# # howto: Setup from-scratch PXE Server

1. create VM / Prep Server for Install

- at least 4 CPUs

- 4096 MB / 4 GB RAM

- 200-250 GB Storage

- for VM, Bridged Network Adapter, or in ESXi, connected to the subnet needed to image from.

2. Get ISO

- Use latest Fedora Linux Server DVD: https://mirror.lstn.net/fedora/releases/ (and then navigate to version > Server > x86\_64 > iso and download the dvd iso)

- For physical servers, burn to CD or write to USB as needed

- For a VM, load the ISO into the datastore, or in Player/Workstation/virtualbox set the CD drive to the iso file.

3. Boot to ISO

- interrupt boot as necessary to boot from CD/USB

4. Installation

- need keyboard, video and mouse to install.

- Select language

- Set the timezone

- Click Network, change the hostname to pxe and click Apply. Make sure network is connected.

- Installation destination: select Custom for partitioning, then click Done; after:

- if there are other partitions, click the arrow next to them, click one, then click the Minus (-) button; when prompted, check the box to delete other partitions on this installation and then click to confirm deletion.

- In the dropdown, select Standard Partition

- Click to create standard Fedora mountpoints

- If a /home partition is created, click it and click Minus (-) to remove it

- change the root (/) partition to be the max size; click it and change it to 200/250 GB and click Apply Changes. it will auto-adjust.

- Click Done, then click Accept Changes

- Create user; make sure they are an admin. (you may have to scroll down to see the user creation)

- Software Selection: Choose Minimal Install if available, or choose Fedora Custom OS.

- Click to begin the install, and reboot when done.

5. First Boot

- `sudo dnf update`

- reboot if new kernel installed (it probably was)

- `sudo dnf install ansible git NetworkManager-tui python3-netaddr`

- `git clone https://github.com/sjtrotter/fedora-pxe-setup.git`

- Use nmtui to set network information manually. Make sure you set the IP with a /XX for the CIDR, and make sure you set the DNS and Gateway appropriately. ( run `nmtui` )

- If using an ad-hoc version of settings.tar.gz, place it in the fedora-pxe-setup directory.

- `sudo ansible-playbook fedora-pxe-setup/pxe-setup.yml` (make sure you use the path into the git clone, if you have cd'd elsewhere)

6. Done.

Once the ansible playbook completes successfully, the server is ready to PXE boot devices.

# # howto: Setup from-VM-clone PXE server

This assumes you have previously set up a PXE server as a VM according to above and you wish to clone it.

1. Clone/move as necessary.

2. Boot from console:

- Login, then use nmtui ( run `nmtui` ) to set network information manually.

- `cd fedora-pxe-setup` and then `git pull` to update files

- if using an ad-hoc version of settings.tar.gz, place it in the fedora-pxe-setup directory.

- `sudo ansible-playbook pxe-setup.yml` to update and place all files.

3. Done.

Once playbook completes successfully, the server is ready to PXE boot devices.

# # howto: Upgrade Fedora version

Fedora upgrades about every 6 months, in April-ish and October-ish. When ready to test the next version, change the `version: ` line at the top of pxe-setup.yml (line 5) to the appropriate number.

One potential breakage this may cause is the CERT Forensic Tools packages. The administrator of the PXE server should ensure that the repository at https://forensics.cert.org/fedora/cert/ is available for the new Fedora version before attempting upgrade (make sure there is a folder for the new version). They should also check to ensure a new key is not needed, by reviewing documentation at https://forensics.cert.org/#fedorasupport

Setting this number 2 versions higher than the original installation of the PXE server will remove the 2nd-to-last installation directory before cloning the repository. this should keep the total size of the server under 200GB.

# # howto: Customize the installation

- task: change hard drive encryption password

- file: basic-workstation.ks - within this file, the line `autopart --encrypted --passphrase workstation` (line 30) should have the last item, workstation, changed to whatever you want the encryption password to be. This should be in quotes if you use any special characters. The virtual-workstation.ks file does not encrypt by default because usually you do not want to encrypt a virtual machine, because you'd have to access the console to unlock it.

- task: add default user

- file: basic-workstation.ks, virtual-workstation.ks - if you decide you want a default user to be set, uncomment the line `#user --groups=wheel --name=user --password=workstation --gecos="user"` (around line 40) (remove the '#') and then edit the --name= and --gecos= and --password= values to setup the user. By default, users are not set; this allows (forces?) the end-user of the laptop to create their own user account. Remember to quote the password if any special characters are used.

Once you change any files, \*\*DO NOT\*\* git push back into the repository, if you have set up to push.

If you change any files, you need to run/re-run `sudo ansible-playbook pxe-setup.yml` to apply the changes.

# # howto: Customize settings.tar.gz

The default settings.tar.gz contains files that are meant to be uncompressed in the root (/) directory. It contains default settings for Firefox, Chrome, and .bashrc and /root/.bashrc, and also contains a more robust password policy. You may want to include things like default settings for Horizon or for Autopsy to connect to a multi-user database. If so, you will need to add it to the settings tarball to have it take effect.

In order to update the settings, first run an installation on a machine. it can be real or virtual, we just need a baseline. After install, open a terminal and do the following:

- `cd /`

- `sudo wget [ PXE SERVER IP ]/f[ fedora version ]-inst.local/other/settings.tar.gz`

- `sudo gunzip settings.tar.gz`

Once you have the tarball unzipped, you need to identify the files you want to standardize. For example, if you want the Autopsy configuration, you should open Autopsy then edit the preferences as you need, then look in the user home folder and find the settings. (for autopsy, it is in /home/USER/.autopsy). You should then move them to /etc/skel like so:

- `sudo cp /home/USER/.autopsy /etc/skel`

and then you should add the folder to the settings tarball like so:

- `sudo tar -rf settings.tar /etc/skel/.autopsy`

When done adding the settings you want, re-zip the files:

- `sudo gzip settings.tar`

And then, scp the files to the PXE server. (make sure SSH is on, on the pxe server and the laptop, with `sudo systemctl start sshd`)

- `scp settings.tar.gz [pxe user]@[pxe ip]:/path/to/fedora-pxe-setup/settings.tar.gz`