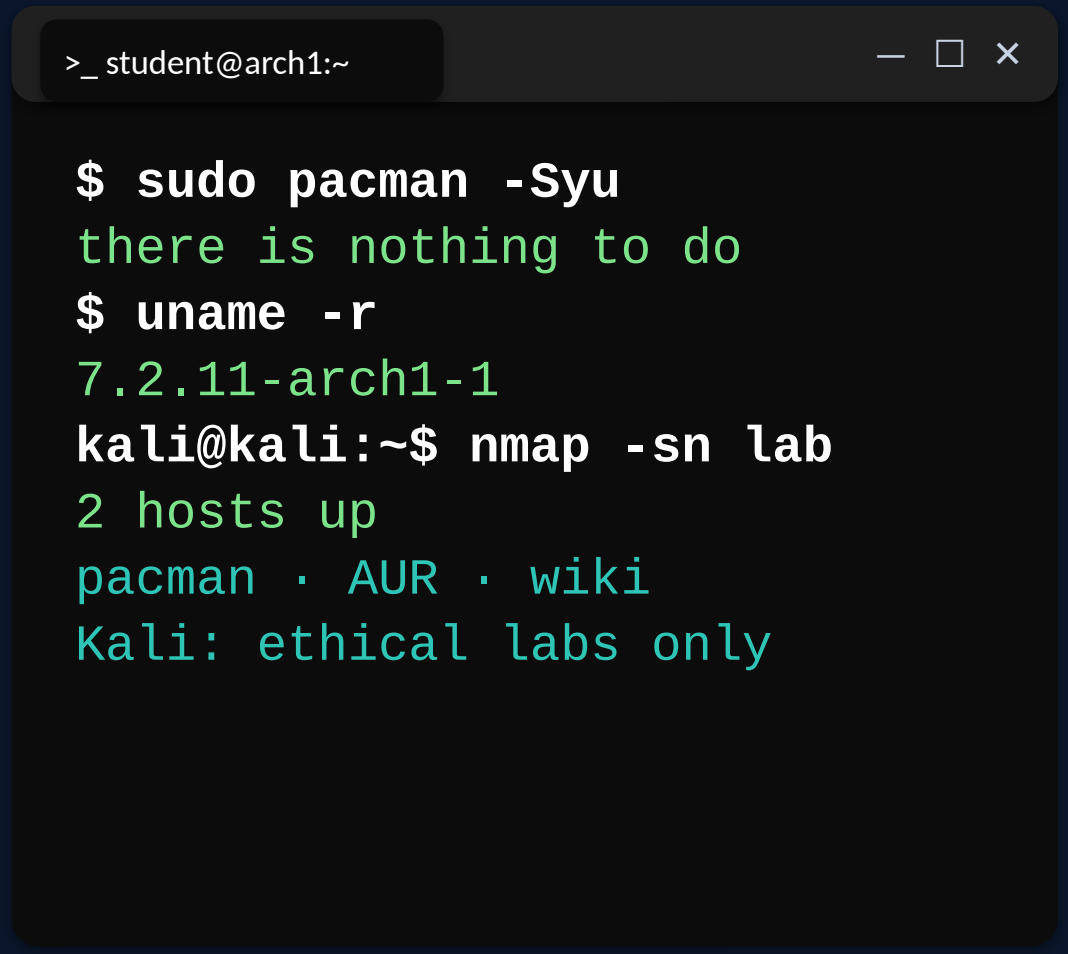


LESSON 8 OF 12

Arch & Kali Linux

Rolling · pacman · AUR · Security Lab

Installing Kali: VM, Bare Metal, Live USB & WSL

Full Course · Arch 2026.11 · Kali 2026.3 (Nov 2026)

What You Will Learn in Lesson 8

- Why a VM is best for learning
- Download and verify Kali images
- Import the pre-built VM; first-login security steps
- VM networking: NAT + host-only lab network
- The installer: desktop and tool selection
- Live USB with encrypted persistence
- Kali on WSL and in Docker

Where to Run Kali for Learning

Option	Pros	Cons
VM (recommended)	Isolated, snapshots, host-only lab network, easy to reset	Needs RAM (4 GB+ for Kali)
Live USB	Portable, no install, forensic mode	Slower; persistence must be set up
Bare metal	Full hardware access (Wi-Fi cards, GPU cracking)	No snapshots; mixes with daily use
WSL	Quick CLI tools on Windows	Limited raw network access; not for Wi-Fi testing
Cloud	Fast internet, temporary	Costs money; providers have testing policies

