

## Installing Fedora for LANforge

Installing Fedora is the first step to building a LANforge machine. You might be doing this when you are installing to new hardware, doing an OS update, or replacing a failed hard drive. LANforge should work on most releases of Fedora, but please ask your support contact for a suggested version.

LANforge 5.3.7 on Fedora 27 was the most recent combination as of this writing.

### Suggested Items

We want to begin with:

- Your normally working desktop or laptop and an Internet Connection
- PC/Server computer with 4GB+ RAM and 16GB+ SSD/Hard drive. If you are replacing the hard drive, do the hard-drive replacement before you start these instructions.
- If you are doing an OS Upgrade, please run these commands on the LANforge system as root user and use WinSCP or similar to save the lf\_state.tgz off the LANforge machine:

```
cd /home/lanforge
tar -cvzf lf_state.tgz license.txt DB config.values
```

- 4GB USB stick
- Downloaded Fedora .ISO image

### Hard drive replacement in CT523 chassis

On a CT52x chassis, you can open the bottom of the case by turning the unit over and unscrewing the rubber feet. When you open this back panel of the chassis, you will see a SSD attached to the inside of the bottom panel.



### Installation Steps

#### 1. Download ISO image

Begin by downloading a Fedora MATE install CD image. The Fedora project [describes making these CD images on their website](#). We suggest looking at their [installation guide](#) as well. Fedora comes in a stock

workstation image and many [spins](#). Our instructions assume using the [MATE spin](#). MATE is a lower resource desktop with a more familiar look and feel to older Fedora and Windows users. You will want to [download the F27 ISO image](#). Once you download your image, we suggest you [verify the SHA256 hash](#). There are [PowerShell techniques to do verification](#) as well. For Fedora 27, the [signatures are here](#). -->

## 2. Write the ISO to the USB stick

After you've downloaded the F24 disk image *Fedora-MATE\_Compiz-Live-x86\_64-27-1.6.iso* to your Downloads folder, you will plug in your USB stick and burn the image to it:

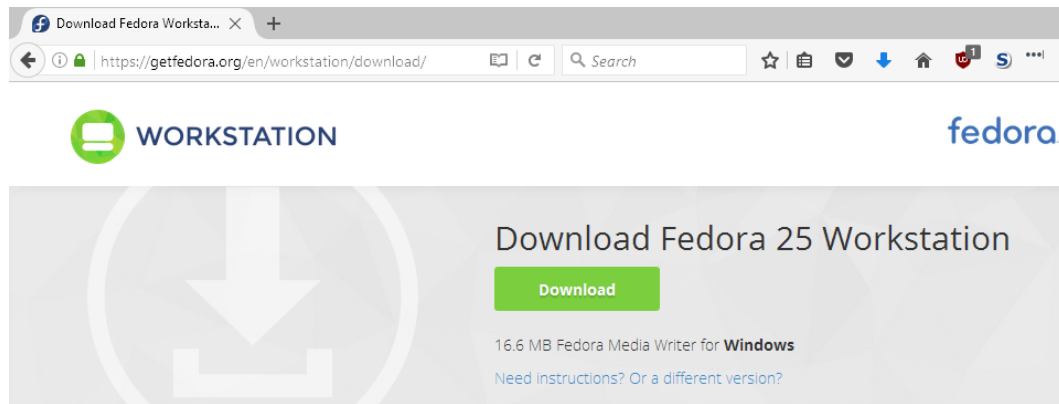
### On Windows

There are a number of utilities you can use to write ISO files to USB sticks, but here are two recommended methods: 1) the Fedora Media Writer, and 2) Rufus.

