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

Device Type	*Keyboard keys OR button combo*	*Screen image file is stored in folder*
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

Test-Driving Linux

A presentation by
JOHN KROUT
for PATACS+OPCUG
September 20, 2025

Agenda

- Why Linux Mint with the Cinnamon desktop is worth testing on your Windows 10 computer.
- Why the end of Microsoft support for Windows 10 In October 2025 forces you to make decisions about your Windows 10 computers.
- The steps to make a test-drive happen.
- Install Linux Mint on a USB drive such as a flash drive, a hard drive, or a solid-state drive (SSD).
- Make your computer ready to start Linux on a USB drive

Why Linux is worth testing

- If your Windows OS fails to start, and important personal files remain on Drive C in My Documents, then **Linux can recover those files.**
- This assumes the drive C File Allocation Table (FAT) is readable.
- The Linux **Files app** displays the drive C volume name in its list of accessible drives
- Use the Files app to copy important files from drive C to any external drive connected to the computer.
- Use a Linux web browser to copy files to Google Drive.

Why Linux is worth testing

- Linux Mint, a major Linux brand, with the Cinnamon desktop offers a very Windows-like experience including:
- A Main Menu accessible by a tap of the Windows key or a click on the LM logo icon.
- Popular apps, such as LibreOffice productivity apps, Firefox Web browser, Thunderbird email client.
- An app store where popular free apps can be found, for instance other web browsers, VLC media player, Audacity sound editor.
- Zoom works on major Linux brands including Linux Mint.

Why Linux is worth testing

- Keystroke combos that work in Windows also work in Linux Mint with the Cinnamon desktop:
- CTRL+S for Save
- CTRL+C for Copy
- CTRL+X for Cut
- CTRL+V for Paste
- Cut, Copy and Paste are also available via right-click Linux Mint Context menus, just like in Windows.

Windows 10 support ends in October 2025

- If you use Windows Defender for antivirus, Microsoft has publicly announced it will no longer provide virus definition updates to Defender on Windows 10 when support ends.
- Computer viruses will not stop evolving and attacking.
- Assuming your windows 10 computer cannot upgrade to Windows 11, what are your options?

Microsoft end Windows 10 support in October 2025

- You could subscribe to another antivirus product ($$$).
- You could pay Microsoft for another year of Windows 10 support ($$).
- You could buy a Windows 11 computer ($$$$).
- If eligible, you could install Windows 11.
- You could **test-drive Linux** by starting Linux from a USB drive on your Windows 10 computer.
- Decide later if you want to replace Windows with Linux.

Test-driving Linux: prep steps

- **Two Downloads:** (1) **Linux Mint ISO file** with the Cinnamon desktop – zero-cost, 2.8 GB; and (2) **the Rufus application** for Windows, also zero-cost.
- (3) **Use Rufus** to install Linux Mint on a USB external drive. Can be installed on a USB flash drive, USB hard drive or USB solid-state drive (SSD).
- (4) **Prepare your Windows 10 computer BIOS/UEFI** to enable startup from an external USB drive.
- Links for Linux Mint ISO file and RUFUS for Windows appear at the end of this presentation.

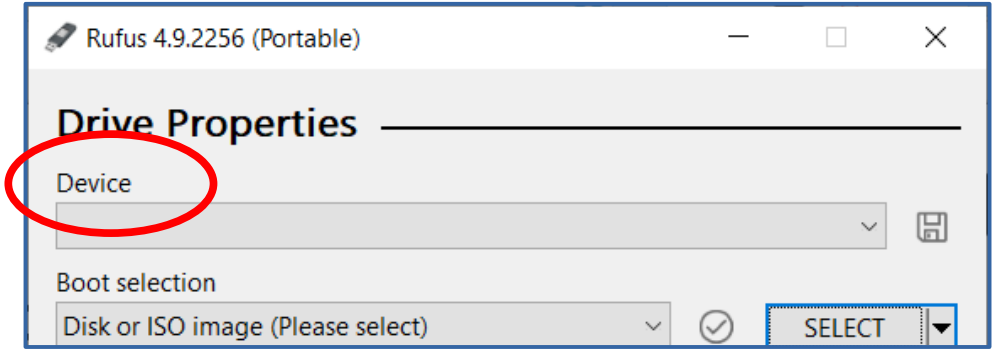
My Two Windows 10 computers

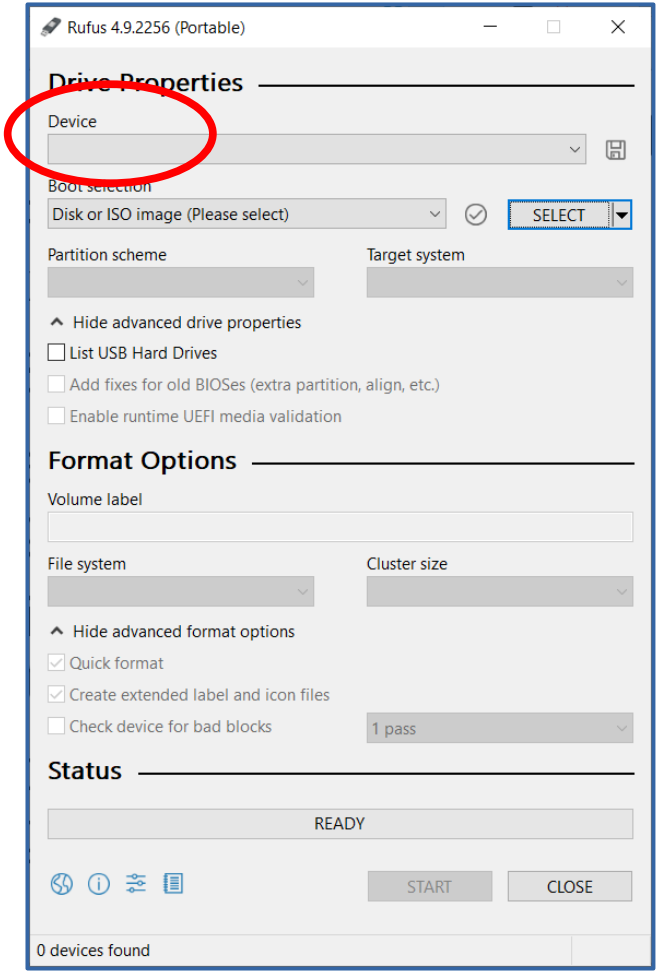
- A 10-year old **Toshiba laptop** with 12 GB of RAM and an Intel I7 64-bit CPU.
- The Toshiba laptop is not eligible to upgrade to Windows 11.
- A 4-year-old **HP laptop** with 32 GB of RAM and an AMD Ryzen 64-bit CPU. Originally it had 8 GB of RAM.
- The HP laptop is eligible to upgrade to Windows 11.
- Both run Linux Mint and the Cinnamon desktop from a 32 GB Samsung flash drive that I had on hand, and a 128 GB Microcenter flash drive that cost $9 plus tax.

