tftp server on Debian



context

dit document beschrijft de installatie van een TFTP server op Debian

 GOAL:

Set up a PXE server on Debian that can serve:

PXE bootloader via TFTP

Debian installer and preseed file via HTTP

 Required Packages (all on your Debian PXE server)

Install all necessary packages:

sudo apt update sudo apt install apache2 tftpd-hpa syslinux-common pxelinux

These install:

tftpd-hpa: TFTP server

apache2: HTTP server

syslinux / pxelinux.0: PXE bootloaders

 Directory Structure Overview

We'll organize everything like this:

/var/lib/tftpboot/ ├── pxelinux.0 ├── ldlinux.c32 ├── pxelinux.cfg/ │ └── default ├── debian-installer/ │ └── amd64/ │ ├── linux │ └── initrd.gz

/var/www/html/ └── preseed/

```
   └── debian.cfg
```

1 TFTP Server Setup 1.1 Create required directories: sudo mkdir -p /var/lib/tftpboot/pxelinux.cfg

1.2 Copy PXE bootloader files: sudo cp /usr/lib/PXELINUX/pxelinux.0 /var/lib/tftpboot/ sudo cp /usr/lib/syslinux/modules/bios/ldlinux.c32 /var/lib/tftpboot/

1.3 Configure tftpd-hpa

Edit the config file:

sudo nano /etc/default/tftpd-hpa

Update it to:

TFTP_USERNAME="tftp" TFTP_DIRECTORY="/var/lib/tftpboot" TFTP_ADDRESS="0.0.0.0:69" TFTP_OPTIONS="–secure"

Then restart the service:

sudo systemctl restart tftpd-hpa sudo systemctl enable tftpd-hpa

Check that it's listening:

sudo netstat -ulnp | grep 69

2 Download Debian Netboot Files

Download the kernel and initrd files for PXE boot:

cd /var/lib/tftpboot/ sudo mkdir -p debian-installer/amd64 cd debian-installer/amd64

sudo wget http://deb.debian.org/debian/dists/bookworm/main/installer-amd64/current/images/netboot/debian-installer/amd64/linux sudo wget http://deb.debian.org/debian/dists/bookworm/main/installer-amd64/current/images/netboot/debian-installer/amd64/initrd.gz

 Now your PXE server can load the Debian installer kernel + initrd.

3 Create PXE Boot Menu

Create the PXE config file:

sudo nano /var/lib/tftpboot/pxelinux.cfg/default

Paste:

DEFAULT install LABEL install

```
  KERNEL debian-installer/amd64/linux
  APPEND vga=788 initrd=debian-installer/amd64/initrd.gz auto=true
priority=critical url=http://<PXE_SERVER_IP>/preseed/debian.cfg
```

Replace <PXE_SERVER_IP> with the actual IP address of your PXE server (e.g. 192.168.1.100).

4 HTTP Server Setup (for Preseed)

The Debian installer will fetch the preseed.cfg via HTTP.

4.1 Create the directory and file: sudo mkdir -p /var/www/html/preseed sudo nano /var/www/html/preseed/debian.cfg

Paste a minimal working preseed (adjust usernames, etc.):

Locale and keyboard d-i debian-installer/locale string en_US d-i keyboard-configuration/xkb-keymap select us

Network d-i netcfg/choose_interface select auto

Mirror d-i mirror/country string manual d-i mirror/http/hostname string deb.debian.org d-i mirror/http/directory string /debian d-i mirror/http/proxy string

Timezone d-i time/zone string UTC d-i clock-setup/utc boolean true

Users d-i passwd/root-password password rootpass d-i passwd/root-password-again password rootpass d-i passwd/make-user boolean true d-i passwd/user-fullname string Debian User d-i passwd/username string debian d-i passwd/user-password password debianpass d-i passwd/user-password-again password debianpass

Partitioning (entire disk, LVM) d-i partman-auto/method string lvm d-i partman-lvm/device_remove_lvm boolean true d-i partman-auto/choose_recipe select atomic d-i partman/confirm boolean true d-i partman/confirm_nooverwrite boolean true

Package selection tasksel tasksel/first multiselect standard, ssh-server d-i pkgsel/include string sudo curl vim

Grub d-i grub-installer/only_debian boolean true

Finish d-i finish-install/reboot_in_progress note

Make sure the file is readable:

sudo chmod 644 /var/www/html/preseed/debian.cfg

Now verify it in browser: http://<PXE_SERVER_IP>/preseed/debian.cfg

5 Configure Firewall (Optional)

If you use ufw:

sudo ufw allow 69/udp # TFTP sudo ufw allow 80/tcp # HTTP

6 You're Ready to Boot VMs via PXE On your ESXi Web UI:

Create a new VM (use BIOS, not UEFI).

Make sure the NIC is on the same VLAN/subnet.

Boot the VM — it should:

Get IP from your Windows DHCP server

Receive PXE bootloader via TFTP from your Debian PXE server

Boot into the Debian installer

Pull preseed file from PXE server via HTTP

Complete a fully automated install

 At This Point, You Have: Component Status TFTP Installed and configured (/var/lib/tftpboot) HTTP Apache running and serving /preseed/debian.cfg PXE Menu Points to Debian installer + preseed Netboot Files Downloaded from Debian mirrors DHCP Handled by your existing Windows server Next Steps / Optional

Customize preseed with static IPs or SSH keys

Add post-install hooks using d-i preseed/late_command

Support multiple Debian versions

Add Ubuntu PXE support in future

Would you like me to:

Customize a preseed for your environment (hostname, users, static IP)?

Help set up PXE for UEFI boot?

Generate a post-install script?

Let me know — and good job getting this far!

meer info

voeg hier linken toe naar verdere uitleg

Linux

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