

How to Save any screen, to review the screen image now or later

<i>Device Type</i>	<i>Keyboard keys OR button combo</i>	<i>Screen image file is stored in folder</i>
Windows	Win+PRTSCR	Pictures/Screenshots
Macintosh	Shift+Command+3	Desktop
Android	Power+Volume Up	Internal storage/ DCIM/Screenshots
iOS	Home+Volume Down or Power+Volume Down	Photos

Add Computer Speakers to a KVM switch

A Learn in 30 presentation by
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for PATACS+OPCUG
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AGENDA

- What is a peripheral? What is a KVM switch?
- Features of modern KVM switches
- The peripherals side versus the computers side
- KVM switch cables for computers
- The extra USB port on the peripherals side
- The inexpensive audio accessory for the peripherals side

What is a peripheral?

- The word **peripheral** means any device outside your computer which works with your computer.
- Desktop computer: Keyboard, Monitor, Mouse, Computer speakers, Webcam
- Any computer: Printer, USB storage devices, Network Attached Storage, Cloud Storage
- Even your smartphone or tablet, when connected to your computer

What is a KVM switch?

- K = Keyboard
- V = Video monitor
- M = mouse
- A **KVM switch** enables you to switch those three peripherals among multiple computers on one desk or table
- KVM switches have existed for a very long time, all the way back to when the V was VGA, and a Mouse connected to the serial port.

Why use a KVM switch?

- When you have many computers at your desk or table. I have a Windows 11 tower and two Raspberry Pi Linux computers.
- When you want to use your desktop monitor, keyboard, and mouse with a laptop computer.

Features of a KVM switch

Each KVM switch includes:

- (1) a **computers side** with sockets for cables connecting the switch to multiple computers
- (2) a **peripherals side** with sockets for cables connecting the switch to a Keyboard, Mouse and video monitor
- (3) **selection buttons** for selecting a computer to connect to the peripherals.

The KVM switch I bought

Wired remote control
with selection buttons

Computer side HDMI
sockets on the back
(not shown)



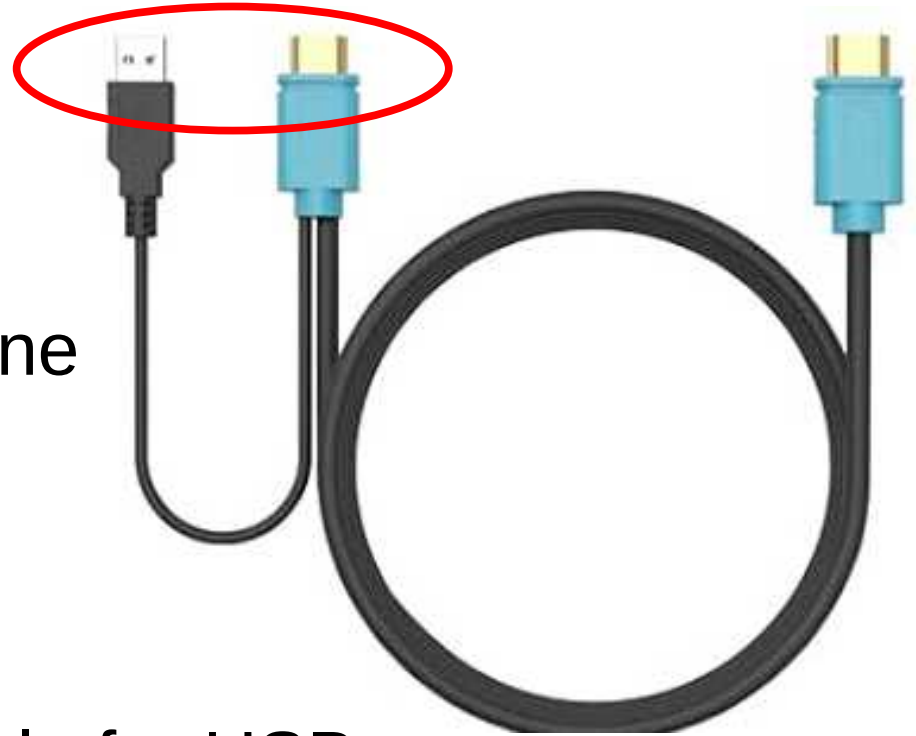
Peripheral side sockets
on the front, left to right:
one HDMI socket for
an HDMI monitor
One microUSB socket for
the wired remote control
Three USB-A sockets

Two Questions

- Why are there no switch sockets for connecting a **computer USB port** to the KVM switch?
- On the Peripherals side, normally a keyboard and mouse would use two USB-A sockets.
- Why are ***three* USB sockets** provided on the KVM switch Peripherals side?