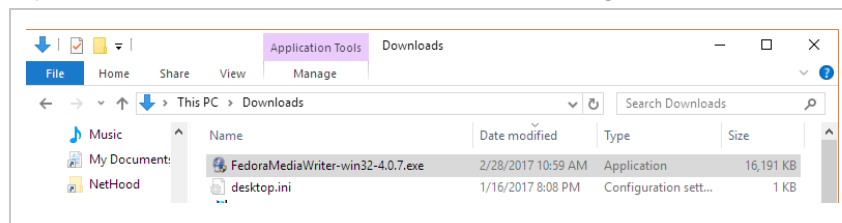
#### Fedora Media Writer

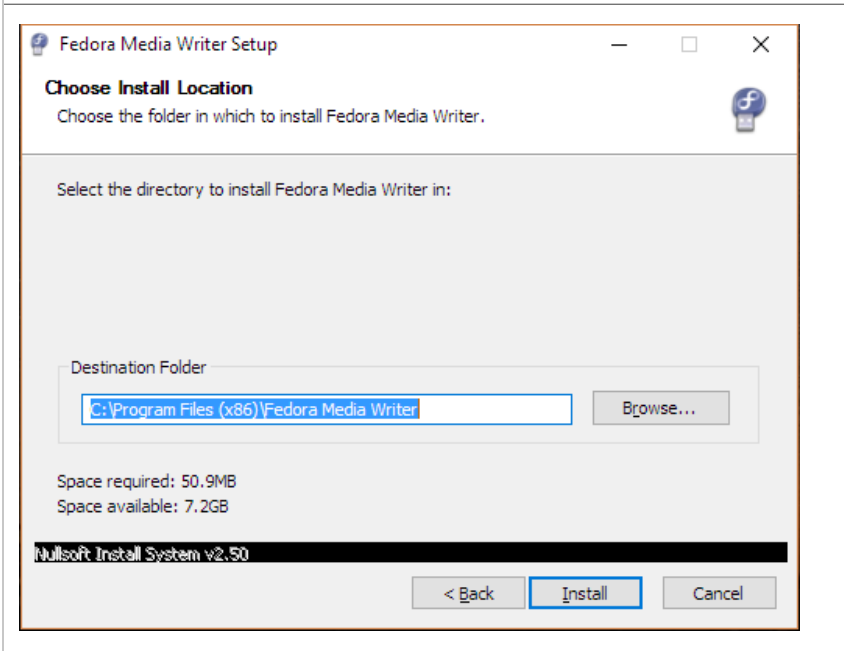
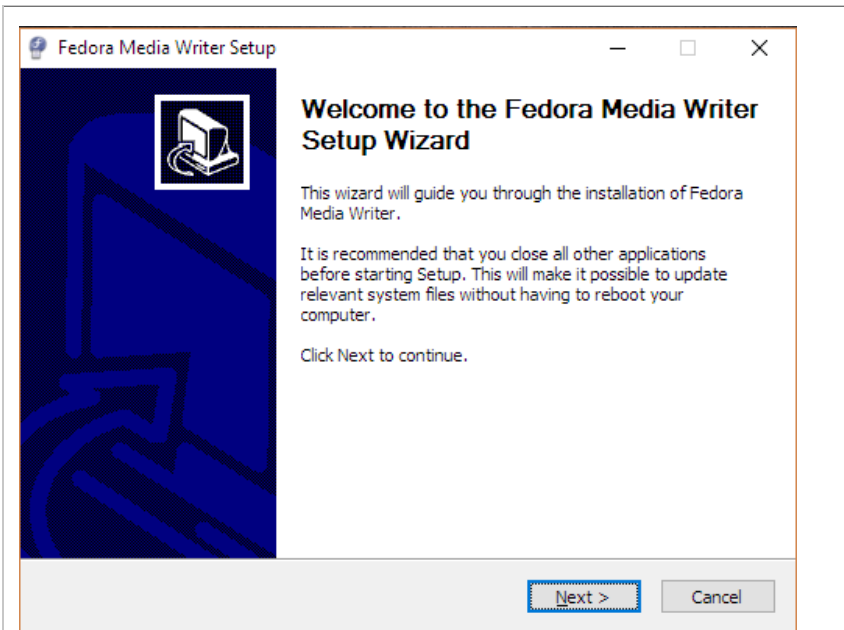
The Fedora project provides the Fedora Media Writer as their default Windows-oriented download. It is simple to use, and you can use it to write any ISO file you downloaded earlier. The following series of screenshots shows using it. There is also further [USB creation information](#) at the Fedora Wiki. Once you have written your ISO file, you should [verify the SHA256 hash](#).

