# Installation of DNS Server

# Download Media

1. Open your browser, and navigate to: <https://ubuntu.com/download/server>
2. Click on Download XX.XX.X LTS, XX.XX.X being the latest LTS version on this page.

A screenshot of a computer

Description automatically generated

1. Wait for the download to complete, most browsers will download this to c:\users\username$\Downloads. (username$ being the user you are logged into the system.)

A screenshot of a computer

Description automatically generated

# Create Virtual Machine

1. Launch **Oracle VM Virtual Box Manager**.
2. Click **Machine > New…**.

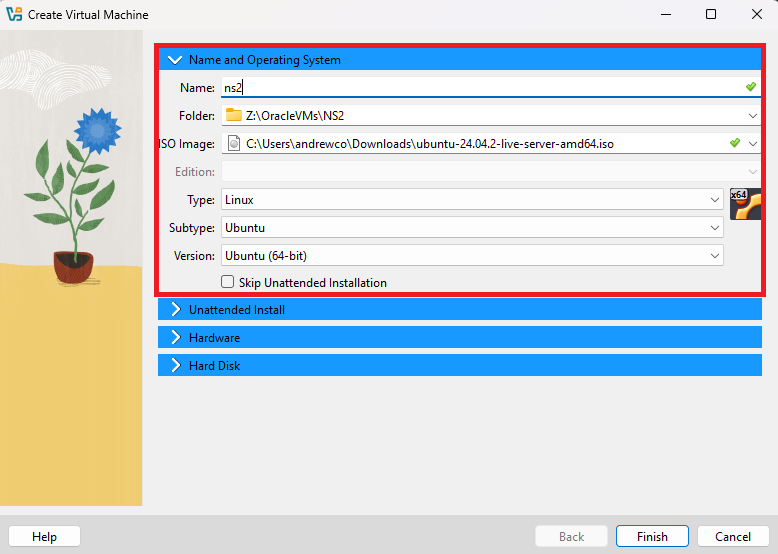
A screenshot of a computer

Description automatically generated

1. For Name, Type **ns1 (or ns2)**
2. For Folder, Select the location where you want to store the Virtual Machine Files.

**NOTE:** Recommend putting the virtual machine in its own folder, like the example image shows.

1. For ISO Image, Select the location where you downloaded the ISO File in, Download Media.
2. For Type, Select **Linux**
3. For Version, Select **Ubuntu (64-bit)**.

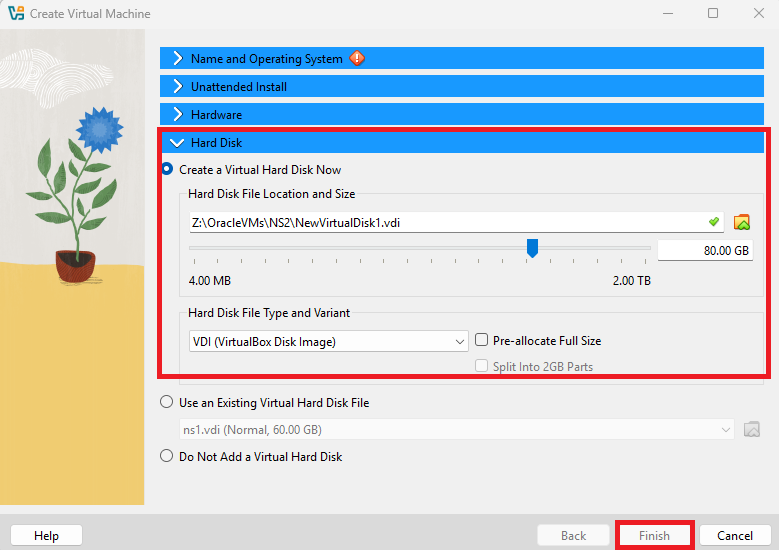


1. Expand **Hardware**.
2. For Base Memory, type **4096,** Processor, type **2**.
3. For Processor, select half the number of processors the system has.

A screenshot of a computer

Description automatically generated

1. Expand **Hard Disk**
2. For Hard Disk File Location and Size, leave the location as is, set the size to 60.00**GB**.
3. Click **Finish**.



1. If the virtual machine starts automatically, Right click the machine name.
2. Hover over **Stop >** Click **Power Off**.