Cable connects to HDMI and USB on the computer

- The KVM switch includes four computer cables.
- Each cable had two plugs on the computer end: one USB-A and one HDMI (circled).
- Each cable has an HDMI plug on the KVM switch end.
- Use of data pins in the HDMI cable for USB communication helps reduce KVM switch size and cost



Use USB2 or USB3 on the computer side?

- Each computer USB2 port supplies 0.5 amps of current.
- That is more than enough current to operate a keyboard and a mouse, and some other USB devices.
- I connected computer USB2 ports to my KVM switch. All three of my computers also have USB3 ports.
- There are other USB devices that you can choose to connect.
- Each computer USB3 port provides 0.9 amps.

What other peripheral might you want to connect?

- A printer
- USB storage
- Computer speakers
- Your context will help you make that decision

My context

- My printer is connected to my home network. It is shared via the network.
- I have Network Attached Storage (NAS) that is accessible by my computers and my portables too.
- After a week or so of KVM experience, I decided to connect my **computer speakers** to that third KVM peripheral USB socket.
- On a whim, I tried connecting **storage**, a USB Solid-State Drive (SSD) and a USB Hard drive, to that third peripheral USB socket on the KVM switch.

Results of the storage tests

- The USB SSD was used successfully by my Windows 11 tower and my two Raspberry Pi Linux computers. Its label says it can draw 1.5 amps of power. Clearly it did not.
- The USB hard drive, which uses much more power than the USB SSD, was used only by the Windows 11 tower.
- External USB storage works fastest when connected to a USB3 port. And USB3 will power that USB hard drive.
- The two Raspberry Pi Linux computers did not provide enough USB power through the KVM switch to operate the USB hard drive. They might have, if I connected the KVM cables to their USB3 ports instead of USB2 ports.

The KVM switch I bought does not include its own power supply

- The KVM switch itself is powered by USB power from the selected computer.
- It lights one LED by the selected switch, a modest use.
- The computer cables were connected to USB2 sockets on each of the computers. Each computer provided power to peripherals while connected through the KVM switch.
- Possibly the USB hard drive would work for the two Raspberry Pi computers if I connected the KVM switch cable to USB3 sockets on each of those computers.

Speakers and The KVM Switch

USB audio adapters

- Why do these adapters exist?
- Among the first hardware to fail on many laptops is the 3.5mm audio port, or the motherboard audio hardware connected to that port.
- The market provides adapters that connect to a USB-A port or USB-C port, are powered by that port, and provide 3.5mm audio ports for sound output and sound input.



USB audio adapters

- The adapter parts count is low so manufacturing cost is low.
- Many companies sell these, so the competition keeps prices low.
- Computer operating systems include the driver for the audio adapter.
- The red 3.5mm socket (on the left) is for mono microphone level input.
- The green 3.5mm socket (on the right) is for stereo line level output.



Hearing is Believing

- I connected the UGREEN audio adapter to my KVM switch third USB peripherals socket.
- I connected my computer speakers to the green 3.5mm audio output socket on the adapter.
- I played music on all three computers.
- I used the KVM switch to select each computer.
- When each computer was selected, I could hear the audio from that computer on my computer speakers.
- So now I have a **KVMS** switch!

Add more than three peripherals?

- Obtain a **USB hub**. The hub connects to one USB socket on the KVM switch, and provides four or more USB sockets.
- At the USB hub to that third USB peripherals socket on the KVM switch.
- Note: some hubs are powered, some are not. If any of your USB peripherals require a lot of USB power, like a USB hard drive, then buy a powered USB hub.



Price Checks

- In February 2025, the TCNEWCL brand KVM switch for four computers was priced at **\$32 on Amazon**.
- Some competing KVM switches provide the same computer cables.
- In February 2025, the UGREEN brand audio adapter was priced at **\$14 on Amazon**.
- In February 2025, the Wenter brand USB hub was priced at **\$19 on Amazon**.

Preview of Coming Attractions

- During the Saturday March 15 meeting of PATACS+ OPCUG, I will present another new topic:
CUSTOM TEXT TONES FOR YOUR SMART PHONE.
- Use custom text tones so you can know who sent the text before you even extract your phone from your pocket or purse.
- Android phone and iPhone techniques will be included.
- Learn how to create, install, and assign custom text tones.
- Assign a default global text tone of Silent.

THE END