Linux/Unix SSH, Ping, FTP, Telnet, Wget Communication Commands

While working on a Linux operating system, you may need to **communicate with other devices**. For this, there are some basic utilities that you can make use of. These utilities can help you communicate with:

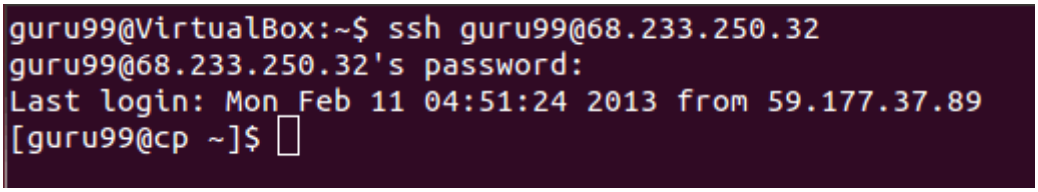
- networks,
- other Linux systems
- and remote users

SSH

SSH which stands for Secure Shell, It is used to connect to a remote computer securely. Compare to Telnet, SSH is secure wherein the client /server connection is authenticated using a digital certificate and passwords are encrypted. Hence it's widely used by system administrators to control remote Linux servers.

The syntax to log into a remote Linux machine using SSH is

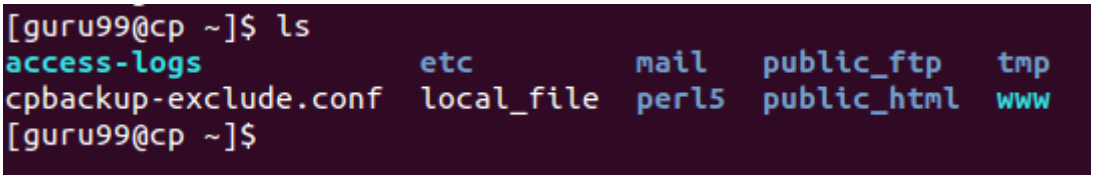
```
ssh username@ip-address
```



Once you are logged in, you can execute any commands that you do in your terminal

Example:

```
ls
```



Example:

```
pwd
```

Ping

This utility is commonly used to check whether your **connection to the server** is healthy or not.This command is also used in -

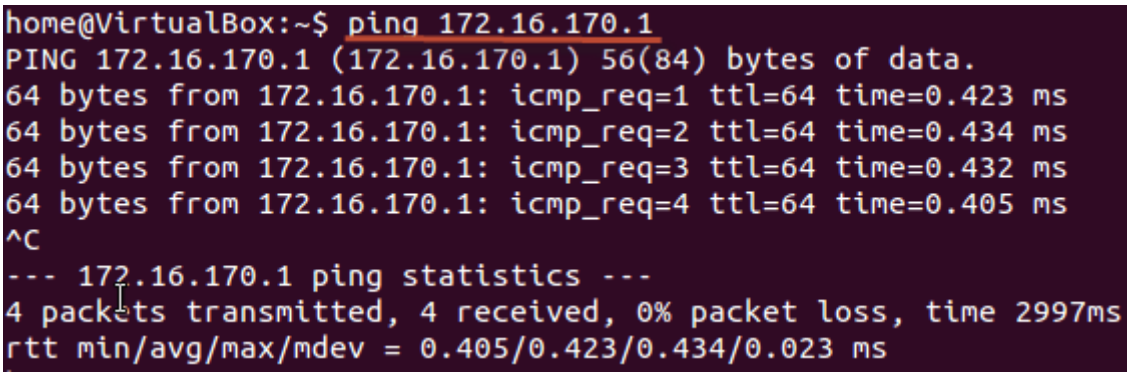
- Analyzing network and host connections
- Tracking network performance and managing it
- Testing hardware and software issues

Command Syntax:-

```
ping hostname
```

Example :

```
ping 172.16.170.1
```




```
ping google.com
```

Here, A system has sent 64 bytes data packets to the IP Address (172.16.170.1) or the Hostname(www.google.com). If even one of data packets does not return or is lost, it would suggest an error in the connection. Usually, internet connectivity is checked using this method.

You may Press **Ctrl + c** to **exit** from the ping loop.

FTP

FTP **is file transfer protocol**. It's the **most preferred protocol for data transfer** amongst computers.

