**Set Up Your Own Raspberry Pi Cloud Server with Nextcloud Document**

**Course: CNE350 Unix and IoT**

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# Project overview and scope

## Project overview

Nextcloud is an open-source, self-hosted file-sharing and collaboration platform that allows users to store, manage, and share files securely. It offers a range of functionalities similar to popular cloud storage services like Google Drive, Dropbox, and Microsoft OneDrive but with the added advantage of giving users complete control over their data and privacy. Here are some of the key benefits of using Nextcloud:

1. **Data Ownership and Privacy**: Since Nextcloud is self-hosted, users have full control over their data. This means that files are stored on servers that the user owns or trusts, reducing the risk of data breaches and unauthorized access.
2. **Customization and Flexibility**: Being open-source, Nextcloud can be customized to meet specific needs. Users can modify the software and integrate additional features through a wide array of apps available in the Nextcloud app store.
3. **Security**: Nextcloud includes robust security features such as end-to-end encryption, two-factor authentication, and granular access controls. Regular security updates ensure that data remains protected against vulnerabilities.
4. **Collaboration Tools**: Nextcloud offers a variety of collaboration tools, including file sharing, collaborative document editing, calendar and contacts management, and communication apps like Nextcloud Talk for audio and video conferencing.
5. **Scalability**: Nextcloud can scale from small home setups to large enterprise environments, accommodating a growing number of users and increasing amounts of data.
6. **Compliance**: It helps organizations meet regulatory requirements related to data protection and privacy, such as GDPR, by providing full data control and transparency.
7. **Cost-Effectiveness**: While there are costs associated with hosting and maintaining the server, Nextcloud itself is free to use, potentially reducing expenses compared to proprietary cloud services.
8. **Integration Capabilities**: Nextcloud integrates seamlessly with other enterprise tools and services, including LDAP/AD for user management, various storage backends, and third-party productivity applications.

Overall, Nextcloud provides a powerful, secure, and flexible alternative to proprietary cloud services, giving users and organizations the ability to manage their data according to their own policies and requirements.

## Project scope

• Install and configure NextCloudPi OS on Raspberry Pi.

• Activate and configure NextCloud.

• Setup external storage for Cloud Server.

• Configure external access over the Internet.

# Install and configure NextCloudPi OS on Raspberry Pi

## Install NextCloudPi OS

Download the NextCloudPi OS image file from:

<https://github.com/nextcloud/nextcloudpi/releases>.

It is in Zip format (NextcloudPi\_RaspberryPi4\_v1.54.0.zip). So, we have to extract it.

Then, download Raspberry Pi Imager from:

<https://www.raspberrypi.com/software/>

Double-click the download file to start the setup of the Raspberry Pi Imager.

After completing the setup, click Choose Device to select your Pi device (Raspberry Pi 4).

Then, click Choose OS and browse to the location of the zip extracted file.

Click Choose Storage to select the microSD card.

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Click Next to continue.

After the writing process is completed, remove the SD card and insert it into the Raspberry Pi 4’s microSD card slot. Then, turn on the Raspberry Pi 4 to start the booting process.

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The installation of NextCloudPi OS is completed.

## Configure NextCloudPi OS

Connect Raspberry Pi 4 to LAN to receive IP Address.

### Activate the NextCloud account

Open the web browser then type:

https://nextcloudpi.local/activate

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Then, click Activate to activate your account.

### Change username and password

Type <https://nextcloudpi.local:4443> on your web browser to access the GUI interface.

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Type the default username and password (ncp/nc-passwd) to login.

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You have login successfully.

Click Finish and then select “go back to NextCloudPi web panel”.

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Click the Config tab and then click the nc-admin tab to access the change username and password page.

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Type the new password and click Apply.

### Activate SSH access

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### Find IP Address:

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SSH to NextCloud Server and update

Update

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ncpssh@nextcloudpi:~$ sudo ncp-update

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# Setup external storage for the Cloud Server

Click the Wizard icon to start the setup the external storage:

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Click USB Configuration to continue.

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Click Yes to continue.

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Plug in the USB HDD on Pi’s USB port. Then, click Yes to continue.

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Click “Move data to USB”.

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Click “No” to finish.

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Click “go back to NextcloudPi web panel”.

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To check if the external storage has been successfully mounted and ready to be used:

* SSH to the Ras Pi device.
* Type this command: “df -T”

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You can see that the external storage has been mounted to /dev/sdal and the type is btrfs.

Btrfs is a powerful and flexible file system that offers numerous advanced features, making it suitable for a wide range of applications, from individual users to large enterprise environments. Its focus on data integrity, efficient storage management, and scalability sets it apart from traditional file systems, making it a compelling choice for modern storage needs.)

Or you can go to the Nextcloud Admin Page, click the System tab:

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# Configure external access over the Internet

Install docker.io:

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Set up Docker's apt repository:

docker run -d \

--name=wg-easy \

-e WG\_HOST=**🚨YOUR\_SERVER\_IP** \

-e PASSWORD=**🚨YOUR\_ADMIN\_PASSWORD** \

-v ~/.wg-easy:/etc/wireguard \

-p 51820:51820/udp \

-p 51821:51821/tcp \

--cap-add=NET\_ADMIN \

--cap-add=SYS\_MODULE \

--sysctl="net.ipv4.conf.all.src\_valid\_mark=1" \

--sysctl="net.ipv4.ip\_forward=1" \

--restart unless-stopped \

ghcr.io/wg-easy/wg-easy

docker run -d \

--name=wg-easy \

-e WG\_HOST=192.168.68.103 \

-e PASSWORD=**Vpn@123** \

-v ~/.wg-easy:/etc/wireguard \

-p 51820:51820/udp \

-p 51821:51821/tcp \

--cap-add=NET\_ADMIN \

--cap-add=SYS\_MODULE \

--sysctl="net.ipv4.conf.all.src\_valid\_mark=1" \

--sysctl="net.ipv4.ip\_forward=1" \

--restart unless-stopped \

ghcr.io/wg-easy/wg-easy

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WireGuard Easy is available.

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Select the **Dynamic DNS** option in the left panel and Copy the link address from the Direct URL link for your subdomain by right-clicking it then After the '?', copy the hash: the long string of letters and digits. Select FreeDNS in the NextCloudPi wizard. In the Domain area, type your subdomain, and in the Update Hash field, type your hash. Finish by clicking the Finish button.

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https://freedns.afraid.org/dynamic/update.php?aHlIZHFPbVc2d2pzNGViNkphQjluYUdOOjIyODYxMjU1

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