

Building a File Server with NFS

LPIC-2: Linux Engineer (202-450)

Objectives:

At the end of this episode, I will be able to:

1. Install and identify the primary components of NFS
2. Share folders over the network using NFS

Additional resources used during the episode can be obtained using the download link on the overview episode.

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- Network File System (NFS)
 - Network File System
 - Allow sharing files over the network
 - Developed as a standard protocol
 - Used by UNIX, Linux and macOS
 - Can be added to Windows
 - Installation Steps
 1. Install NFS (if necessary)
 - `sudo apt install nfs-kernel-server`
 2. Enable and Start Services
 - `sudo systemctl enable --now rpcbind nfs-kernel-server`
 - rpcbind
 - Remote Procedure Call
 - Connects ports between client and server
 - NFSv2 and NFSv3 require rpcbind
 - NFSv4 does not need it
 - Reduces the number of required ports
 - Hurts compatibility
 - Sharing folders with NFS
 1. Create a folder to share
 - `sudo mkdir -p /srv/nfs/files /srv/nfs/reports`
 - `sudo chmod o+rw /srv/nfs/files`
 - `sudo chmod o+r /srv/nfs/reports`
 2. Add the folder to the export list
 - `sudoedit /etc/exports`
 - `/srv/nfs/files *(sync,no_subtree_check)`
 - `/srv/nfs/reports *(sync,no_subtree_check)`
 3. Reload the config file
 - `sudo exportfs -r`
 - `sudo exportfs -v` to verify
 4. Update portmap
 - `sudo systemctl restart nfs-kernel-server`
 - NFS options
 - Generally tweak filesystem performance
 - **sync**
 - Require writes to be complete before accepting next command
 - **subtree_check**

- Check to see if file is accessible in the export and the underlying filesystem
- Open firewall ports for NFS
 - `sudo ufw allow nfs`
 - `sudo ufw allow from 10.0.222.0/24 to any port nfs`