INSTALL LINUX MINT WITH CINNAMON USING RUFUS

Rufus Step 1

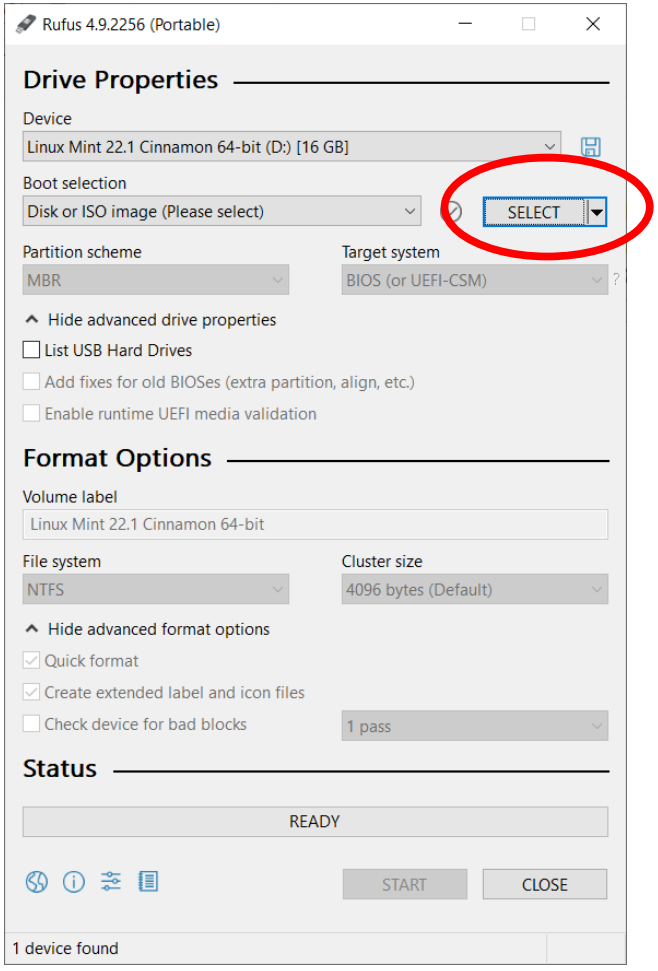
- Attach your external USB drive and start the Rufus application.
- Be aware that Rufus will completely erase and re-format that drive.
- When Rufus starts, the attached USB external drive is identified at the top, under the heading **Device** (circled).





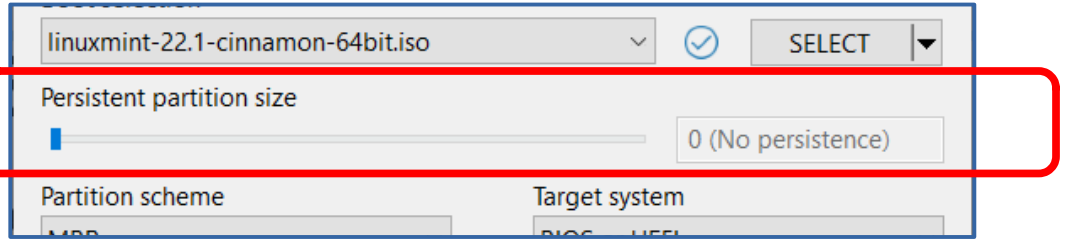
Rufus Step 2

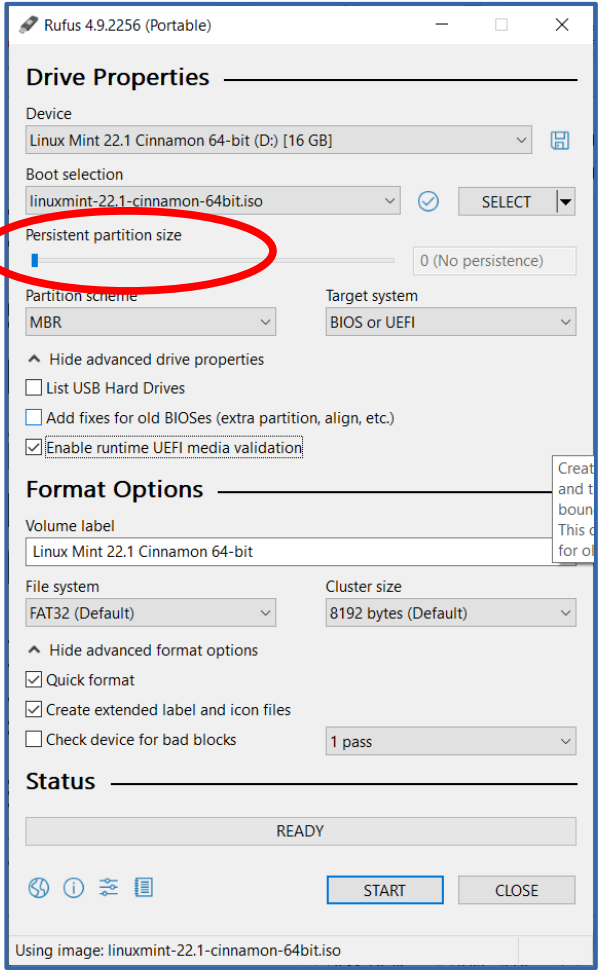
- Click the **Select button** (circled).
- Rufus opens a standard Open File dialog box.
- Use the dialog box to navigate to and select the downloaded **Linux Mint ISO file.**
- Click the dialog box Open button. The dialog box closes.
- The file name appears to the left of the Select button.



Rufus Step 3

- Rufus displays a new **Persistence Partition Size** field (circled).
- Click & drag the blue bar at the left to the right.
- The Partition Size you set appears in the field to the right.
- I suggest a Partition size of no less than 50% of the external USB drive capacity.



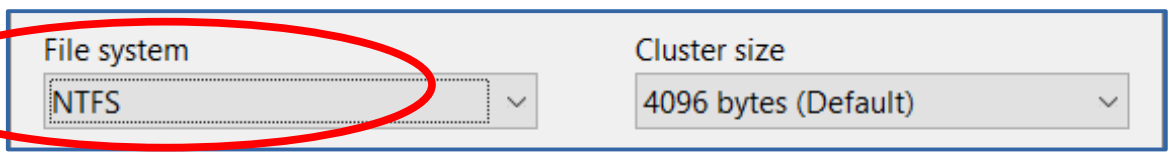


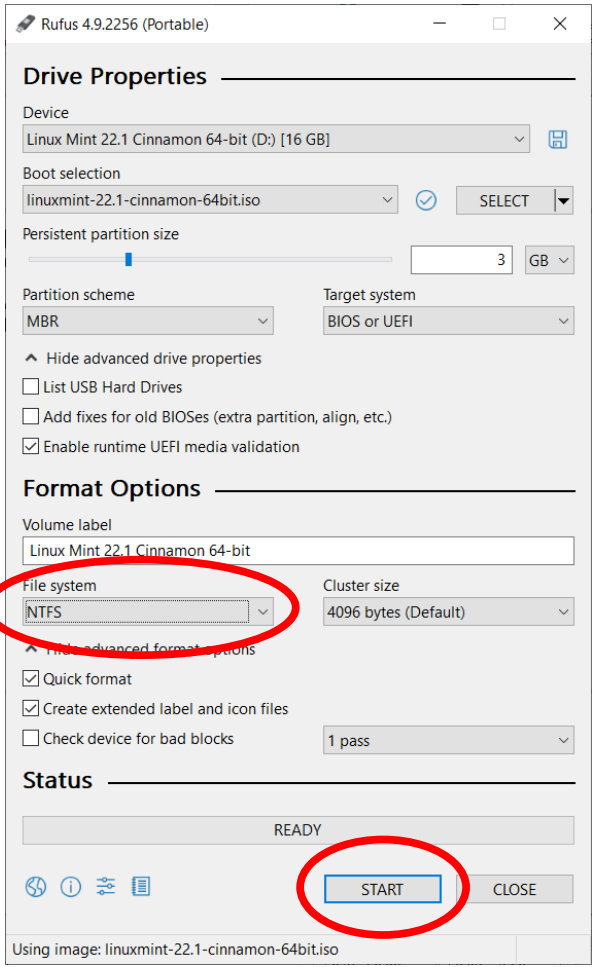
What is a persistence partition?

- Initially I ignored the field so the size was set to zero.
- When I first started up Linux Mint, everything worked fine. I installed a couple of apps using the apps store, and set the time zone to US Eastern.
- After I shut down Linux Mint, and later restarted it, all those changes were forgotten.
- I confirmed by experiment that the **persistence partition** enables changes like those to be remembered on the external USB drive.
- Learn from my mistake!

Rufus Steps 4 and 5

- **Step 4.** In the Rufus **Format Options**, click the **File System** field's drop-down menu arrow on the right.
- In the drop-down menu, select NTFS. The drop-down menu closes. NTFS appears in the File System field.
- The **Start button** (circled) in the lower right corner is activated.
- **Step 5.** Click the **Start Button**.