Download and Verify

```
# kali.org/get-kali — choose: Virtual Machines / Installer / Live / WSL / ARM
$ ls
kali-linux-2026.3-virtualbox-amd64.7z   SHA256SUMS   SHA256SUMS.gpg
$ wget -q -O - https://archive.kali.org/archive-key.asc | gpg --import
$ gpg --verify SHA256SUMS.gpg SHA256SUMS
gpg: Good signature from "Kali Linux Archive Automatic Signing Key ..."
$ sha256sum -c SHA256SUMS --ignore-missing
kali-linux-2026.3-virtualbox-amd64.7z: OK
$ 7z x kali-linux-2026.3-virtualbox-amd64.7z
# Download only from kali.org (or its official mirrors / torrents)
```

Import the VM and First Login

```
# VirtualBox: Machine > Add > kali-linux-2026.3-virtualbox-amd64.vbox
# VMware: open the .vmx ; QEMU/KVM: import the .qcow2 in virt-manager
# Login: kali / kali  — change it NOW
kali@kali:~$ passwd
kali@kali:~$ sudo apt update && sudo apt full-upgrade -y
kali@kali:~$ sudo dpkg-reconfigure keyboard-configuration   # if needed
kali@kali:~$ sudo timedatectl set-timezone Asia/Kabul
kali@kali:~$ sudo systemctl disable --now ssh 2>/dev/null   # off unless needed
kali@kali:~$ cat /etc/os-release | grep VERSION
VERSION="2026.3"
# Take a VM snapshot: 'clean-2026.3'
```

VM Networking for a Safe Lab

Adapter	Type	Purpose
Adapter 1	NAT	Internet for updates (can be disabled during practice)
Adapter 2	Host-only 192.168.56.0/24	Lab network: Kali + intentionally vulnerable targets
Targets	Host-only ONLY	Vulnerable VMs must never reach your home network or the internet
Avoid	Bridged	Puts Kali (and targets) on your real LAN — not for practice
Check	ip -br a ; ip route	eth0 = NAT (10.0.2.x), eth1 = lab (192.168.56.10)
Snapshots	Before each exercise	Restore after — keeps the lab clean

The Kali Installer

Screen	Choice
Install type	Graphical install (Debian Installer based)
User	Your own username and strong password (no root login)
Partitioning	Guided — use entire disk; encrypted LVM recommended on laptops
Desktop	Xfce (default), GNOME, KDE Plasma, or none
Tools	top10, default, large, everything (metapackages, lesson 9)
Bootloader	GRUB on the main disk
Tip	NetInstaller downloads current packages during install

Live USB with Encrypted Persistence

```
# Write the live ISO (destroys the USB stick!)
$ sudo dd if=kali-linux-2026.3-live-amd64.iso of=/dev/sdX bs=4M status=progress conv=fsync
# Create a persistence partition in the free space
$ sudo fdisk /dev/sdX            # n, p, 3, <enter>, <enter>, w
$ sudo cryptsetup luksFormat /dev/sdX3
$ sudo cryptsetup open /dev/sdX3 my_usb
$ sudo mkfs.ext4 -L persistence /dev/mapper/my_usb
$ sudo mkdir -p /mnt/my_usb && sudo mount /dev/mapper/my_usb /mnt/my_usb
$ echo '/ union' | sudo tee /mnt/my_usb/persistence.conf
$ sudo umount /mnt/my_usb && sudo cryptsetup close my_usb
# Boot menu: 'Live USB Encrypted Persistence'  |  'Live (forensic mode)'
```

Kali on WSL and in Docker

```
PS C:\> wsl --install -d kali-linux
PS C:\> wsl -d kali-linux
kali@DESKTOP:~$ sudo apt update && sudo apt full-upgrade -y
kali@DESKTOP:~$ sudo apt install -y kali-linux-default     # tools (large download)
kali@DESKTOP:~$ sudo apt install -y kali-win-kex && kex --win -s   # desktop

$ docker pull docker.io/kalilinux/kali-rolling
$ docker run --rm -it kalilinux/kali-rolling /bin/bash
root@1a2b3c:/# apt update && apt install -y kali-linux-headless
# Containers start minimal — install only the tools you need
```

Summary and Homework

- VM is best for learning: isolated, snapshots, host-only lab
- Download from kali.org only; verify SHA256SUMS + gpg
- First login: change kali/kali, full-upgrade, snapshot
- Two adapters: NAT (updates) + host-only (lab); targets host-only only
- Installer: Xfce/GNOME/KDE + tool sets; live USB with encrypted persistence; WSL; Docker
- Homework: import the Kali VM, change password, set up host-only network, take 'clean' snapshot

Thank You! 🙏

Free videos & PDFs: www.MyWebUniversity.com

Slides for this lesson: MyWebUniversity.com/presentations

YouTube: @MyWebUniversity · @MyWebUniversity-Dari

Wahidullah Lutfy — Founder and Director of IT of MyWebUniversity, and CS teacher

Book: The Direct Path to Linux Ubuntu (Amazon · Barnes & Noble)

Learn it, then pass it on.