A screenshot of a computer

Description automatically generated

1. Right click the machine name **>** Select **Settings**.

A screenshot of a computer

Description automatically generated

1. Click **Network**.
2. For Attached To, select **Bridge Adaopter**.
3. For Name, select the physical network card for the system.

**NOTE:** Each system will be different because the network adapter will be called something different for each system.

A computer screen shot of a network

Description automatically generated

# Installation of Operating System

1. Press **Enter** on Try or Install Ubuntu Server.

A screenshot of a computer

Description automatically generated

1. On the *Welcome* screen, press **Enter**.

A screenshot of a computer

Description automatically generated

1. On the *Installer update available*, Press **Enter**.

**NOTE:** If not already selected, you can press Tab to get Update to the new installer highlighted as green. Sometimes this may not come up and you can skip to the next step.

A screenshot of a computer

Description automatically generated

1. On the *Keyboard configuration*, press tab until **Done** is highlighted. Press **Enter**.

A computer screen shot of a keyboard

Description automatically generated

1. On the *Choose type of install*, leave the defaults selected, press tab until **Done** is highlighted. Press **Enter**.

A screenshot of a computer

Description automatically generated

1. On the *Network connection*, press Tab until **Done** is highlighted. Press **Enter**.

A screenshot of a computer

Description automatically generated

1. On the *Configure proxy*, press Tab until **Done** is highlighted. Press **Enter**.

A screenshot of a computer

Description automatically generated

1. On *Configure Ubuntu archive mirror*, wait for the list to populate. Press Tab until **Done** is highlighted. Press **Enter**.

A screenshot of a computer

Description automatically generated

1. On *Guided storage configuration*, . Press Tab until **Done** is highlighted. Press **Enter**.

A screenshot of a computer

Description automatically generated

1. On the *Storage configuration*, Press Tab until the selected is on Done.
2. On the Confirm destructive action Press Tab until **Continue** is Red and press **Enter**.

A screenshot of a computer

Description automatically generated

1. On the Profile Setup:
   1. For Your name, type **pack442**.
   2. For Your server name, type **ns1**.
   3. For Pick a username, type **pack442**.
   4. For Choose a password, type **pack442**.
   5. For Confirm your password, type **pack442**.
   6. Press Tab so **Done** is highlighted green, press **Enter**.

A screenshot of a computer

Description automatically generated

1. On the *Upgrade to Ubuntu Pro*, keep Skip for now selected with a X. Press **Enter** to Continue.

A screenshot of a computer

Description automatically generated

1. Press the **spacebar**, so that Install OpenSSH Server is selected.
2. Press Tab until **Done** is highlighted green, press **Enter**.

A screenshot of a computer

Description automatically generated

1. On *Featured Server Snaps*, Press Tab until **Done** is highlighted green, press **Enter**.

A screenshot of a computer

Description automatically generated

1. On the *Install Complete!,* wait until the option **Reboot Now**, is showing and then press Tab until it is highlighted as green, then press **Enter**.

A screenshot of a computer program

Description automatically generated

**NOTE**: If you receive a Failed unmount /cdrom, just Press Enter on this screen. The system will reboot.

A screenshot of a computer

Description automatically generated

1. Login to the server, with the username you used in [Step 12](#InstallOSStep21) and press **Enter**.

A screenshot of a computer screen

Description automatically generated

1. Type the password with the password you used in [Step 12](#InstallOSStep21) and press **Enter**.

A screenshot of a computer

Description automatically generated

1. Type **sudo apt update** and press **Enter**.

**NOTE:** You may be prompted for the password for pack442, type that password as you used in [Step 12](#InstallOSStep21) and press **Enter**.

A screenshot of a computer

Description automatically generated

1. Type **sudo apt upgrade** and press **Enter**.

**NOTE:** You may be prompted for the password for pack442, type that password as you used in [Step 12](#InstallOSStep21) and press **Enter**.

A screenshot of a computer

Description automatically generated

1. Wait for the upgrade or packages to complete.

A screenshot of a computer

Description automatically generated

1. Press Tab until **OK** is selected and press **Enter**.

A screenshot of a computer

Description automatically generated

1. Type **sudo apt-get install virtualbox-guest-additions-iso** and press **Enter**.

A screenshot of a computer

Description automatically generated

1. You may be prompted for the password for pack442, type that password as you used in [Step 12](#InstallOSStep21) and press **Enter**.