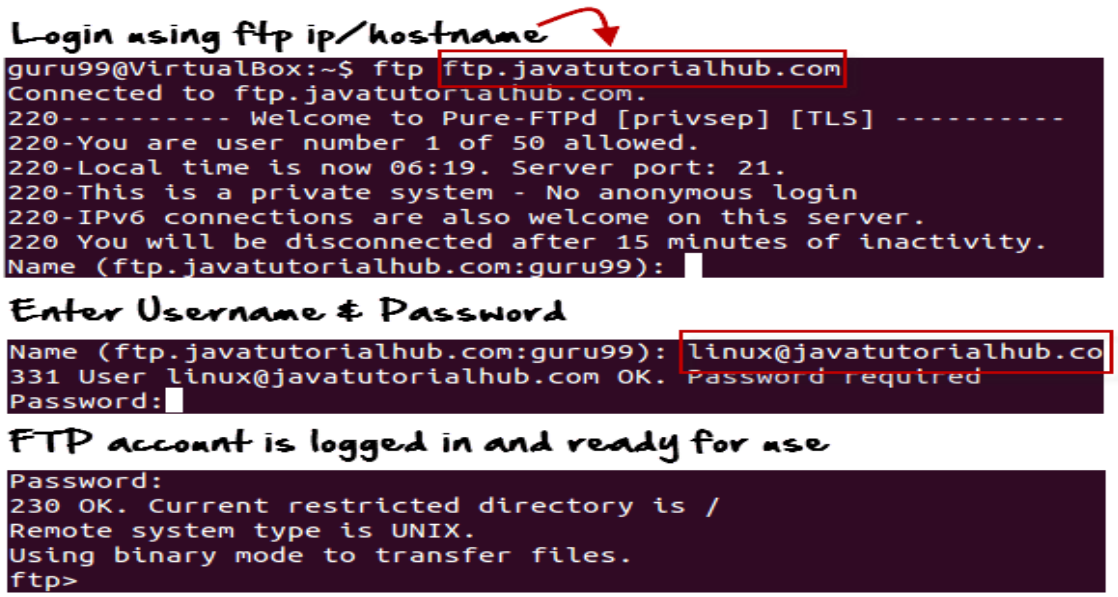
You can use FTP to :

- Logging in and establishing a connection with a remote host
- Upload and download files
- Navigating through directories
- Browsing contents of the directories

The syntax to establish an FTP connection to a remote host is -

```
ftp hostname
```

Once you enter this command, it will ask you for **authentication** via username and password.

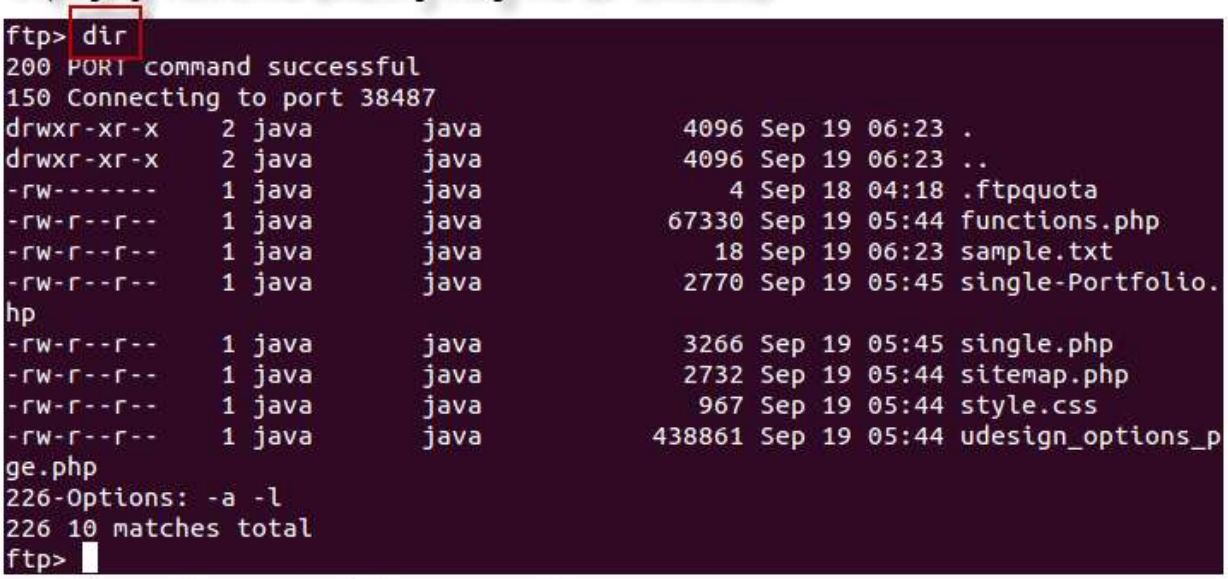


Once a connection is established, and you are logged in, you may use the following commands to perform different actions.

