PurgeByte

The Linux Practice Lab

Your study guide to get hands on Linux.

Post Training Workbook

www.purgebyte.com | support@purgebyte.com

1. Welcome & How to Use This Workbook

Congratulations on completing the PurgeByte Linux Training! This workbook is your practical companion to reinforce what you've learned. Each challenge is designed to build your confidence and make Linux your daily driver.

How to Use This Workbook:

- Complete one challenge per day to avoid burnout.
- Check off the boxes (or use a pen) as you complete them.
- Don't rush—experiment and explore safely.
- Stuck? Refer to the cheat sheets or contact PurgeByte support.

💡 **Pro Tip:** Keep this workbook open on your second screen or print it out. Having it physically next to you makes following along much easier!

2. Quick Reference Cheat Sheets

Essential Terminal Commands		
Command	**What It Does**	**Example**
pwd	Show current folder	pwd
ls	List files	ls -la
cd	Change folder	cd Documents
mkdir	Create folder	mkdir MyFolder
sudo	Run as admin	sudo apt update
apt install	Install software	sudo apt install vlc

Keyboard Shortcuts	
Shortcut	**Action**
Ctrl + Alt + T	Open Terminal
Super (Win Key)	Open Activities Overview
Alt + Tab	Switch between apps
Super + A	Show all applications

File Permissions (chmod)	
Command	**Meaning**
chmod 755 file	Owner can read/write/execute; others read/execute
chmod 644 file	Owner can read/write; others can only read
chmod +x script.sh	Make a file executable (runnable)
chown user:group file	Change the owner and group of a file

Network Commands	
Command	**What It Does**
ping google.com	Check internet connection
ip a	Show your IP address
curl -I website.com	Check if a website is responding
nmcli device status	Check Wi-Fi/Ethernet status

Nano Text Editor Shortcuts	
Shortcut	**Action**
Ctrl + O	Save (Write Out)
Ctrl + X	Exit Nano
Ctrl + K	Cut (delete) a line
Ctrl + U	Uncut (paste) a line

Module 1: Desktop Customization

Make Linux feel like your own personal workspace. Let's customize it!

Challenge 1.1: Make it Yours

- ✓ Change your desktop wallpaper (Settings > Background).
- ✓ Enable Dark Mode (Settings > Appearance > Dark).
- ✓ Adjust your dock position and enable "Auto-hide".

Challenge 1.2: Install GNOME Extensions

- ✓ Install "Extension Manager" from the App Centre.
- ✓ Install Dash to Panel (Windows-like taskbar).
- ✓ Install Clipboard Indicator (Copy history).

Challenge 1.3: Master Workspaces & Lock Screen

- ✓ Create 3 different workspaces (Press Super + S).
- ✓ Assign Browser to WS1, Terminal to WS2, Files to WS3.
- ✓ Change your Lock Screen background and set a custom message.

Challenge 1.4: Customize the Top Bar

- ✓ Go to Settings > Date & Time. Enable "Show Date" and "Show Seconds".
- ✓ Change your Time zone if it's incorrect.
- ✓ Adjust Battery settings to show percentage in the top bar.

Challenge 1.5: Set Up Global Keyboard Shortcuts

- ✓ Go to Settings > Keyboard > View and Customize Shortcuts.
- ✓ Create a custom shortcut to open Terminal (e.g., Ctrl + Alt + T).
- ✓ Create a custom shortcut to open your Web Browser.

Knowledge Check

Q: Which key opens the Activities Overview in Ubuntu?

A) Ctrl + Alt + Del B) Super (Windows Key) C) Shift + Esc

Module 2: Software Installation

Say goodbye to downloading sketchy .exe files from the internet!

Challenge 2.1: Install Software Three Ways

- ✓ GUI: Install VLC via Ubuntu App Center.
- ✓ Terminal: Install GIMP via sudo apt install gimp.
- ✓ Manual: Download and install Google Chrome (.deb file).

Warning:

Only download .deb files from official websites. Never from random forums/pages!

