

var/ftpd and srv/tftp

Great question! Understanding the directory structure and choosing the appropriate TFTP root directory is essential for maintaining a well-organized and secure system. Let's delve into the differences between using `/var/ftpd` and `/srv/tftp` as your TFTP root directory on Arch Linux.

1. Filesystem Hierarchy Standard (FHS) Overview

The **Filesystem Hierarchy Standard (FHS)** defines the directory structure and directory contents in Unix and Unix-like operating systems, including Linux. It provides guidelines on where files and directories should reside, promoting consistency and predictability across systems.

- **/var** : Stands for "variable." It's intended for files to which the system writes data during operation. This includes logs, spool files, and other transient data.
- **/srv** : Stands for "service." It's designated for data served by the system, such as web pages, FTP files, and TFTP files.

2. Comparing /var/ftpd and /srv/tftp

a. /var/ftpd

- **Purpose:** Historically used for FTP server files. The `ftpd` stands for "FTP daemon."
- **Usage:** Traditionally, FTP servers like `vsftpd` or `proftpd` have their root directories within `/var/ftpd`. This aligns with the FHS's guidance that variable data (which can change during system operation) should reside here.
- **Advantages:**

- **Legacy Support:** If you're migrating from an older system or using FTP and TFTP in tandem, keeping all related services under `/var` can simplify management.
- **Disadvantages:**
 - **FHS Compliance:** While `/var/ftpd` is acceptable, `/srv/tftp` more accurately reflects the nature of TFTP services as per FHS guidelines.
 - **Clarity:** Using `/srv/tftp` clearly indicates that the directory is intended for service data, enhancing readability and maintainability.

b. `/srv/tftp`

- **Purpose:** Specifically designated for data served by the TFTP service.
- **Usage:** Modern configurations and best practices suggest placing service-specific data under `/srv`. For TFTP, this means using `/srv/tftp` as the root directory.
- **Advantages:**
 - **FHS Compliance:** Aligns with FHS by placing service data under `/srv`.
 - **Organization:** Separates service data from variable data, improving system organization.
 - **Clarity:** Makes it clear that the directory is intended for TFTP services, which is beneficial for system administrators and future maintenance.
- **Disadvantages:**
 - **Migration Effort:** If you're switching from `/var/ftpd` to `/srv/tftp`, you'll need to move files and update configurations accordingly.

3. Choosing Between `/var/ftpd` and `/srv/tftp`

Both directories are functional choices for hosting TFTP files. However, **using `/srv/tftp` is generally recommended** for the following reasons:

1. **Adherence to Best Practices:** `/srv/tftp` aligns with the FHS, promoting better organization and standardization.
2. **Clarity and Maintainability:** Clearly indicates the purpose of the directory, making it easier

for others (or future you) to understand the system setup.

3. **Separation of Concerns:** Keeps service data separate from other variable data, reducing potential conflicts and enhancing security.

However, if your current setup with `/var/ftpd` works seamlessly and you prefer not to change it, it's perfectly acceptable. The most crucial aspect is consistency and ensuring that your configuration files correctly point to the chosen directory.

4. Configuring `tftpd-hpa` with `/var/ftpd` vs. `/srv/tftp`

Regardless of the directory you choose, the configuration process remains largely the same. Here's how you can adjust your setup based on your chosen directory.

a. Using `/var/ftpd`

1. **Create the Directory (if it doesn't exist):**

```
sudo mkdir -p /var/ftpd
sudo chmod -R 755 /var/ftpd
```

2. **Update `tftpd-hpa` Configuration:**

Edit the TFTP configuration file, typically located at `/etc/conf.d/tftpd` :

```
sudo nano /etc/conf.d/tftpd
```

Modify the `TFTP_DIRECTORY` to `/var/ftpd` :

```
# /etc/conf.d/tftpd
TFTP_USERNAME="tftp"
TFTP_DIRECTORY="/var/ftpd"
TFTP_ADDRESS="0.0.0.0:69"
TFTP_OPTIONS="--secure --create"
```

3. **Restart the TFTP Service:**

```
sudo systemctl restart tftpd
```

4. Update dnsmasq Configuration:

If your `dnsmasq` config specifies the TFTP root directory, ensure it points to `/var/ftpd` :

```
# /etc/dnsmasq.conf
enable-tftp
tftp-root=/var/ftpd
```

Then restart `dnsmasq` :

```
sudo systemctl restart dnsmasq
```

b. Using `/srv/tftp`

If you decide to use `/srv/tftp` , follow the configuration steps outlined in the previous response, ensuring all paths point to `/srv/tftp` .

5. Migrating from `/var/ftpd` to `/srv/tftp` (Optional)

If you currently use `/var/ftpd` but wish to switch to `/srv/tftp` for better alignment with FHS, follow these steps:

1. Create the New TFTP Directory:

```
sudo mkdir -p /srv/tftp
sudo chmod -R 755 /srv/tftp
```

2. Move Existing TFTP Files:

```
sudo mv /var/ftpd/* /srv/tftp/
```

3. Update `tftpd-hpa` Configuration:

Edit /etc/conf.d/tftpd :

```
sudo nano /etc/conf.d/tftpd
```

Change TFTP_DIRECTORY to /srv/tftp :

```
# /etc/conf.d/tftpd
TFTP_USERNAME="tftp"
TFTP_DIRECTORY="/srv/tftp"
TFTP_ADDRESS="0.0.0.0:69"
TFTP_OPTIONS="--secure --create"
```

4. Update dnsmasq Configuration:

Edit /etc/dnsmasq.conf :

```
sudo nano /etc/dnsmasq.conf
```

Set tftp-root to /srv/tftp :

```
enable-tftp
tftp-root=/srv/tftp
```

5. Restart Services:

```
sudo systemctl restart tftpd
sudo systemctl restart dnsmasq
```

6. Verify Permissions:

Ensure /srv/tftp has the correct permissions:

```
sudo chmod -R 755 /srv/tftp
sudo chown -R tftp:tftp /srv/tftp
```

7. Clean Up (Optional):

After verifying that everything works correctly, you can remove the old `/var/ftpd` directory if it's no longer needed:

```
sudo rm -rf /var/ftpd
```

6. Additional Considerations

- **Security:** Regardless of the directory you choose, ensure that permissions are correctly set to prevent unauthorized access. Only the necessary users (typically the `tftp` user) should have write access.
- **Consistency:** Stick to one directory for all TFTP-related files to avoid confusion and potential conflicts.
- **Documentation:** Document your configuration choices. This practice is invaluable for troubleshooting and for other administrators who may work on the system.

7. Summary

- **`/var/ftpd`** : Traditionally used for FTP server files. Acceptable for TFTP services but less aligned with modern FHS guidelines.
- **`/srv/tftp`** : Recommended for TFTP services as per FHS, offering better organization and clarity.

Both directories are functional, and the choice largely depends on your specific requirements and preferences. However, for better alignment with best practices and maintainability, **using `/srv/tftp` is generally advisable.**

If you decide to continue using `/var/ftpd`, ensure that all your configurations point to this directory and maintain proper permissions to secure your TFTP service.

Feel free to ask if you have any more questions or need further assistance with your setup!