

# Guide to Install and Configure NTP Server and Client on Ubuntu

## Part A: Setting Up the NTP Server

### Step 1: Update the System

Run this command to update the system packages:

```
- sudo apt update -y
```

### Step 2: Install the NTP Server

Install the NTP server software:

```
- sudo apt install ntp
```

Check if the installation was successful by checking the version:

```
- sntp --version
```

### Step 3: Configure the NTP Server Pools

1. Open the NTP configuration file for editing:

```
- sudo vim /etc/ntp.conf
```

2. Replace the default pool settings with the following (adjust for your region):

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```
server 0.europe.pool.ntp.org
```

```
server 1.europe.pool.ntp.org
```

```
server 2.europe.pool.ntp.org
```

```
server 3.europe.pool.ntp.org
```

3. Save and exit the editor by pressing **ESC**, typing **:wq**, and pressing Enter.

4. Restart the NTP service:

```
- sudo systemctl restart ntp
```

5. Check the service status:

```
- sudo systemctl status ntp
```

### Step 4: Allow NTP Service in the Firewall

1. Allow NTP traffic through the firewall:

```
- sudo ufw allow ntp
```

Or, use this alternative command:

- `sudo ufw allow 123/udp`
- 2. Reload the firewall to apply the changes:
  - `sudo ufw reload`
- 3. Verify the firewall rules:
  - `sudo ufw status`

## Part B: Setting Up the NTP Client

### Step 1: Update the Client System

Update the client system's package list:

- `sudo apt update -y`

### Step 2: Install Ntpdate

Install the Ntpdate synchronization tool:

- `sudo apt install ntpdate`

Edit the hosts file to map the NTP server's IP address with its hostname:

- `sudo vim /etc/hosts`

Add the following line (replace `<Your-IP-Address>` with the server's IP):

- `<Your-IP-Address> bionic`

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### Step 3: Sync Client Time Manually

1. Synchronize the client's time with the NTP server:
  - `sudo ntpdate bionic`
2. Disable the system's built-in time synchronization service to avoid conflicts:
  - `sudo timedatectl set-ntp off`

### Step 4: Install the NTP Client

Install the NTP client software:

- `sudo apt install ntp`

### Step 5: Configure the NTP Client

1. Open the client's configuration file for editing:
  - `sudo vim /etc/ntp.conf`
2. Add the following line to specify the NTP server (replace `bionic` with the server's hostname):  
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  - `server bionic prefer iburst`
3. Save and close the file.
4. Restart the NTP client service:
  - `sudo systemctl restart ntp`

### Step 6: Verify Time Synchronization

Check the synchronization queue to confirm time synchronization with the server:

- `Sudo ntpq -p`