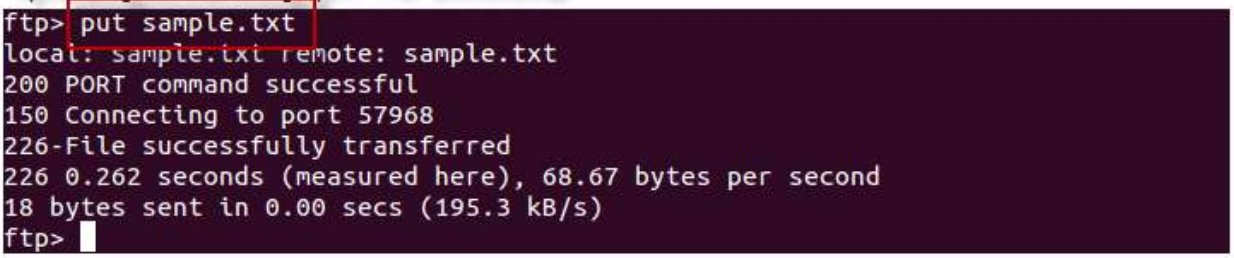
Command	Function
dir	Display files in the current directory of a remote computer
cd "dirname"	change directory to "dirname" on a remote computer
put file	upload 'file' from local to remote computer
get file	Download 'file' from remote to local computer
quit	Logout

Let us run some of the important commands.

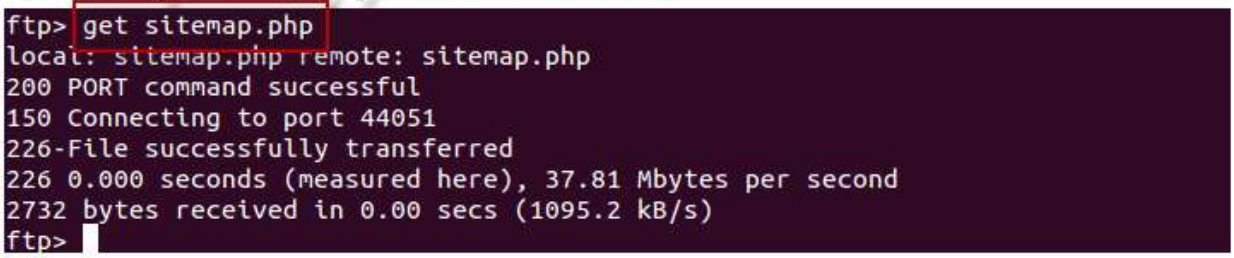
Displaying files in the directory using the 'dir' command



uploading a file using 'put file' command



downloading a file using 'get filename' command



logging out from FTP

Telnet

Telnet helps to -

- connect to a remote Linux computer
- run programs remotely and conduct administration

This utility is similar to the Remote Desktop feature found in Windows Machine.

The syntax for this utility is:

```
telnet hostname
```

For demonstration purpose, we will connect to your computer (localhost). The utility will ask your username and password.

Once authenticated, you can execute commands just like you have done so far, using the Terminal. The only difference is, if you are connected to a remote host, the commands will be executed on the remote machine, and not your local machine.

You may exit the telnet connection by entering the command 'logout'

Difference between Telnet and SSH

Here are some major differences between Telnet and SSH:

Telnet	SSH
Telnet is the standard TCP/IP protocol for virtual terminal service. It enables you to establish a connection to a remote system in such a manner that it appears as a local system.	SSH or Secure Shell is a program to log into another computer over a network to execute commands in a remote machine.
Telnet uses port 23, which was designed specifically for local area networks	SSH runs on port 22 by default, which you can change it.
No privileges are provided for the user's authentication.	SSH is a more secure protocol, so it uses public-key encryption for authentication.
Suitable for private networks	Suitable for public networks
Telnet transfers the data in plain text.	The encrypted format should be used to send data and also uses a secure channel.
Telnet is vulnerable to security attacks.	SSH helps you to overcome many security issues of Telnet.
Required low bandwidth usage.	Required high bandwidth usage.
Data sent using this protocol cannot be easily interpreted by the hackers.	Usernames and Passwords can be prone to malicious attacks.

Wget (Linux File Downloader) Command

1. Single file download

The command will download single file and stores in a current directory. It also shows **download progress**, **size**, **date** and **time** while downloading.

```
# wget http://ftp.gnu.org/gnu/wget/wget-1.5.3.tar.gz
```

Download file with different name

Using **-O** (**uppercase**) option, downloads file with different file name. Here we have given **wget.zip** file name as show below.

```
# wget -O wget.zip http://ftp.gnu.org/gnu/wget/wget-1.5.3.tar.gz
```

3. Read URL's from a file

You can store number of **URL's** in text file and download them with **-i** option. Below we have created **tmp.txt** where we put series of **URL's** to download.

```
# wget -i tmp.txt
```