PREPARE BIOS/UEFI TO START AN OPERATING SYSTEM ON AN EXTERNAL DRIVE

Prepare your Windows 10 computer to start Linux

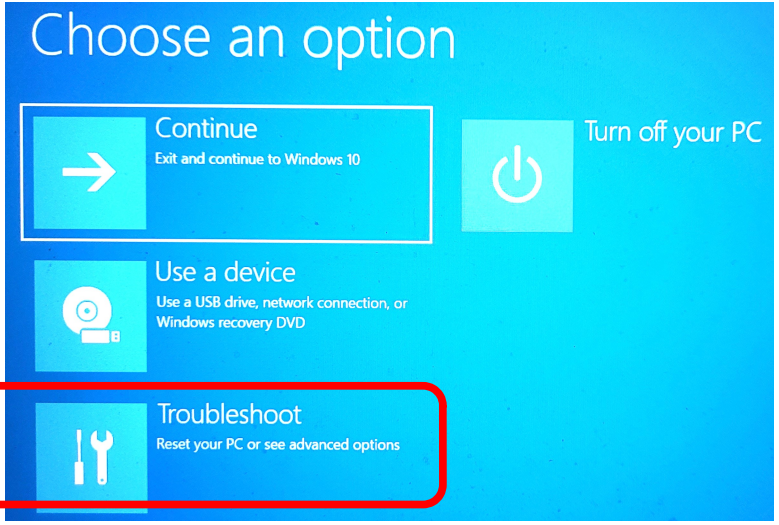
- There are two fundamental steps.
- **Step 1.** Access the user interface for your BIOS (Basic Input Output System), now sometimes now called UEFI (Uniform Extensible Firmware Interface).
- **Step 2.** Use the BIOS interface to set the **BOOT order** including an external USB drive at the top of the order.
- BOOT means starting up an operating system.

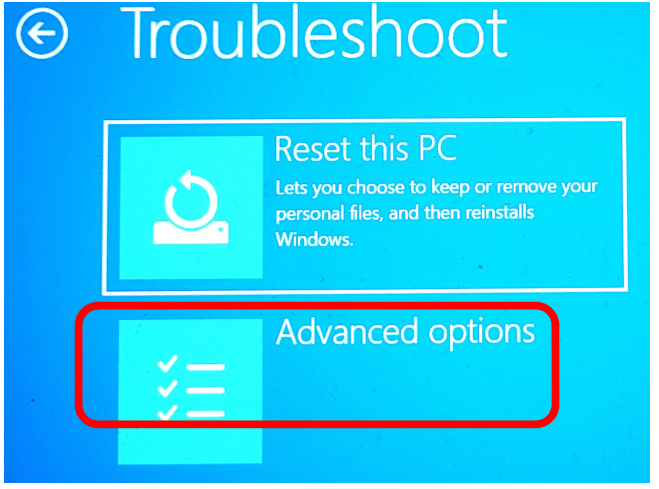
Windows 10 Settings Access to BIOS/UEFI

- Shut down all applications
- Open **Settings**
- Click **Update & Security**
- In the Update & Security left pane, click **Recovery**
- In the Recovery right pane, under **Advanced Startup,** click **Restart now**

Prep Step 1: Access BIOS UI

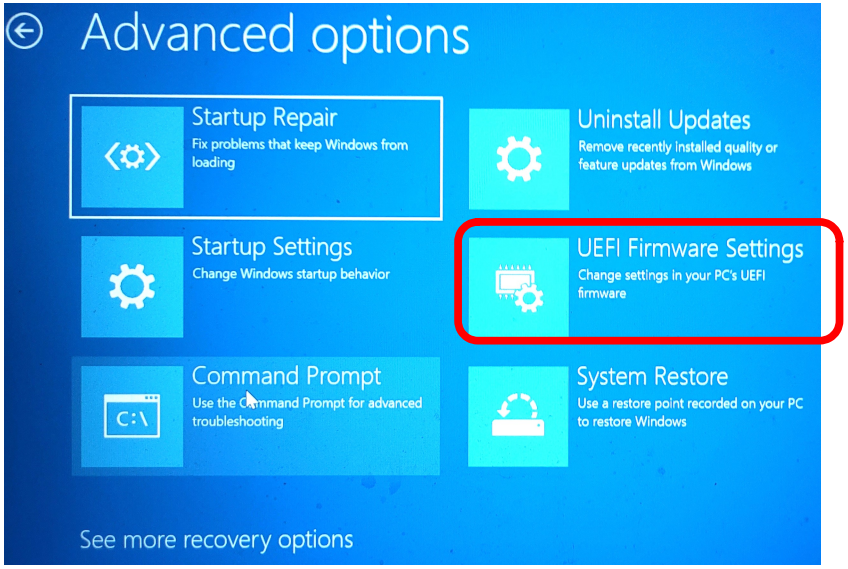
- The **Choose an Option** menu appears. You mouse is not active.
- Tap the down-arrow key to move the selection rectangle to **Troubleshoot** (circled) and tap the **Enter key**.
- A **Troubleshoot menu** appears.
- Tap the down-arrow key to move the selection rectangle to **Advanced Options** (circled) and tap the **Enter key**.





Prep Step 1: Access BIOS UI

- The **Advanced Options** menu appears.
- Tap the right-arrow and down--arrow keys to move the selection rectangle to **UEFI firmware setup** (circled) and tap the Enter key.

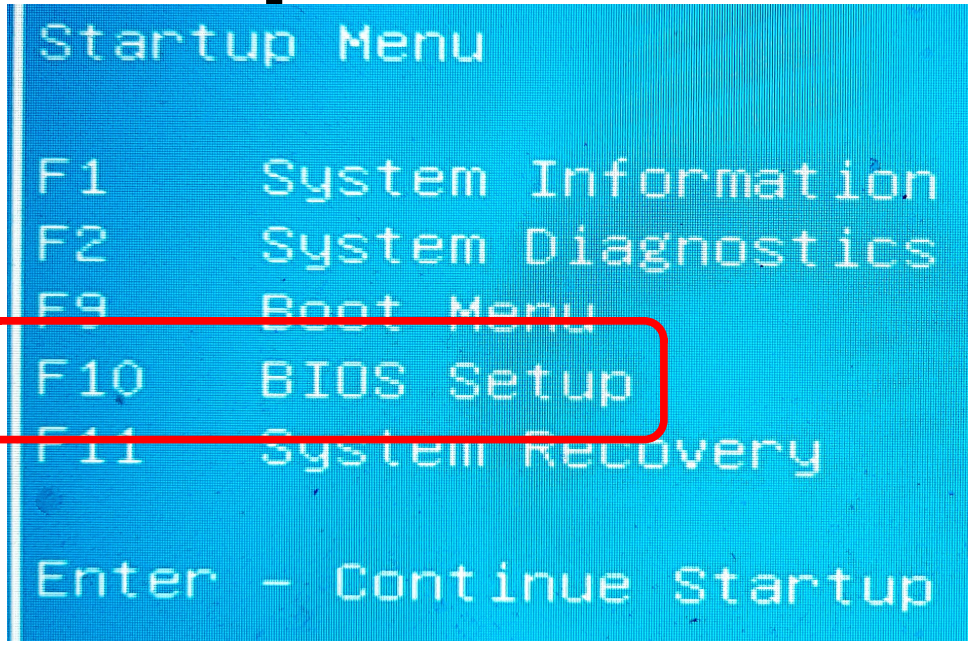


- That is the end of the standardized Access step. You may be prompted to restart the computer.
- The rest uses your BIOS user interface, which is ***not standardized***, as you will see.

HP UEFI EXAMPLE

HP UEFI Example

- After restart, my 2021 HP laptop displayed this **Startup Menu**.
- Tap the **F10 key** to access the **BIOS Setup** menu.