Challenge 2.2: Find Linux Alternatives & Defaults

- ✓ Install Pinta (Paint alternative): sudo apt install pinta
- ✓ Set Firefox as your default web browser in Settings > Default Apps.
- ✓ Uninstall an app you don't need via the App Center.

Challenge 2.3: Explore Flatpak

- ✓ Enable Flatpak: sudo apt install flatpak
- ✓ Add Flathub repo: flatpak remote-add --if-not-exists flathub https://flathub.org/repo/flathub.flatpakrepo
- ✓ Install Spotify: flatpak install flathub com.spotify.Client

Challenge 2.4: Manage Software Updates via GUI

- ✓ Open the "Software Updater" app from your applications menu.
- ✓ Let it check for updates and install any available system patches.
- ✓ Go to Software Updater > Settings and set it to check for updates daily.

Challenge 2.5: Install a Custom Icon Pack

- ✓ Open Terminal and install Papirus icons: sudo apt install papirus-icon-theme
- ✓ Open "GNOME Tweaks" (install it if missing: sudo apt install gnome-tweaks).
- ✓ Go to Appearance > Icons and select "Papirus".

Knowledge Check

Q: What command installs software via the terminal in Ubuntu?

A) sudo apt install [name] B) download [name] C) get software [name]

Module 3: Terminal Command Mastery

The terminal isn't scary—it's just a text-message to your computer!

Challenge 3.1: Navigate Like a Pro

- ✓ Go to Downloads: cd ~/Downloads
- ✓ Create folder: mkdir Organized_Files
- ✓ Create file: touch todo.txt
- ✓ Verify: ls -l

💡 **Did You Know?** The ~ symbol is a shortcut for your home folder (/home/yourname). It saves you from typing the whole path!

Challenge 3.2: File Operations & Searching

- ✓ Copy: cp file1.txt backup.txt
- ✓ Rename: mv file2.txt important.txt
- ✓ Search for a file: find ~ -name "todo.txt"
- ✓ Read file contents: cat todo.txt

Challenge 3.3: Monthly System Updates

sudo apt update # Checks for updates | sudo apt upgrade # Installs updates | sudo apt autoremove # Cleans up old files | sudo apt clean # Frees up disk space | Try all commands and see what does it do?

Challenge 3.4: Master File Permissions

- ✓ Create a script: touch myscript.sh
- ✓ Make it executable: chmod +x myscript.sh
- ✓ Check permissions: ls -l myscript.sh (Look for the 'x').

Challenge 3.5: Text Editing in Terminal (Nano)

- ✓ Open a file in Nano: nano todo.txt
- ✓ Type some text inside the editor.
- ✓ Save with Ctrl + O, then Exit with Ctrl + X.

Knowledge Check

Q: What does the sudo command do?

A) Shuts down the PC B) Runs command as administrator C) Opens the browser

Module 4: System Maintenance & Backups

Keep your Linux machine fast, clean, and safe from disasters.

Challenge 4.1: Set Up Timeshift (System Restore)

- ✓ Install: sudo apt install timeshift
- ✓ Open Timeshift, select RSYNC, schedule Weekly.
- ✓ Create your first manual snapshot named "Fresh Install".

🚀 **Pro Tip:** Always create a Timeshift snapshot *before* installing major new software or doing big system updates!

Challenge 4.2: Disk Cleanup & Startup Apps

- ✓ Install BleachBit: sudo apt install bleachbit and clear cache.
- ✓ Check disk space: df -h
- ✓ Open "Startup Applications" and disable 1 app you don't need at boot.

Challenge 4.3: Monitor System Resources

- ✓ Open **System Monitor** (GUI) to check CPU/RAM.
- ✓ Open terminal and type htop (install it first if missing: sudo apt install htop).
- ✓ Press F10 in htop to quit.

Challenge 4.4: Set Up File Backups with Deja Dup

- ✓ Open the "Backups" (Deja Dup) app from your menu.
- ✓ Set the backup location (e.g., an external drive or cloud).
- ✓ Add your Documents and Pictures folders to the backup list.

Challenge 4.5: Check System Logs

- ✓ Open the "Logs" app from your applications menu.
- ✓ Look for any critical errors from the last 24 hours.
- ✓ *Terminal alternative:* Run journalctl -p 3 -xb to see only errors.

