**Module 6 – Linux Server: Basic Networking & Security**

**49. Use ifconfig or ip to view and configure network interfaces**

* ifconfig (older, from net-tools) shows and configures IP addresses, MAC, etc.
* ip addr and ip link (modern command from iproute2) replace ifconfig.  
  Example:

ip addr show

ip addr add 192.168.1.100/24 dev eth0

ip link set eth0 up

**50. Use ping to test network connectivity**

* Syntax: ping <IP/hostname>  
  Example:

ping google.com

ping -c 4 192.168.1.1

**51. Basic firewall configuration with firewall-cmd (firewalld)**

* View status: systemctl status firewalld
* List zones/services: firewall-cmd --list-all
* Add service: firewall-cmd --add-service=http --permanent
* Reload firewall: firewall-cmd --reload

**52. Add SSH service in firewall & graphical management**

* Command-line:

firewall-cmd --add-service=ssh --permanent

firewall-cmd --reload

* GUI tool: firewall-config (graphical interface for firewalld).

**53. Steps to Manage Firewall Graphically**

1. Install GUI firewall tool (if not already installed):
2. yum install firewall-config # RHEL/CentOS
3. dnf install firewall-config # Fedora
4. apt install firewall-config # Ubuntu/Debian
5. Open the firewall GUI:
6. firewall-config
   * This will open a graphical window (requires desktop environment like GNOME/KDE).
7. GUI Features  
   Inside firewall-config, you can:
   * View and change zones (public, home, internal, trusted).
   * Add or remove services (e.g., SSH, HTTP, HTTPS).
   * Open or block ports (e.g., 8080/tcp).
   * Configure permanent or runtime rules.
   * Enable/disable ICMP (ping) responses.
8. Example: Add SSH in GUI
   * Open firewall-config → select your active zone (e.g., *public*).
   * Go to Services tab → check SSH.
   * Click Options → Reload Firewalld to apply**.**

**55. What is SELinux Security?**

* **SELinux (Security-Enhanced Linux)** is a kernel-level security module that enforces **Mandatory Access Control (MAC)**.
* Modes:
  + enforcing – actively blocks unauthorized access
  + permissive – logs violations but doesn’t block
  + disabled – SELinux turned off

**56. How to Set Static IP in Linux?**

* Edit /etc/sysconfig/network-scripts/ifcfg-eth0 (RHEL/CentOS) or /etc/netplan/ configs (Ubuntu).  
  Example (RHEL/CentOS):

BOOTPROTO=static

IPADDR=192.168.1.100

NETMASK=255.255.255.0

GATEWAY=192.168.1.1

DNS1=8.8.8.8