:: Using Ubuntu ::

Cedar Rapids Area Homeschools’ 2023 Cyberdefense Team

# Cybersecurity News

* [Hundreds of Microsoft SQL servers backdoored with new malware](https://www.bleepingcomputer.com/news/security/hundreds-of-microsoft-sql-servers-backdoored-with-new-malware/)
* [Significant Cyber Incidents](https://www.csis.org/programs/strategic-technologies-program/significant-cyber-incidents)
* [But How Often Do Sites Really Get Hacked? I'm Glad You Asked.](https://www.internetlivestats.com/watch/websites-hacked/)

# Adding the VirtualBox extensions to Ubuntu

It’s cool that everybody has Ubuntu installed and working. The next thing we want to do will be a quick little thing that will help your VirtualBox video resolution become more adaptive and natural.

**Installing VirtualBox Guest Additions**

We’ll do this together. Some of you might have already done it. If everybody has … yay! Short process:

1. Mount the VirtualBox extensions DVD from the Devices menu in VirtualBox
2. It might try to auto-run a program. If it does, approve the request and follow the instructions.
3. If not, open the disk by double-clicking on its icon. It will show up on the taskbar (dock), typically on the left of your Ubuntu Desktop. Once it opens, right-click the file *autorun.sh*, choose to run it as a program, and follow the instructions.
4. Reboot Ubuntu at the end, whether it asks you to or not.

# Doing Stuff in Ubuntu

**Is GUI Good?**

That should make using VirtualBox a little bit nicer thing for you. Now we need to start talking about how to actually do things in Linux.

Usually, there is a graphical-based (GUI, for “graphical user interface”) way to do things, and a shell-based way to do things also. It’s fine to use GUI-based approaches, especially if you’re learning Linux for the first time. Using a GUI has the following advantages:

* It’s easier (at first).
* It looks prettier.
* It doesn’t require as much typing.
* It doesn’t require you to know complicated commands.

However, I will almost always also always show you a shell-based way to do things. In fact, some times I won’t show a clickety-click way to do things at all. Using shell commands instead of a GUI has the following advantages:

* It’s faster (eventually).
* It’s more consistent (but it takes a while to see the consistency).
* It helps you get better at typing. 😊
* It helps you learn complicated commands.
* It is easier to execute shell-based commands remotely.
* It doesn’t require the installation of any X-Windows interface, which makes your server more secure.

**She sells C Shells by the seashore**

When you use a shell (or terminal) session in Linux, you are using a specific *shell program*. A shell program reads commands that you type and runs them. Easy peasy. There are several shell programs commonly used with Unix and Linux operating systems (some can be used on Windows as well).

* **sh** – This is the standard shell, and it doesn’t exist. Long story. But it’s on every version of Linux (I told you it’s a long story) but you don’t know what shell it is unless you look hard (it’s a weird story too). Whatever **sh** is on each version of Linux, it is required to support a basic set of functionality called **POSIX**. Most shells add significant advantage beyond the POSIX standard.
* **csh**, **ksh**, **tcsh** – old and busted.
* **bash** – This is the Bourne-again shell, because it was an overhaul of something called the Bourne shell. Really. It became the de facto standard **sh** for most \*nix distributions for many years. It was written by Brian Fox of the GNU Foundation as a free replacement for the Bourne shell. This is the shell you get (by default) if you open a terminal in **Ubuntu**, so it’s not surprising that people who use **Ubuntu** think that **bash** is Ubuntu’s default shell. They are wrong. It is, however, **macos**’s default shell. Life is funny sometimes.
* **fish**– Some people like **fish**, so I’ll add it here in case you want to fiddle with it on your own.
* **zsh** – This is the shell you get (by default) if you open a terminal on a Mac. **macos** is not a version of Linux but rather a version of another branch of the \*nix world called **BDS**. So it’s not surprising that people who use **macos** think that **zsh** is **macos**’s default shell. They are wrong.
* **dash** – This is actually the default shell for **Ubuntu**. Almost nobody has actually heard of **dash**, outside of the digirati, and of those, it’s only people who have a need to know, because why else would you care? I had a need to know at one point.

# Need to Know: How to Start Terminal

To open the **Terminal** application in Ubuntu, press **Ctrl-Alt-T**. Alternatively, press the Windows key, or the **Command** key if you are on a Macbook, and type **Terminal**.

# VirtualBox Snapshots!

Let’s work together to build one. This is important, as it gives you freedom to beat the living daylight out of your virtual computer(s). Taking a snapshot, beating the living daylight out of a virtual computer, and restoring the snapshot was a hands-on in-class demo.

# Ubuntu 22.04 Cheat Sheet

Let’s work together to build one. This is important, as it gives you the ability to NOT beat the living daylight out of your virtual computer(s).