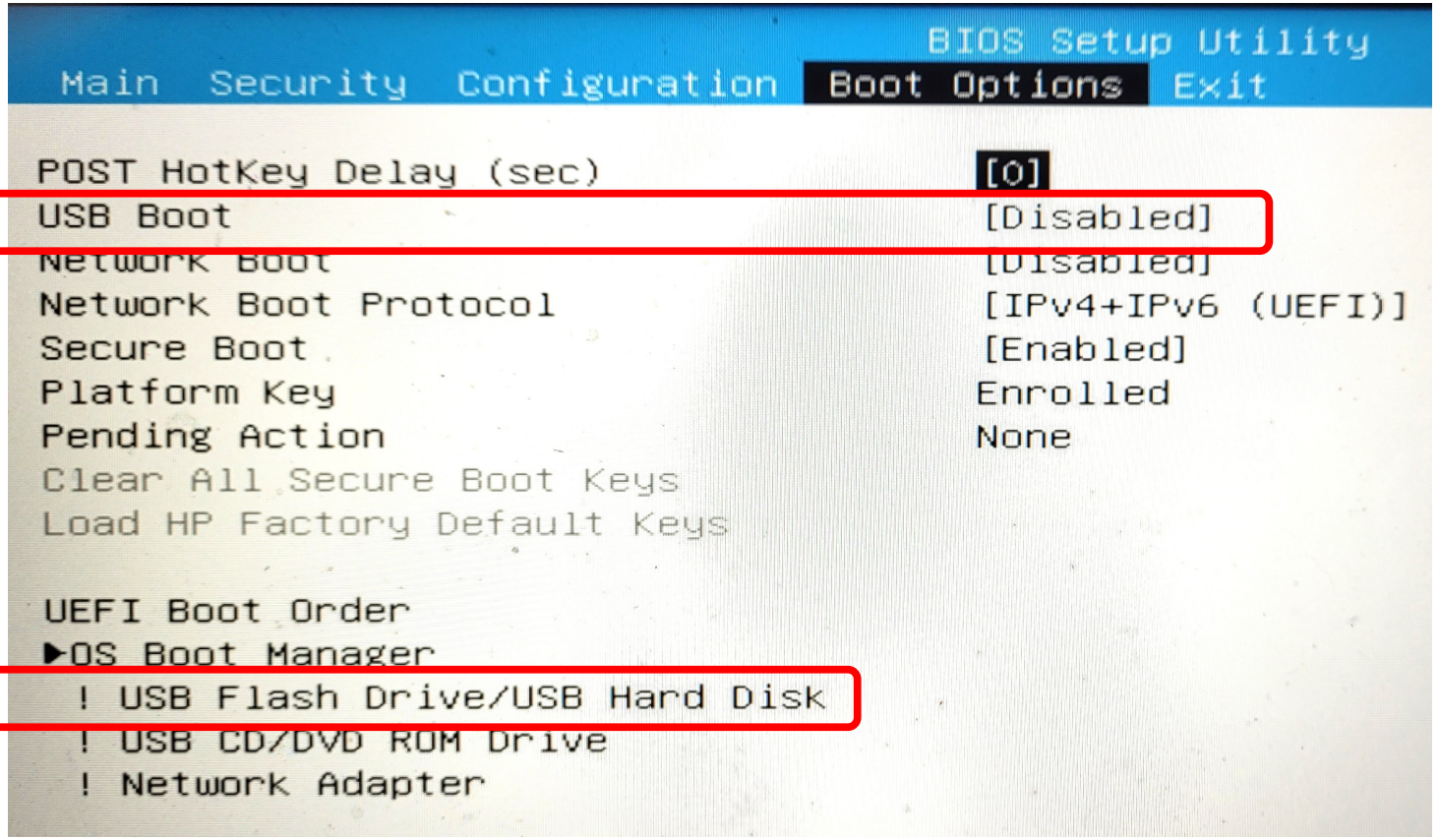
HP UEFI Example

- **HP example.** The menu bar appears at the top.

- The default menu bar choice is **Main** on the left.
- Tap the right-arrow key to move the black background to **Boot Options** (circled).
- Various choices appear in the pane below (see next slide).

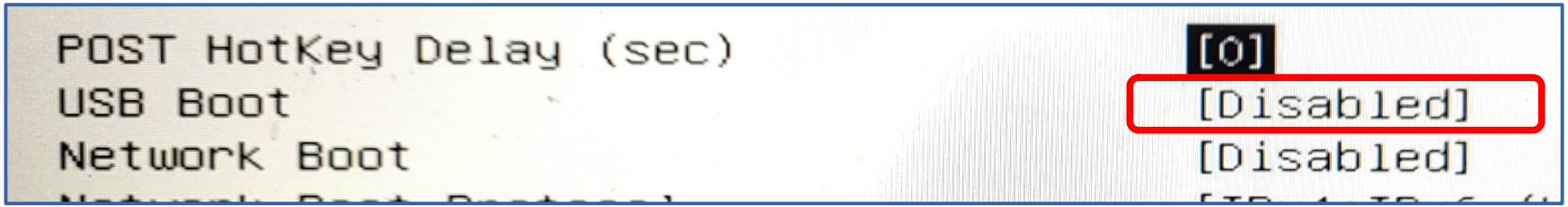
HP UEFI Example

- **HP example.** In the Boot Options pane, two fields require adjustment. Both are circled.

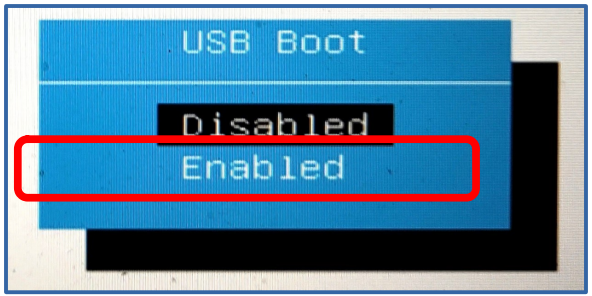


HP UEFI Example

- **HP example.** Tap the down-arrow key to move to the **USB Boot** field, which contains **[Disabled]** (circled).



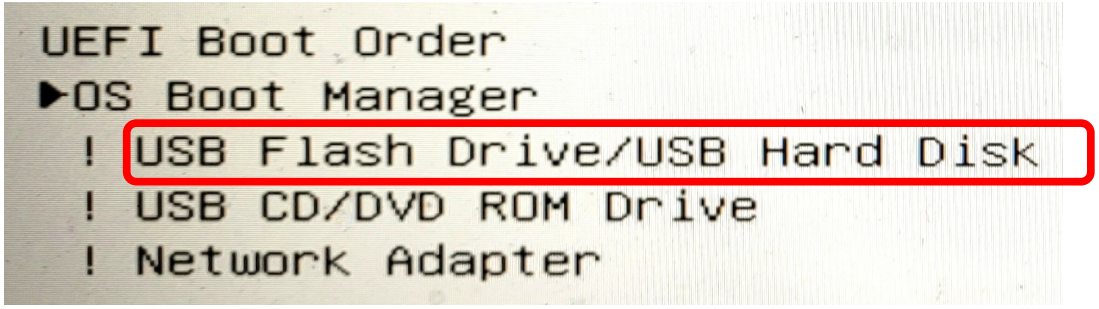
- When the word **[Disabled]** is highlighted, tap the **Enter key**. A menu appears.



- In the menu, tap the down-arrow key to highlight **Enabled** (circled), and tap the **Enter key**. The menu closes.
- The word **[Enabled]** appears in the USB Boot field.

HP UEFI Example

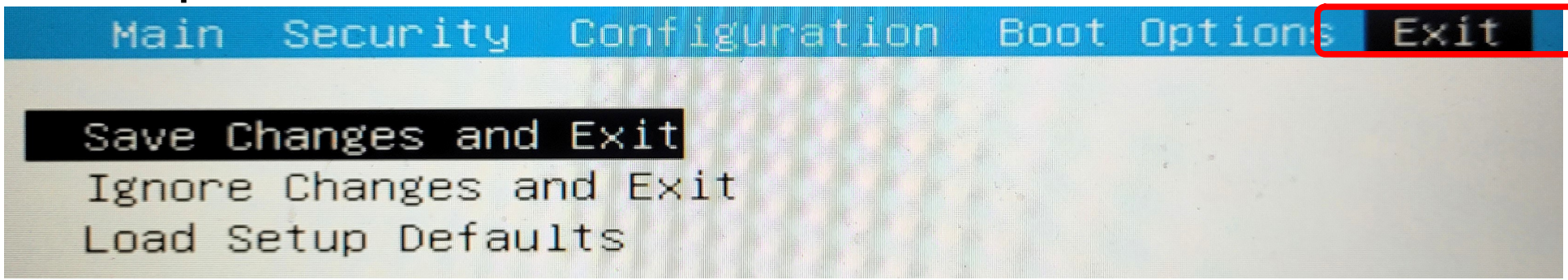
- **HP example.** Tap the down-arrow key to move to the first item ***below*** **UEFI Boot Order**
- By default, that top item is **OS Boot Manager**, which starts Windows on drive C.