1. Start at [The Fedora download page](#) and by clicking on the big green button, you download the Fedora Media Writer.

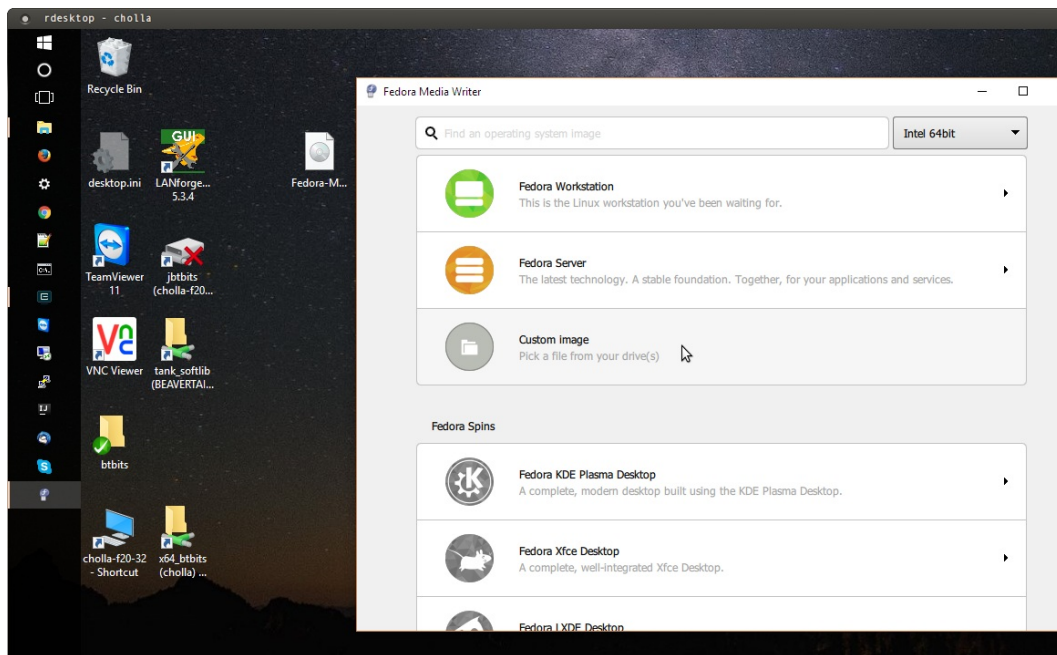


2. In your Downloads folder, double-click the installer to begin the install:

