

**Droplet:**

- A digital ocean droplet is a virtual private server that can be created and managed by users on DigitalOcean's cloud hosting platform.
- You can transfer files to and from the droplet using secure copy (SCP) or file transfer protocol (FTP) clients. Alternatively, you can use tools like Git or rsync to synchronize files between your local machine and the droplet.
- You can update and upgrade packages on the droplet using the package manager for your operating system. For example, on Kali, you can use the apt-get command to update and upgrade packages.

**Putty:**

Putty is a free and open-source SSH and telnet client used to access remote servers securely.

Putty is required to establish a secure shell (SSH) connection between your local machine and the remote droplet, allowing you to manage and configure the droplet through the command line.

**SSH Key:**

An SSH key is a secure way of authenticating your identity to the remote server without using a password. It consists of a private key and a public key that are used to encrypt and decrypt data. Generating an SSH key allows you to connect to the droplet securely and easily.

A public key is used to encrypt data and can be shared freely, while a private key is used to decrypt data and must be kept secret. (1 key can be used for multiple droplets)

When you connect to a server using SSH, your local machine sends the server your public key, and the server uses it to encrypt a message that only your private key can decrypt. Your local machine then sends the encrypted message back to the server, and the server uses your private key to decrypt it and authenticate your identity.

**Troubleshooting:**

If you receive a "connection refused" error message, make sure that the droplet is running, the SSH service is enabled, and the correct IP address and port number are being used. You can also check your firewall settings to ensure that SSH traffic is allowed.

If you lose your private key, you will need to generate a new key pair and add your new public key to any servers you need to access. It's a good idea to keep a backup of your private key in a secure location, such as a password-protected USB drive or encrypted cloud storage.

There are several steps you can take to secure the droplet, including using strong passwords, disabling root login, and setting up a firewall. You can also use tools like fail2ban

to protect against brute-force attacks and monitor your server logs regularly for any suspicious activity.

If you can't connect to the droplet with Putty, check that you have entered the correct IP address and port number, and that your firewall is not blocking the connection. You may also want to try restarting the droplet or rebooting your local machine.

If you forget the root password, you can reset it from the DigitalOcean control panel by selecting the droplet and clicking on the "Reset Root Password" button. Alternatively, you can log in to the droplet using an SSH key and change the password from the command line

You can use tools like ping and traceroute to test network connectivity to and from the droplet. If you suspect a firewall issue, you can check your firewall settings or try disabling the firewall temporarily to see if the issue is resolved. Additionally, you can check the droplet's network interface settings and DNS configuration.

If you accidentally delete an important file on the droplet, you may be able to recover it using file recovery tools like TestDisk or PhotoRec. Alternatively, if you have taken a recent backup of the droplet, you can restore the file from the backup.

You can use tools like htop or top to monitor system performance and identify any processes that may be consuming excessive resources. Additionally, you can check the droplet's disk usage and memory usage to see if they are nearing their limits. Finally, you can optimize the droplet's configuration by adjusting its resource allocation, upgrading the CPU or RAM, or optimizing its software and services.

## Resources:

### Putty

- <https://docs.digitalocean.com/products/droplets/how-to/connect-with-ssh/putty>

### SSH

- <https://www.digitalocean.com/community/tutorials/ssh-essentials-working-with-ssh-servers-clients-and-keys>
- <https://people.computing.clemson.edu/~jmarty/courses/commonCourseContent/Module5-NetworkConceptsAppliedToLinuxNetworkProgramming/AdditionalMaterial/ssh101.pdf>