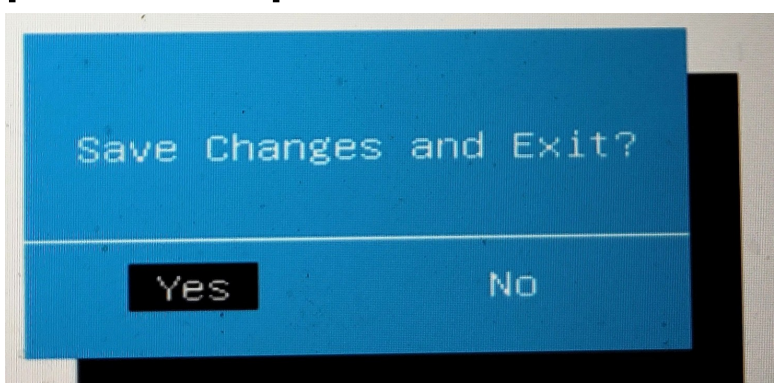
- Tap the down-arrow key to highlight **USB Flash Drive/USB Hard Drive** (circled). Tap the **F6 key** to move that option ***above*** OS Boot Manager.

HP UEFI Example

- **HP example.** Tap the right-arrow key to move from the Boot Options menu to the **Exit menu**.



- In the lower pane, three choices appear. Tap the **Enter key** to select the highlighted top choice, **Save Changes and Exit.**
- A menu appears. Tap the **Enter key** to select Yes.



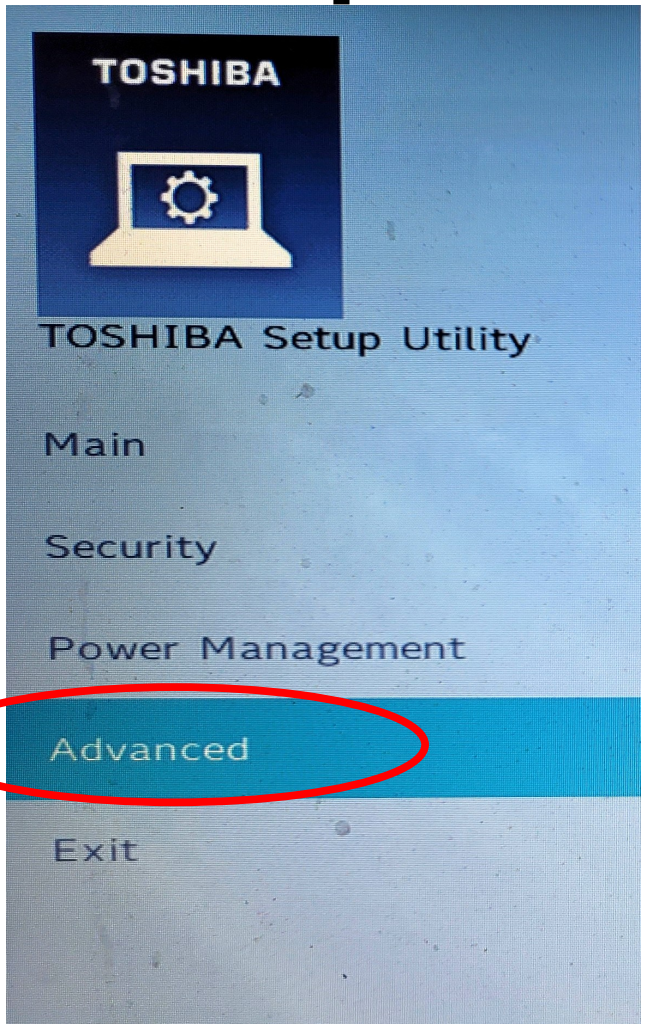
HP UEFI example

- **HP example.** The menu closes.
- The BIOS UI closes.
- The computer restarts. Windows eventually appears.

TOSHIBA BIOS EXAMPLE

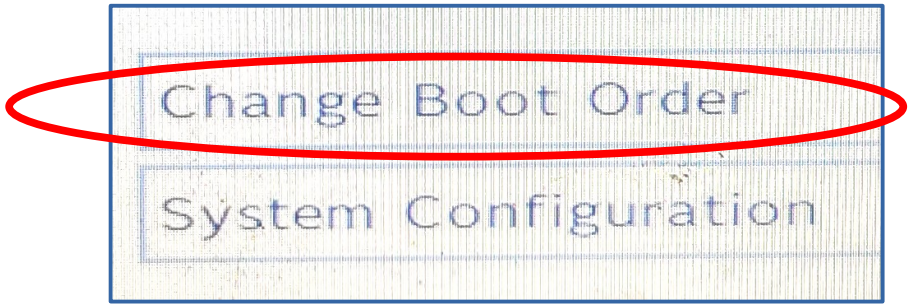
Toshiba BIOS Example

- **Toshiba example**. The **mouse is active** in the Toshiba BIOS UI.
- The menu headings are in the left pane, shown here, of the BIOS UI.
- In the left pane, click **Advanced** (circled).

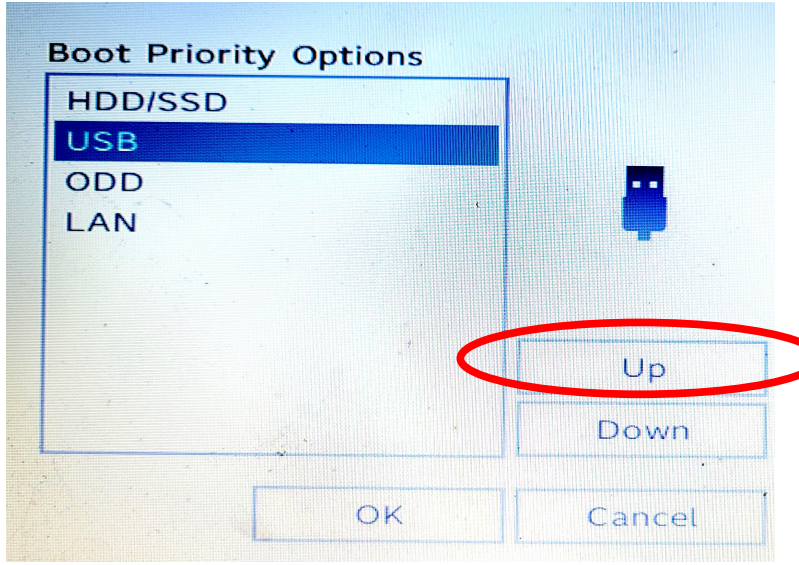


Prep Step 2. BIOS UI example

- **Toshiba example**. In the right pane, click **Change Button Order** (circled). A popup dialog box appears.

