

rsync

Introduction

`rsync`, which stands for remote synchronization, is a command-line utility for Unix-like systems that efficiently synchronizes files and directories between two hosts or machines. It uses an algorithm to minimize the amount of data copied by only moving the portions of files that have changed. It can be used for mirroring data, incremental backups, copying files between systems, and as a replacement for `scp`, `sftp`, and `cp` commands.

Summary

`rsync` is a command-line utility for Unix-like systems that synchronizes files and directories between two hosts. It minimizes data transfer by only moving changed portions of files. `rsync` can be used for mirroring data, incremental backups, and copying files between systems. It supports various options for customization and efficiency, including compression, progress display, and exclusion options. In conclusion, `rsync` is a versatile tool for file synchronization and data transfer, making it a preferred utility for system administrators and users.

Description

To install : `sudo apt install rsync`

To check version : `sudo rsync --version`

- Local to Local: `rsync [OPTION]... [SRC]... DEST`
- Local to Remote: `rsync [OPTION]... [SRC]... [USER@]HOST:DEST`
- Remote to Local: `rsync [OPTION]... [USER@]HOST:SRC... [DEST]`

Where:

- `OPTION` - The rsync options.
- `SRC` - Source directory.
- `DEST` - Destination directory.
- `USER` - Remote username.
- `HOST` - Remote hostname or IP Address.

Some of the most widely used options are:

- `-a, --archive`: This option tells rsync to sync directories recursively, transfer special and block devices, preserve symbolic links, modification times, groups, ownership, and permissions.
- `-z, --compress`: This option forces rsync to compress the data as it is sent to the destination machine. Use this option only if the connection to the remote machine is slow.

- `-P`: Shows a progress bar during the transfer and keeps the partially transferred files. It is useful when transferring large files over slow or unstable network connections.

- `--delete`: When this option is used, rsync deletes extraneous files from the destination location. It is useful for mirroring.

- `-q, --quiet`: Use this option if you want to suppress non-error messages.

- `-e`: This option allows you to choose a different remote shell. By default, rsync is configured to use ssh.

Please note that the user running the command must have read permissions on the source location and write permissions on the destination.

For example:

```
rsync -azP /path/to/local/directory/ username@remotehost:/path/to/remote/directory/
```

In this example:

- `-a` is the archive mode, which preserves symbolic links, file permissions, user & group ownerships and timestamps.

- `-z` is for compression. It compresses the data during the transfer.

- `-P` is for progress. It shows the progress of the transfer.

- `/path/to/local/directory/` is the source directory on the local system.

- `username@remotehost:/path/to/remote/directory/` is the destination directory on the remote system.

Remember, you need to have read permissions on the source directory and write permissions on the destination directory. Also, `rsync` uses `ssh` for data transfer by default, so you need to have ssh access to the remote system. If you're not using ssh keys, you'll be prompted for a password.

****Note: **** Be careful with the trailing slash `/` after the directory. If you omit the trailing slash on the source directory, `rsync` will copy the source directory itself to the destination directory. If you include the trailing slash, `rsync` will copy only the contents of the source directory to the destination directory.

Conclusion

In conclusion, rsync is a versatile and powerful tool for file synchronization and data transfer. Its wide range of features and options make it a go-to utility for many system administrators and users who need efficient and reliable file synchronization solutions. Whether you're performing backups, mirroring data, or transferring files between systems, rsync has got you covered.