A screenshot of a computer

Description automatically generated

1. Press **Y** and Press **Enter**.

A screenshot of a computer screen

Description automatically generated

1. Press Tab until **OK** is highlighted and press **Enter**.

A screenshot of a computer

Description automatically generated

A screenshot of a computer program

Description automatically generated

1. Type sudo init 6 and press Enter.



**NOTE:** This completes the Installation of Operating System, Continue to the next step: [Post Configuration](#_Post_Configuration).

# Post Configuration

Before completing these steps, make sure Putty is installed following [these instructions](#_Installation_of_Putty).

1. Login to the virtual machine via Virtual Box Manager.
2. Look for the IPv4 address for enp0s3.
3. Note this address down.

A screenshot of a computer

Description automatically generated

1. Launch Putty

A screenshot of a computer

Description automatically generated

1. Type the **ip address** you retrieved in [Step 3](#PostConfigurationStep3).
2. Click **Open**.

A screenshot of a computer

Description automatically generated

1. Click **Accept**.

A screenshot of a computer security alert

Description automatically generated

1. On the login as type, **pack442** and press **Enter**.

**NOTE:** This would be the username you provided in [Installation of Operating System, Step 21](#InstallOSStep21).

A black and white background

Description automatically generated

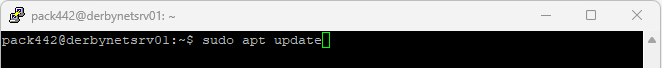
1. On [pack442@XXX.XXX.X.XXX](mailto:pack442@XXX.XXX.X.XXX) password, type **pack442** and press **Enter**.

**NOTE:** This would be the username you provided in [Installation of Operating System, Step 12](#InstallOSStep21).

A screen shot of a computer

Description automatically generated

1. Type **sudo apt update** and press **Enter**.



1. If prompted, type the password for pack442 and press Enter.

**NOTE:** This would be the username you provided in [Installation of Operating System, Step 12](#InstallOSStep21).

A screenshot of a computer

Description automatically generated

A screen shot of a computer program

Description automatically generated

1. Type **sudo apt-get upgrade** and press **Enter**.

A computer screen shot of a program

Description automatically generated

1. Press **Y** and Press **Enter**.

A screenshot of a computer program

Description automatically generated

1. Press Tab until **OK** is highlighted, Press **Enter**.

A screenshot of a computer

Description automatically generated

1. Type **sudo init 6** and press **Enter**.

A screenshot of a computer program

Description automatically generated

1. Continue to [Installation of Derbynet Software](#_Installation_of_Derbynet).

# Installation and configuration of Bind9

1. Launch **Putty**

A screenshot of a computer

Description automatically generated

1. Type the **ip address** you retrieved in [Step 3](#PostConfigurationStep3).
2. Click **Open**.

A screenshot of a computer

Description automatically generated

1. Click **Accept**.

A screenshot of a computer security alert

Description automatically generated

1. On the login as type, **pack442** and password and press **Enter**.

**NOTE:** This would be the username you provided in [Installation of Operating System, Step 12](#InstallOSStep21).

A black and white background

Description automatically generated

1. Type **sudo apt-get update** and press **Enter**
2. Type **sudo apt install bind9 bind9utils bind9-doc** and press **Enter**

**NOTE:** You will be prompted for the password for pack442, which was set during install.

A screenshot of a computer

Description automatically generated

1. Once completed, continue to the next step.

A computer screen shot of a computer screen

Description automatically generated

1. Copy and past the following into putty and press **Enter**.

*mkdir /var/log/named*

*chown bind:root /var/log/named*

*chmod 0750 /var/log/named*

*sudo mkdir /var/log/named*

*sudo mkdir /etc/bind/zones*

*sudo chown bind:root /var/log/named*

*sudo chmod 0750 /var/log/named*

# Post Configuration DNS Settings

Download the configuration files needed at: <https://github.com/majora15/Pack442PineWoodDerby-main/archive/refs/heads/main.zip>

