# Network Configuration and Services on Fedora Server

## Part 1: Configuring Network Interfaces and Network Settings

To view available network interfaces, execute the following command:  
  
nmcli device status  
  
To display IP address details for a specific device, use:  
  
nmcli device show <device\_name>  
  
Alternatively, you may use the following commands:  
  
nmcli connection show – to list all network interfaces  
ip addr show – to display detailed IP information  
  
To view all available connection files:  
  
ls /NetworkManager/system-connections/  
  
To edit a connection file:  
  
nano /etc/NetworkManager/system-connections/<filename>

## Part 2: DHCP Server Configuration and Management

Install the DHCP server package using the command:  
  
sudo dnf install dhcp-server -y  
  
To verify successful installation:  
  
rpm -q dhcp-server  
  
The main configuration file for the DHCP server is located at:  
  
/etc/dhcp/dhcpd.conf  
  
To edit the configuration file:  
  
nano /etc/dhcp/dhcpd.conf  
  
To view its content:  
  
cat /etc/dhcp/dhcpd.conf  
  
Once configuration is complete, enable and start the DHCP service:  
  
sudo systemctl enable dhcpd  
sudo systemctl start dhcpd  
sudo systemctl status dhcpd  
  
Firewall Configuration – Allow DHCP traffic through the firewall to ensure client communication:  
  
sudo firewall-cmd --add-service=dhcp --permanent  
sudo firewall-cmd --reload

## Part 3: DNS Server Setup Using BIND

Install BIND with the following command:  
  
sudo dnf install bind  
  
To edit the main configuration file:  
  
nano /etc/named.conf  
  
To edit the zone file:  
  
nano /var/named/<zone\_filename>  
  
Configuration Notes:  
  
• The primary configuration file is /etc/named.conf, containing global and zone settings.  
• Zone files are stored by default in the /var/named/ directory.  
• Uncomment the 'listen-on' directive and specify the DNS server IP.  
• Uncomment the 'allow-query' directive and define the local network range.  
  
Example configuration:  
  
options {  
 listen-on port 53 { 192.168.1.10; };  
 allow-query { 192.168.1.0/24; };  
};  
  
To view zone file contents:  
  
cat /var/named/<zone\_filename>  
  
Start and enable BIND service:  
  
sudo systemctl start named  
sudo systemctl enable named  
  
To test DNS configuration:  
  
dig example.com

## Part 4: Network Time Synchronization with NTP (Chrony)

Install the NTP (Chrony) package using:  
  
sudo dnf install chrony -y  
  
Check the service status after installation:  
  
sudo systemctl status chronyd  
  
The main configuration file is located at:  
  
/etc/chrony.conf  
  
To edit the configuration file:  
  
nano /etc/chrony.conf  
  
Start and enable the NTP service:  
  
sudo systemctl start chronyd  
sudo systemctl enable chronyd  
  
Firewall Configuration – Allow NTP traffic through the firewall:  
  
sudo firewall-cmd --add-service=ntp --permanent  
sudo firewall-cmd --reload  
  
Verification – Confirm that the NTP service is active and running:  
  
sudo systemctl status chronyd