Knowledge Check

Q: Which tool creates system "snapshots" to roll back if something breaks?

A) BleachBit B) Timeshift C) htop

Module 5: Troubleshooting Scenarios

Don't panic! Here is how to fix common Linux issues.

Challenge 5.1: Wi-Fi & Audio Not Working

Fix Wi-Fi nmcli radio wifi on sudo systemctl restart NetworkManager # Fix Audio (PulseAudio) pulseaudio -k pulseaudio --start

Challenge 5.2: App Won't Open & Full Disk

- ✓ Launch from terminal to see errors: Firefox
- ✓ Kill frozen app: killall firefox
- ✓ Find large files eating your disk: find ~ -size +500M

⚠️ **Golden Rule of Troubleshooting:** When in doubt, restart your computer! It fixes 80% of Linux issues.

Challenge 5.3: Fix Broken Packages

- ✓ Simulate a broken install: sudo dpkg --configure -a
- ✓ Fix dependencies: sudo apt --fix-broken install
- ✓ Reconfigure all packages: sudo dpkg --configure -a

Challenge 5.4: Reset GNOME Desktop to Default

If your UI gets messed up, reset it safely:

- ✓ Open Terminal and run: dconf reset -f /org/gnome/
- ✓ Log out and log back in to see the fresh desktop.
- ✓ *Note:* This resets settings, not your personal files!

Challenge 5.5: Boot into Recovery Mode

- ✓ Restart your PC and hold Shift (or mash Esc) to see the GRUB menu.
- ✓ Select "Advanced options for Ubuntu" > "Recovery mode".
- ✓ Choose "root" to drop to a root shell prompt for deep fixes.

Knowledge Check

Q: If an app is frozen, which command forcefully closes it?

A) close app B) killall [app-name] C) stop [app-name]

Bonus: Advanced Tips & Tricks

Tip 1: Create Custom Aliases

Make long commands short. Edit your bashrc:

nano ~/.bashrc # Add this line at the bottom: alias update='sudo apt update && sudo apt upgrade' # Save (Ctrl+O), Exit (Ctrl+X), then run: source ~/.bashrc

Tip 2: Run Windows Apps with Wine

- ✓ Install Wine: sudo apt install wine
- ✓ Run an .exe: wine program.exe
- ✓ *Better option:* Install "Bottles" via Flatpak for a GUI.

Tip 3: Schedule Tasks with Cron

- ✓ Open crontab: crontab -e
- ✓ Add a task (e.g., run script daily at 9 AM): 0 9 * * * /path/to/script.sh
- ✓ Save and exit. Your task is now scheduled!

Tip 4: Use grep to Search Text Inside Files

- ✓ Search for a word in a file: grep "error" logfile.txt
- ✓ Search recursively in a folder: grep -r "password" ~/Documents

Tip 5: Pipe Commands Together

- ✓ List files and search them: ls -la | grep ".txt"
- ✓ Count files in a folder: ls | wc -l
- ✓ View a long file page by page: cat longfile.txt | less

💡 **Next Steps:** Join the Ubuntu Forums (ubuntuforums.org) or r/ubuntu on Reddit. The Linux community is incredibly friendly and always ready to help!

Glossary of Terms

Term	Simple Explanation
Distro	A version of Linux (Ubuntu, Mint, etc.)
sudo	"SuperUser Do" - run as administrator
Repository	A "store" where Linux downloads software from
Kernel	The core of Linux that talks to hardware
Live USB	Run Linux from a USB without installing
Dual Boot	Have both Windows and Linux on one PC
GUI	Graphical User Interface (what you see and click)
CLI	Command Line Interface (the Terminal)
Flatpak/Snap	Universal app formats that work on all Linux
Dependencies	Other software an app needs to run
GRUB	The boot menu that lets you choose your OS
Pipe (|)	Sends the output of one command into another

Congratulations!

You have completed the **PurgeByte** Linux Practice Lab.

Keep experimenting, stay curious, and enjoy your new OS!