## Extract Configuration Files

1. Navigate to where you download the PineWoodDerbySetup-main.zip file to.
2. Right click > Click **Extract All**.

A screenshot of a computer

Description automatically generated

1. Click **Extract**.

A screenshot of a computer

Description automatically generated

1. Continue to Custom DNS Configuration

## Custom DNS Configuration

1. Type **WinSCP** **>** Click **WinSCP**.

A screenshot of a computer

Description automatically generated

1. Type the ip address of the virtual machine.
2. Type the following:

Username: pack442

Password: pack442

1. Click **Login**.

A screenshot of a computer

Description automatically generated

1. Click **Yes / Accept**.

A screenshot of a computer error

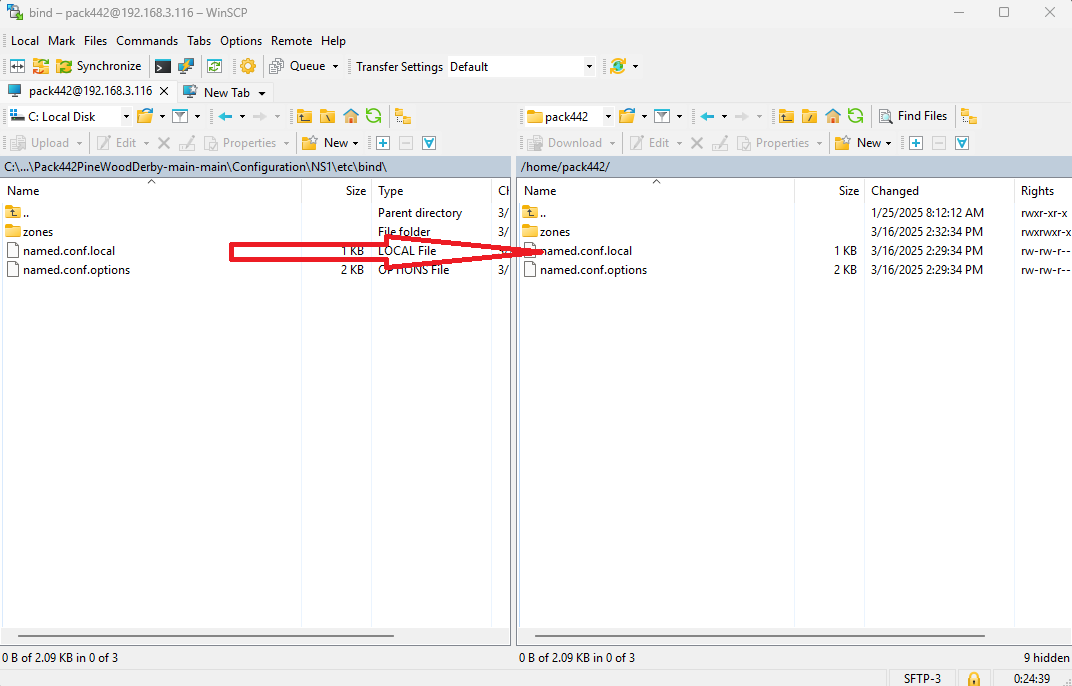
Description automatically generated

1. Navigate to the location of the configuration files that you extracted in **Extract Configuration File, Step 3**.
2. Click on **NS1** > click on **etc** >click on **bind**.

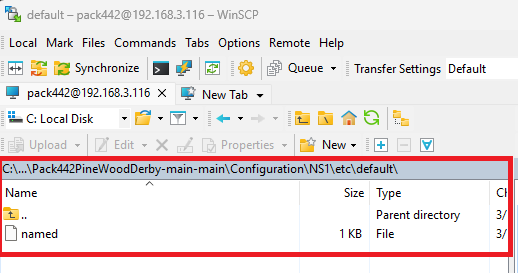
A screenshot of a computer

AI-generated content may be incorrect.

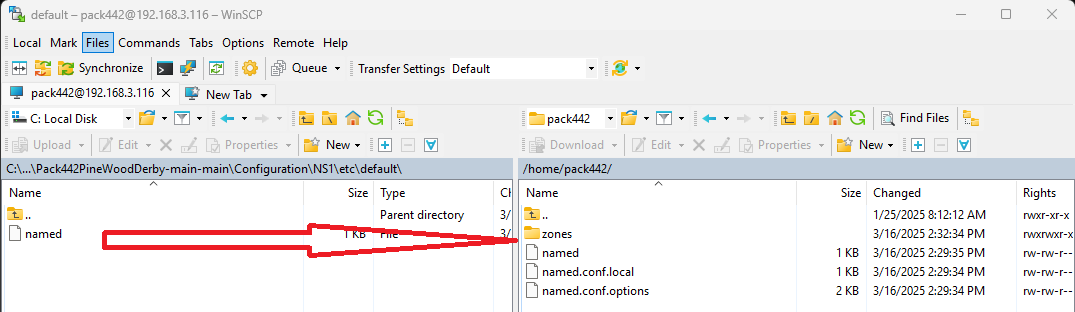
1. Drag the zones folder, and named.conf.local, named.conf.options over to /home/pack442.



