Using Docker Compose to Set Up an NFS Server

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1 Introduction

In this guide, we will explain how to set up an NFS (Network File System) server using Docker Compose. The provided Docker Compose configuration uses the `openebs/nfs-server-alpine` image to create a lightweight NFS server.

2 Docker Compose Configuration

The following Docker Compose configuration sets up an NFS server:

```
services:
  nfs-server:
      image: openebs/nfs-server-alpine
      container_name: nfs-server
      privileged: true  # Enable privileged mode
      ports:
        - "2049:2049"
      environment:
        - SHARED_DIRECTORY=/nfsshare
        - PERMITTED="*"
        - READ_ONLY="rw"
        - SYNC="sync"
        - FILEPERMISSIONS_UID=1000 # User ID for shared directory permissions
        - FILEPERMISSIONS_GID=1000 # Group ID for shared directory permissions
        - FILEPERMISSIONS_MODE=0755
      volumes:
        - ./nfsdisk:/nfsshare
```

3 Explanation of the Configuration

This Docker Compose configuration defines a service named `nfs-server` that uses the `openebs/nfs-server-alpine` Docker image. Below is an explanation of the configuration options:

- **image: openebs/nfs-server-alpine**: This specifies the Docker image to use for the NFS server. The `openebs/nfs-server-alpine` image is a lightweight NFS server built on Alpine Linux.

- **container_name: nfs-server**: This assigns a custom name (`nfs-server`) to the container.

- **privileged: true**: This option grants the container elevated privileges. It's required for some NFS operations, such as managing file system permissions.

- **ports: - "2049:2049"**: This binds port 2049 on the host machine to port 2049 inside the container, making the NFS server accessible on the host's port 2049.

- **environment**: This section configures several environment variables for the NFS server.

- **volumes: - ./nfsdisk:/nfsshare**: This mounts a local directory (`./nfsdisk`) into the container at `/nfsshare`. This will be the directory that is shared over NFS.

4 Steps to Set Up the NFS Server

Follow these steps to set up the NFS server using Docker Compose:

1. Run the following command to start the NFS server service:

   ```
   docker-compose up -d
   ```

   This will pull the `openebs/nfs-server-alpine` image, create the container, and start the NFS server in detached mode.

2. The NFS server will now be accessible on port 2049. You can verify this by checking the container logs or attempting to mount the NFS share from a client machine.

5 Conclusion

Using Docker Compose to run an NFS server is a convenient way to create a shared network storage solution in a containerized environment. The configuration allows you to control access, permissions, and file-sharing settings for your NFS server.