

# Basic FAQ for Linux Users

## 1. How do I log in to a remote server using SSH?

### Command:

```
ssh username@hostname
```

### Explanation:

- **ssh**: Secure Shell, a protocol for securely accessing a remote machine.
- **username**: Your username on the remote machine.
- **hostname**: The address of the remote machine (e.g., IP address or domain name).

## 2. How do I run graphical applications over SSH?

### Command:

```
ssh -X username@hostname
```

### Explanation:

- **ssh -X**: Enables X11 forwarding, allowing you to run graphical applications on the remote machine and display them on your local machine.

## 3. How do I copy files from my local machine to a remote server using SCP?

### Command:

```
scp /path/to/local/file username@hostname:/path/to/remote/directory
```

### Explanation:

- **scp**: Secure Copy, a command for transferring files securely between hosts.
- **/path/to/local/file**: Path to the file on your local machine.
- **username@hostname**: Your username and the address of the remote machine.
- **/path/to/remote/directory**: Path to the destination directory on the remote machine.

## 4. How do I copy files from a remote server to my local machine using SCP?

**Command:**

```
scp username@hostname:/path/to/remote/file /path/to/local/directory
```

**Explanation:**

- `/path/to/remote/file`: Path to the file on the remote machine.
- `/path/to/local/directory`: Path to the destination directory on your local machine.

## 5. How do I synchronize directories between my local machine and a remote server using Rsync?

**Command to sync local to remote:**

```
rsync -avz /path/to/local/directory username@hostname:/path/to/remote/directory
```

**Command to sync remote to local:**

```
rsync -avz username@hostname:/path/to/remote/directory /path/to/local/directory
```

**Explanation:**

- `rsync`: Remote Sync, a utility for efficiently transferring and synchronizing files across computer systems.
- `-a`: Archive mode, which preserves permissions, timestamps, symbolic links, etc.
- `-v`: Verbose mode, which provides detailed output of the transfer process.
- `-z`: Compression, which compresses file data during the transfer.

## 6. How do I check the disk space usage of a directory?

**Command:**

```
du -sh /path/to/directory
```

**Explanation:**

- `du`: Disk Usage, a command to estimate file space usage.
- `-s`: Summarize, showing only the total for each argument.
- `-h`: Human-readable, showing sizes in KB, MB, or GB.

## 7. How do I check the available disk space on the file system?

**Command:**

```
df -h
```

**Explanation:**

- `df`: Disk Free, a command to report file system disk space usage.

- **-h**: Human-readable, showing sizes in KB, MB, or GB.

## 8. How do I find a specific file in my file system?

### Command:

```
find /path/to/search -name "filename"
```

### Explanation:

- **find**: A command to search for files in a directory hierarchy.
- **/path/to/search**: The directory to start the search.
- **-name "filename"**: The name of the file to search for.

## 9. How do I display the contents of a text file?

### Command:

```
cat /path/to/file
```

### Explanation:

- **cat**: Concatenate and display the content of files.

## 10. How do I monitor real-time system processes?

### Command:

```
top
```

### Explanation:

- **top**: A task manager program displaying real-time system summary information and a list of processes or threads currently being managed by the Linux kernel.

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Revision #2

Created 17 July 2024 05:05:43 by Ratna Kumar Bollapragada

Updated 17 July 2024 05:08:33 by Ratna Kumar Bollapragada