1. On the left side of WinSCP, click on the … > Click on default.



1. Drag the named file over to /home/pack442.



1. Copy the following lines and paste in an SSH session of the dns server:

sudo mv /home/pack442/named /etc/named

sudo mv /home/pack442/named.conf.local /etc/bind/

sudo mv /home/pack442/named.conf.options /etc/bind/

sudo mv /home/pack442/zones/\* /etc/bind/zones/

sudo chown root:bind /etc/bind/named.conf.options

sudo chown root:bind /etc/bind/named.conf.local

sudo chown root:bind /etc/bind/zones/db.192.168

sudo chown root:bind /etc/bind/zones/db.coughlinfam.com

sudo chmod 644 /etc/bind/named.conf.options

sudo chmod 644 /etc/bind/named.conf.local

sudo chmod 644 /etc/bind/zones/db.192.168

sudo chmod 644 /etc/bind/zones/db.coughlinfam.com

1. SSH to the DNS server with putty.
2. Type **sudo ufw disable** and press **Enter**.
3. Type **sudo named-checkconf** and press **Enter**.

A black and white screen with white text

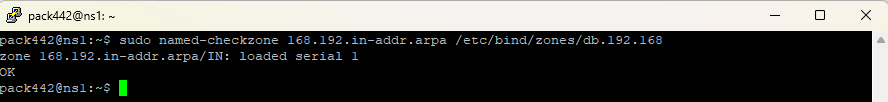
AI-generated content may be incorrect.

1. Type **sudo named-checkzone coughlinfam.com /etc/bind/zones/db.coughlinfam.com** and press **Enter**.

A black and white screen with text

AI-generated content may be incorrect.

1. Type **sudo named-checkzone 168.192.in-addr.arpa /etc/bind/zones/db.192.168** and press **Enter**.



1. Type **sudo systemctl restart bind9** and press **Enter**.

## Test DNS

From a client on the same network as the DNS server:

1. **Start** > **Run** > **cmd** and press **Enter**.
2. Type **nslookup** and press **Enter**.
3. Type **Server xxx.xxx.xxx.xxx** and press **Enter**.

NOTE: xxx.xxx.xxx.xxx being the ip address of the dns server.

1. Type **pack442.coughlinfam.com** and press **Enter**.
2. You should get result for that entry.

# Appendix:

## Installation of Putty

1. Navigate to: <https://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html>
2. Download the version that best fits your machine (most modern machines will select 64-bit x86).

A screenshot of a computer

Description automatically generated

1. Click on the download, to install.

A screenshot of a computer

Description automatically generated

1. Click **Next**.

A screenshot of a computer

Description automatically generated

1. Click **Next**.

A screenshot of a computer

Description automatically generated

1. Click **Install**

A screenshot of a computer

Description automatically generated

1. Click **Yes** if you receive this message box.

A screenshot of a computer error

Description automatically generated

1. Click **Finish**.

A screenshot of a computer program

Description automatically generated

1. Installation of putty is complete; continue to the step you were on.

## Install Winscp

1. Navigate your browser to: <https://winscp.net/eng/download.php>.
2. Click **Download**.

A screenshot of a computer

Description automatically generated

1. Click on the download, to install.

A screenshot of a computer

Description automatically generated

1. Click **Install for all users (recommended**).

A screenshot of a computer

Description automatically generated

1. Click Yes if you receive this message.

A screenshot of a computer error

Description automatically generated

1. Click **Accept**.

A screenshot of a computer screen

Description automatically generated

1. Click **Next**.

A screenshot of a computer program

Description automatically generated

1. Click **Next**.

A screenshot of a computer

Description automatically generated

1. Click **Install.**

A screenshot of a computer

Description automatically generated

1. Uncheck the two boxes and click **Finish**.

A screenshot of a computer

Description automatically generated

1. Installation of Winscp is complete, continue to the step you were on.