# Linux Server - Basic Networking & Security Assignment

## 1. How to use ifconfig or ip to view and configure network interfaces?

The 'ifconfig' and 'ip' commands are used to view and configure network interfaces in Linux.  
  
• ifconfig: Displays information about network interfaces.  
 Example: `ifconfig eth0 192.168.1.10 netmask 255.255.255.0`  
  
• ip: A modern command used for the same purpose.  
 Example: `ip addr show` displays IPs, and `ip addr add 192.168.1.10/24 dev eth0` assigns IP.

## 2. How to use ping to test network connectivity?

The 'ping' command is used to test network connectivity between two systems.  
  
Example: `ping 8.8.8.8` checks if the server can reach Google DNS.  
`ping www.google.com` checks DNS resolution and connectivity.

## 3. What is basic firewall configuration using FIREWALL-CMD?

firewalld is a firewall management tool in Linux. The 'firewall-cmd' command is used to configure it.  
  
Example commands:  
• `firewall-cmd --state` → Check if firewall is running.  
• `firewall-cmd --list-all` → View active rules.  
• `firewall-cmd --add-port=80/tcp --permanent` → Allow HTTP traffic.  
• `firewall-cmd --reload` → Reload firewall to apply changes.

## 4. How to add SSH service in firewall?

To allow SSH service through the firewall, use:  
  
• `firewall-cmd --add-service=ssh --permanent`  
• `firewall-cmd --reload`  
  
This ensures that SSH (port 22) is allowed permanently.

## 5. How to graphically manage the firewall?

You can manage the firewall graphically using 'firewall-config'.  
  
• Install: `yum install firewall-config` or `dnf install firewall-config`  
• Launch: `firewall-config`  
  
This opens a GUI tool to manage zones, services, and ports.

## 6. What is SELinux Security?

SELinux (Security-Enhanced Linux) is a security module in Linux that provides mandatory access control (MAC).

Modes:  
• Enforcing: Enforces security policies strictly.  
• Permissive: Logs actions that would be denied.  
• Disabled: SELinux is turned off.  
  
Check mode with `getenforce`.  
Change mode with `setenforce 1` (enforcing) or `setenforce 0` (permissive).

## 7. How to set Static IP in Linux?

You can set a static IP either using 'nmtui' or by editing network configuration files.  
  
• Using 'nmtui': Run `nmtui`, choose 'Edit a connection', set manual IP, netmask, gateway, and DNS.  
  
• Editing config file (CentOS/RHEL): `/etc/sysconfig/network-scripts/ifcfg-eth0`  
Example:  
BOOTPROTO=static  
IPADDR=192.168.1.100  
NETMASK=255.255.255.0  
GATEWAY=192.168.1.1  
DNS1=8.8.8.8  
  
Restart network: `systemctl restart network`.