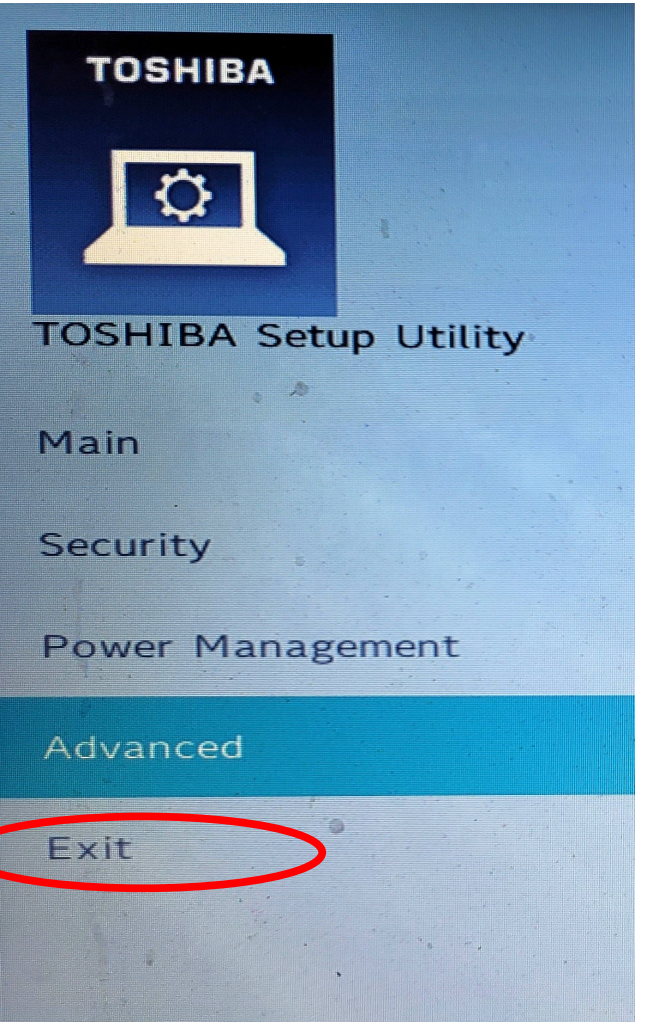


- The dialog box list the current bootable devices order with HDD/SDD at the top.
- Click **USB** (highlighted). Click the **Up button** (circled).
- USB now appears ***above*** HDD/SDD.
- Click the **OK button** at the bottom. The dialog box closes.



Prep Step 2. BIOS UI example

- **Toshiba example**. In the left pane, click **Exit** (circled).
- In the right pane, click **Exit Saving Changes** (not shown).
- A popup dialog box appears, with choices Yes and No for Exit saving changes.
- Click the **Yes choice**
- The popup disappears, and the BIOS UI disappears. Eventually, Windows restarts.



Why are these examples different?

- **Competition.** Many companies publish BIOS. All have the same BIOS computer interfaces so that the operating system can use the hard drive or SSD, USB devices, mouse or touchpad, printers, and so forth.
- Competition keeps the price of BIOS low.
- Competition introduces variances in the BIOS User Interfaces.
- The BIOS UI in my 2-year-old MSI PowerSpec Windows 11 computer looks like a pinball machine screen, all flashing lights and fancy fonts.

You have learned what to look for in the Windows 10 BIOS UI

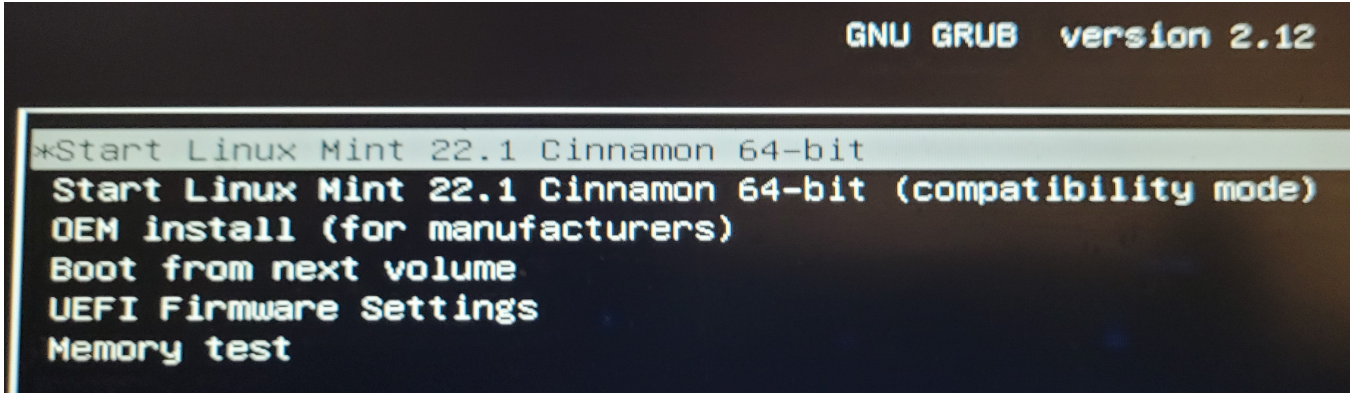
- The words **BOOT ORDER**.
- Figuring out how to change boot order might be a challenge for the Windows 10 computer user.
- There may be YouTube videos specific to your Windows 10 computer make and model to demonstrate exactly how to change the boot order.
- Your computer brand have posted on the Web instructions for modifying boot order.

How to start up a Linux test-drive

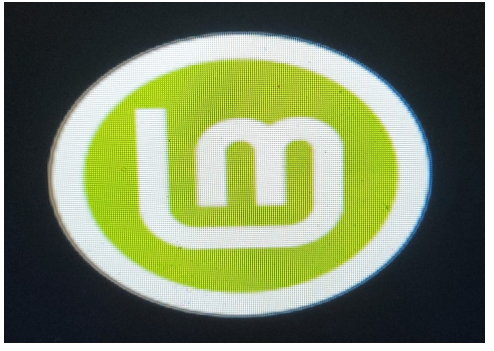
- Step 1. Shut down the computer.
- Step 2. Attach your external USB drive on which you installed Linux.
- Ideally, use a USB-3 compatible external drive, and a USB-3 port on the Windows 10 computer.
- I like the recent MicroCenter USB-3 flash drives because they contain an LED that blinks to confirm that the drive is being used.
- Step 3. After a few seconds of no power, start the computer.

How to start up a Linux test-drive

- Step 4. The GNU Grub loader menu appears.



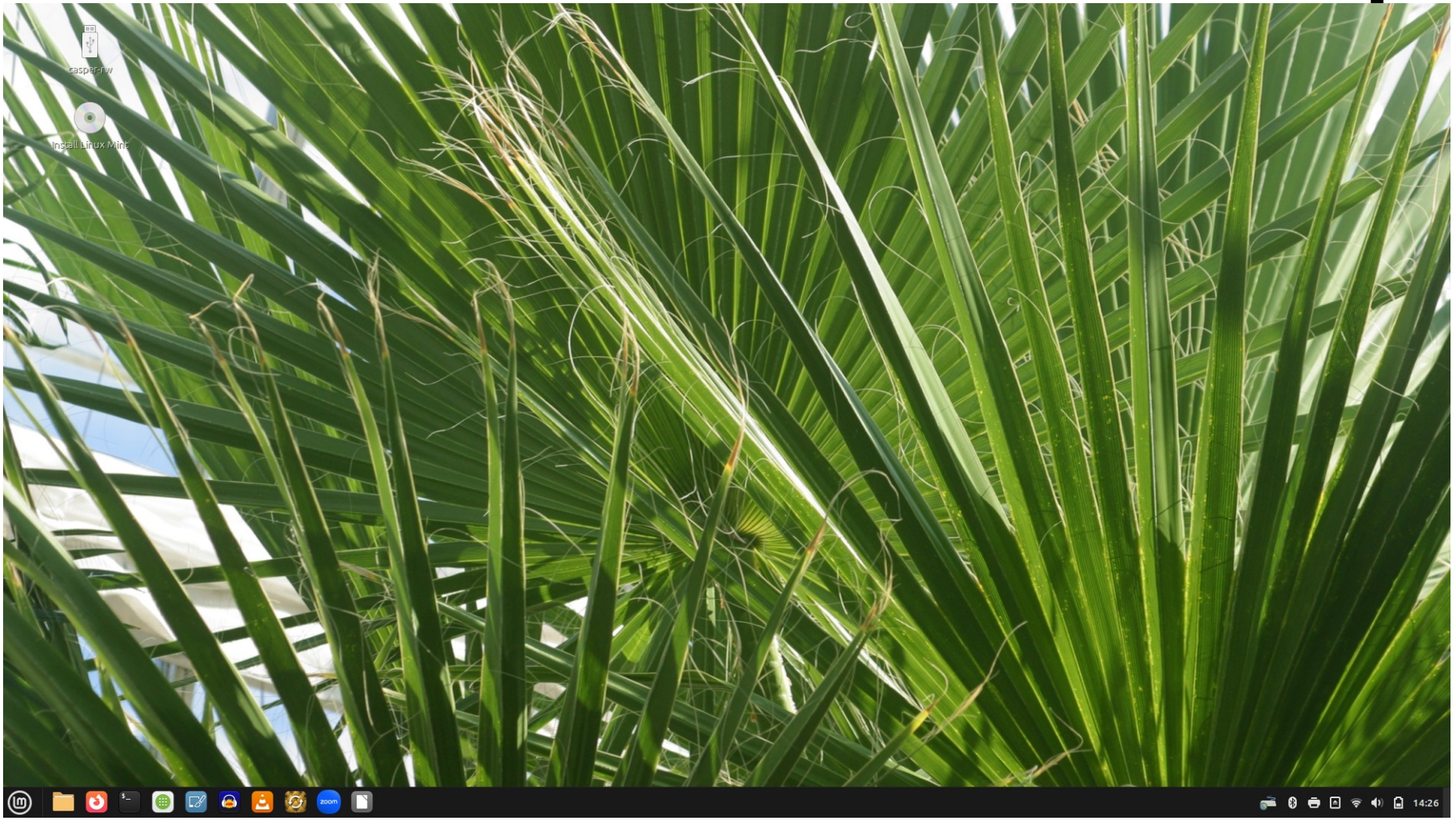
- In the menu, tap the Enter key to select the top choice, which is the USB Linux Mint choice.
- The menu closes. Soon the Linux Mint LM logo appears. It may appear twice.
- After a while, the Cinnamon desktop appears.



