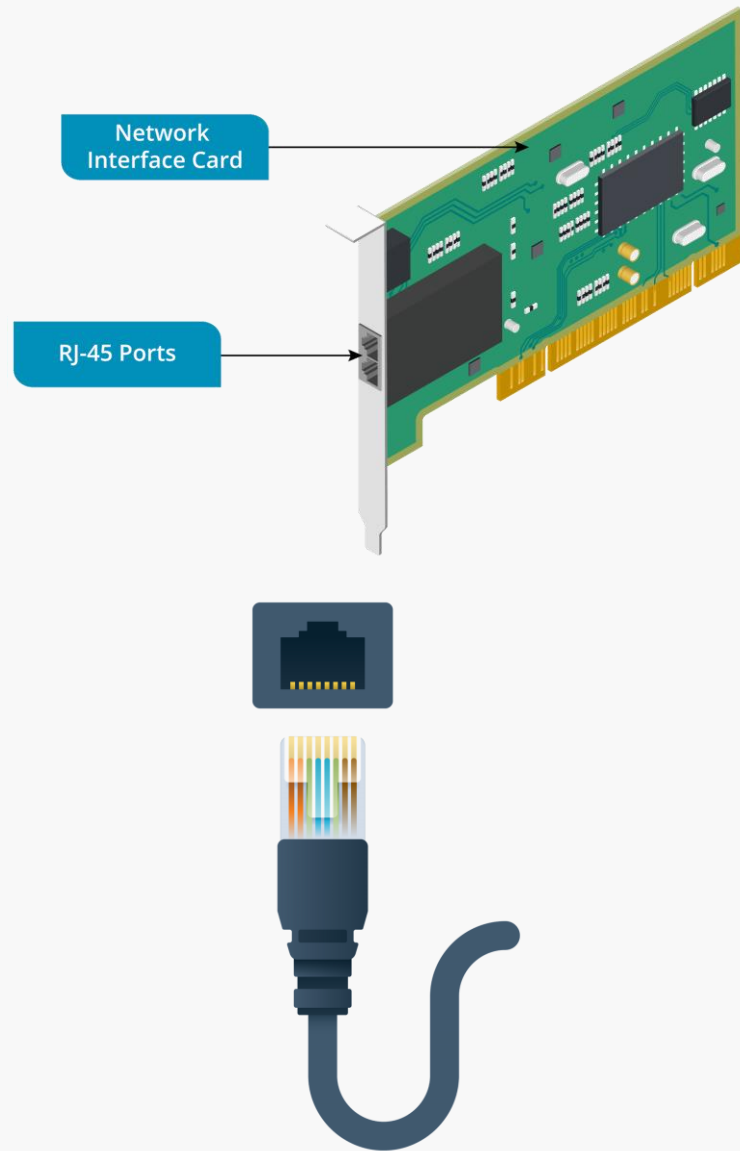
- Put device into discoverable mode
- Pair using passkey on both devices
- Disabling Bluetooth



RF and Near Field Communications (NFC)

- Radio Frequency ID (RFID)
 - Passive tags (typically) encoded with data
 - Respond when scanned by an RFID reader
 - Widely used for inventory management
- Near Field Communications (NFC)
 - Peer-to-peer version of RFID working at very close range (2"/6cm)
 - Used on smartphones for contactless payment

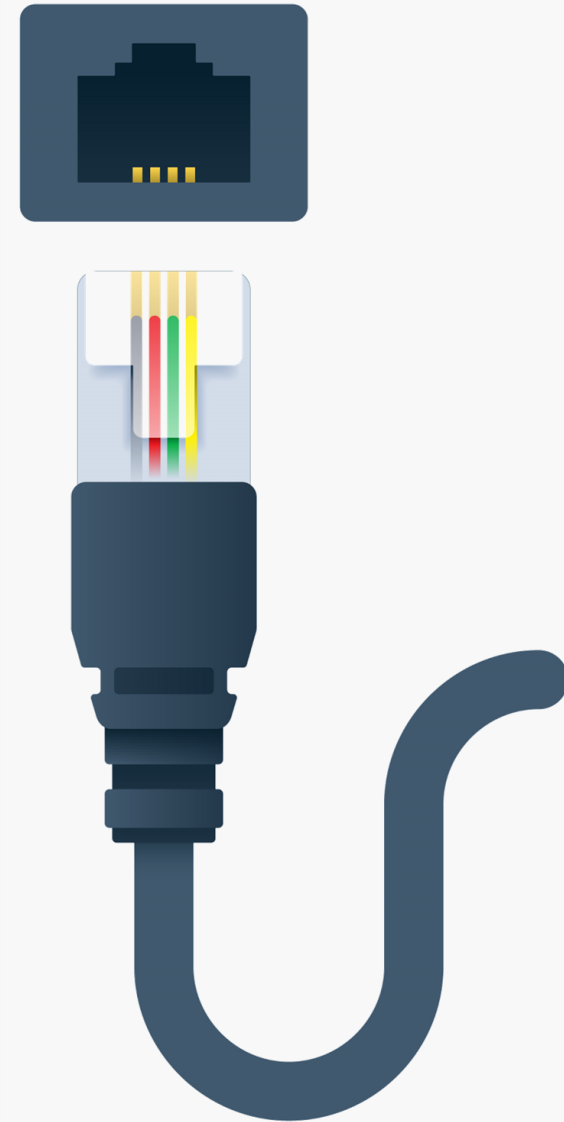
Networking Interfaces - Demo



- Network Interface Card (NIC)
 - Onboard (part of motherboard)
 - Expansion cards
- Ethernet connector (RJ-45)
 - Patch cord with RJ-45 connectors between NIC and Ethernet switch (or wall port)

Telephone Connector (RJ-11)

- Smaller than RJ-45 and with fewer wires
- Used for dial-up analog modems and fax modems
- Also used between Digital Subscriber Line (DSL) Internet modems and telephone jack



Review



- Distinguish peripheral, graphics, and networking interfaces and their uses
- Install and configure input devices