A look at the Cinnamon desktop

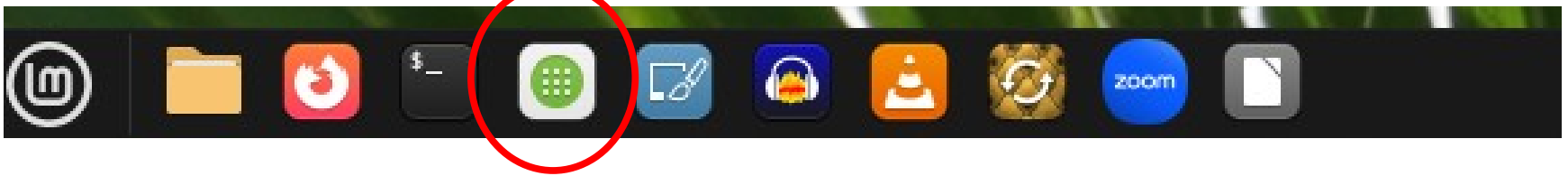
Linux Mint 22.1 with Cinnamon – default for new installation

A look at the Cinnamon desktop



Familiar features

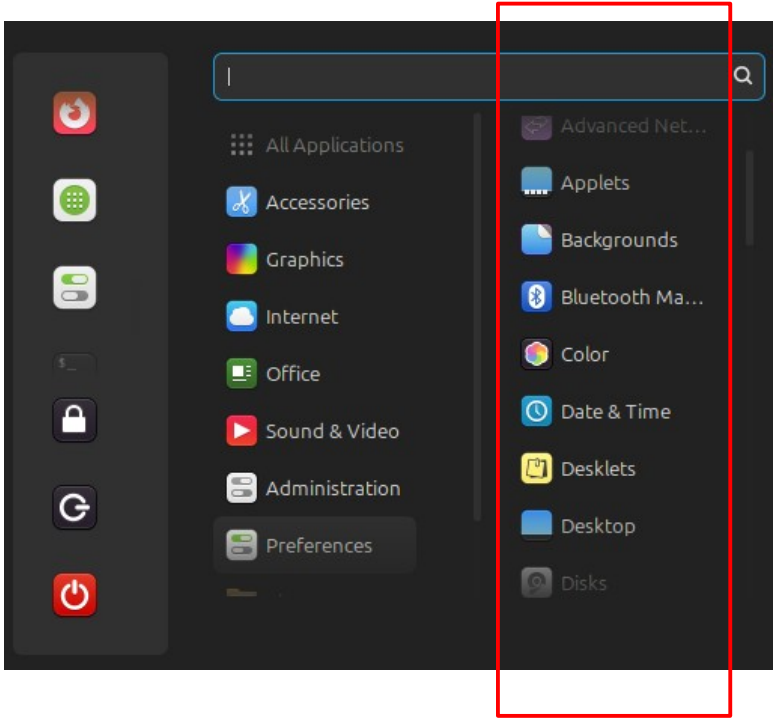
- **Task bar:** Shows pinned icons and icons of apps that are running: a blue line appears below the app icon.



- **Menu button:** LM logo at the left opens the main Linux Mint menu. A tap of the Windows key does that too.
- Some app icons may be familiar: **Firefox** web browser, **Audacity** sound editor, **VLC** media player, **Zoom**. The blank one at the right opens LibreOffice.
- The icon with nine dots is the Application Manager, an app store.

Familiar features

- **Main menu:** three vertical columns.
- In the left column: frequently used apps, including the red shutdown app at the bottom.
- In the middle column: **group names** for apps. For instance, the **Internet** group includes Firefox, Zoom and Thunderbird.
- Click a group name, and the apps in that group appear in the right column.

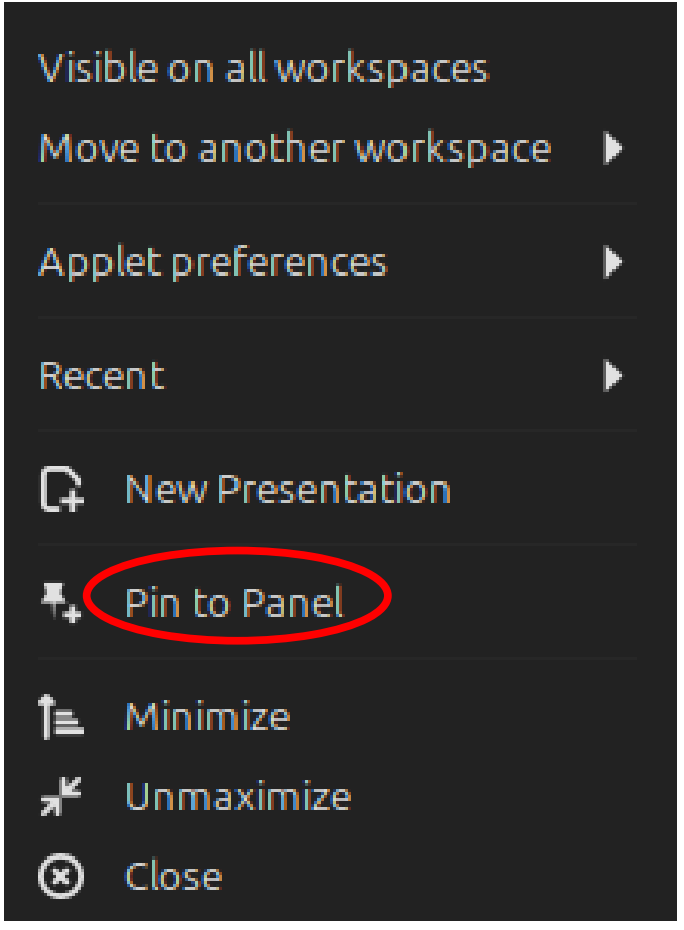


Familiar features

- App icons can be pinned to the desktop, like Windows application icons.
- I pinned the top icon by accident.
- The disk icon was pinned by default when Linux Mint was installed on my flash drive.
- CAUTION: clicking that disk icon installs Linux Mint on your Windows hard drive or SSD. Stay away from that disk icon until you are certain you want Linux installed.

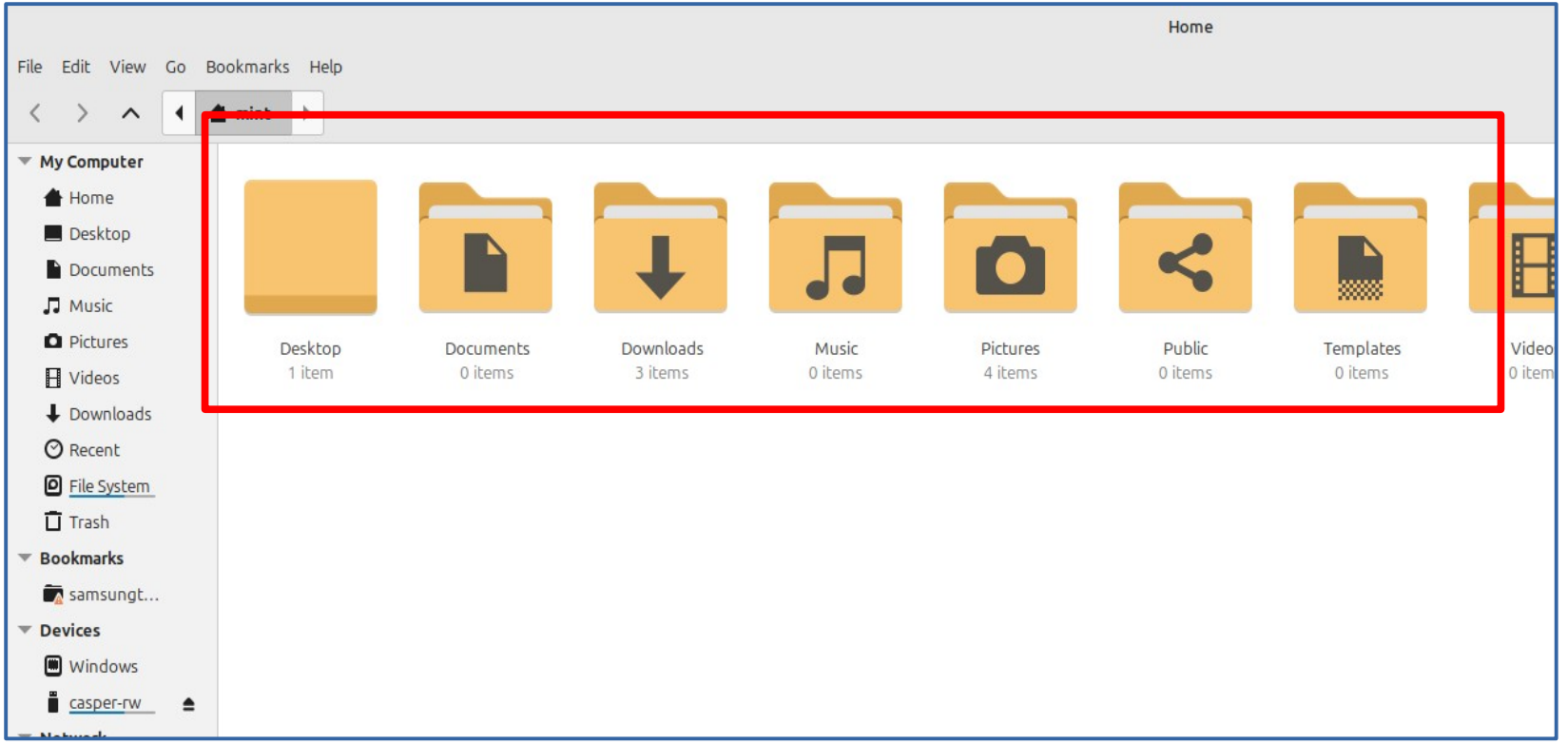
Pinning an app icon to the Task Bar

- Use the Main menu to launch an app
- The app icon appears in the Task Bar
- Right-click the app icon
- A context menu appears - something like this.
- In the menu, select **Pin to Panel** (circled). The menu closes.



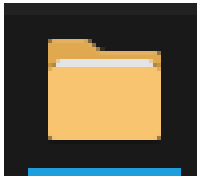
The Files App

- Left pane: major devices and folders - click one
- Right pane: items in the clicked left-column device or folder



The Files App

- This is the functional equivalent of Windows File Explorer.



- The Files app enables connection to a Network Attached Storage (NAS) drive.
- The Files app enables access to the hard drive or SSD on which Windows is installed, including your Documents, Photos and Videos folders.
- The Files app does allow file copy/copy/paste using right-click context menus on the desired files or folders.
- Any frequently-used folder can be Bookmarked into the left column.

Windows Key combos

- The Files app does recognize the Control X, C, and V key combos for files and folders that are selected.
- Many other Linux apps do enable familiar Windows key combos. While using LibreOffice to edit Writer documents and Presenter slide decks, those key combos work fine for text, images, and entire slides.
- While using the Firefox Web browser to access webmail, those key combos work fine.
- Copy a selected portion of an image in GNU Image Manipulation Program (GIMP) and paste that into a LibreOffice Writer doc or Impress slide.

What is less than perfect during a test drive?

- An external drive is slower than an internal drive. Virtual memory operations are slow.
- Installing a big app like a video editor is slow and forces long delays for other apps to react to clicks.
- Shutdown is not perfect. Power does not actually shut down. I hold down the power button to force power shutdown.
- These problems do not exist if and when Linux is installed on an internal drive.

What is less than perfect in Linux?

- I cannot connect the Files app to my Google Drives. Workaround: I can access my Google Drives using a Web browser.
- Zoom on Linux is not quite so easy to update as it is on Windows. Zoom does not download the updated installation file by itself (unlike Windows Zoom). Workaround: I download the Zoom installation file for Linux Mint from the Zoom web site.
- If Zoom is already installed, then the Linux installer app installs only the updated stuff from the newly downloaded Zoom installation file. Updates installation happens quickly.

Test-driving Ubuntu Linux

- I used Rufus to install Ubuntu Linux on two flash drives.
- Ubuntu with their Plasma desktop worked at first. It had a better screen capture: Shift+PrintScreen stored the screen on disk.
- Later Ubuntu with Plasma refused to start up.
- Ubuntu with Cinnamon never was able to start up.

Free Linux Updates

- Many major Linux brands, including Ubuntu and Mint, provide free updates of the Linux operating system for three or more years.
- Recently I updated from Linux Mint 22.1 to 22.2 for free and without glitches.
- You may need to create a free account with the brand in order for the updates to be auto-installed.
- By the time the free updates expires, often the brand will have a new major release that can be downloaded at zero cost.

What I did after test-driving Linux Mint for five weeks

- My Toshiba laptop SATA hard drive had a lot of bad sectors.
- I removed the SATA hard drive from my Toshiba laptop, and installed a faster $60 480 GB SATA SSD. That preserves Windows 10 on the hard drive and gives me access to my hard drive files via a SATA USB dock.
- I used the Linux Mint flash drive to install Linux Mint on that internal SATA SSD.
- Linux Mint runs very fast from that internal SATA SSD.

Things to know about Linux

- Drive letters do not exist. Volume names are shown by the Files app.
- Printers are discovered and a universal driver is configured automatically, every time Linux is started up. No other drivers are needed.
- Zoom and some other popular apps do not appear in Software Manager. Download those from their web sites.
- Adobe apps are not available. Linux Mint includes a good PDF reader.

How to download RUFUS for Windows

- A zero-cost portable EXE file, no installation required.
- URL: **https://rufus.ie/en/**
- Also available from the Windows Store, but that is not always the latest version

How to download Linux Mint 22.2 with Cinnamon ISO file

- The file is ~3 gigabytes, so downloading will take some time
- URL: **https://linuxmint.com/edition.php?id=322**
- Scroll down the Web page and select a US mirror site

Other Linux Distros offering Windows-like GUIs

- **Winux** (formerly Wubuntu) – closely mimics Windows 11 – often criticized for its intellectual property violations - **https://winuxos.org/**
- **Zorin Linux** - **https://zorin.com/os/**
- Winux, Zorin and Cinnamon DO NOT run applications built for Windows. Use zero-cost WINE (a translator) or a virtual Windows within Linux (such as Kernal Virtual Machine with Quick Emulator)

APCUG 4th Wednesday Workshops

- Each APCUG Wednesday Workshop on a 4th Wednesday of the month is usually devoted to some Linux topics. The next one occurs on September 24, 2025.
- Often the Linux topics are of broad interest across multiple distros and not especially technical.
- The organizer is John Kennedy, who is also the master of ceremonies for every APCUG Wednesday Workshop. He uses Linux Mint on computers at his home.
- You can subscribe to APCUG WW invitations via this Web page: **http://eepurl.com/hp90DP**

THE END