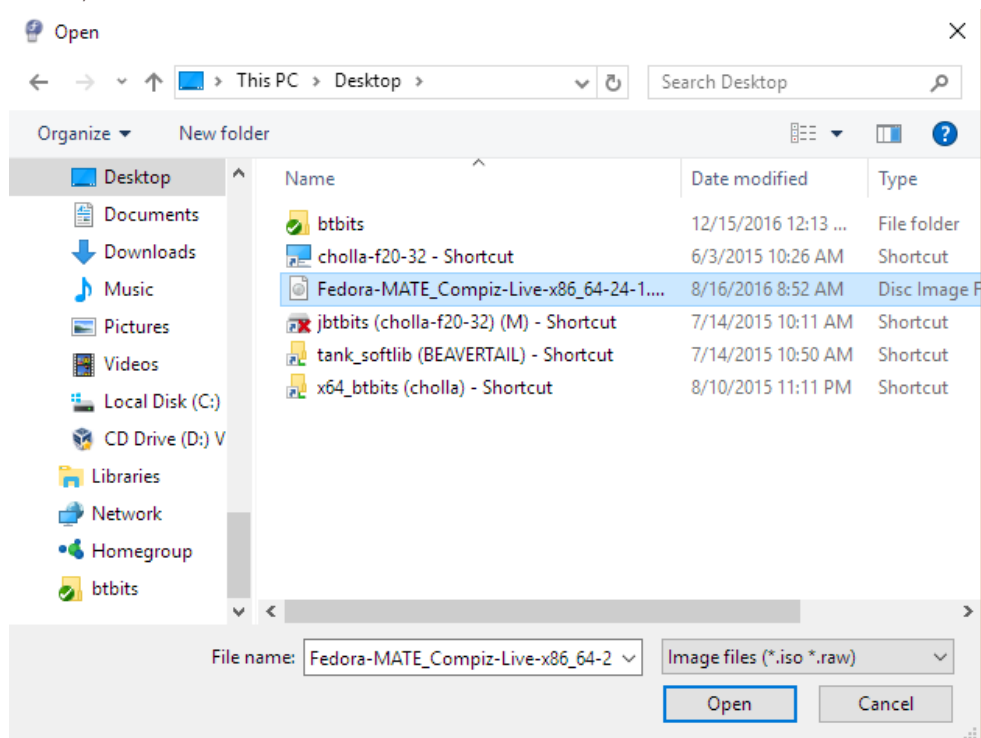




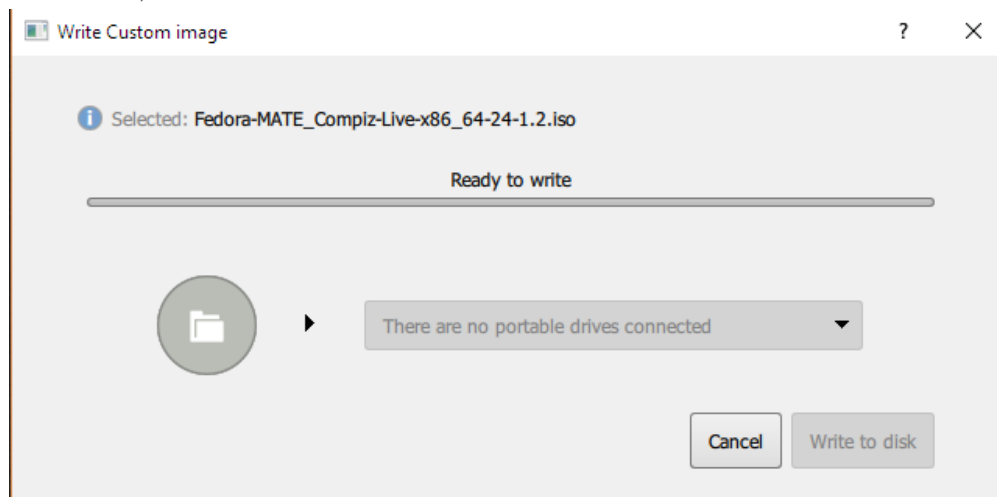
3. Launch the Fedora Media Writer and click *Custom Image*



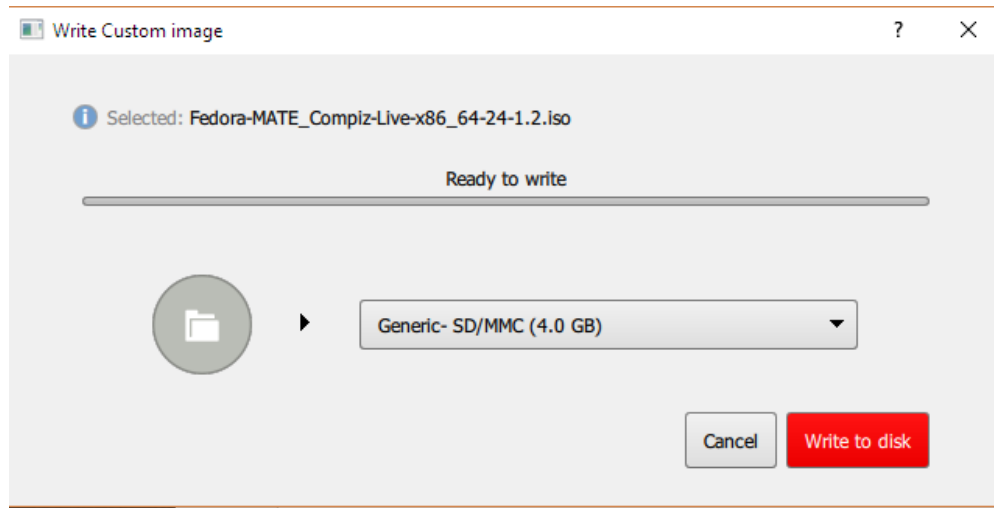
4. Select your ISO file:



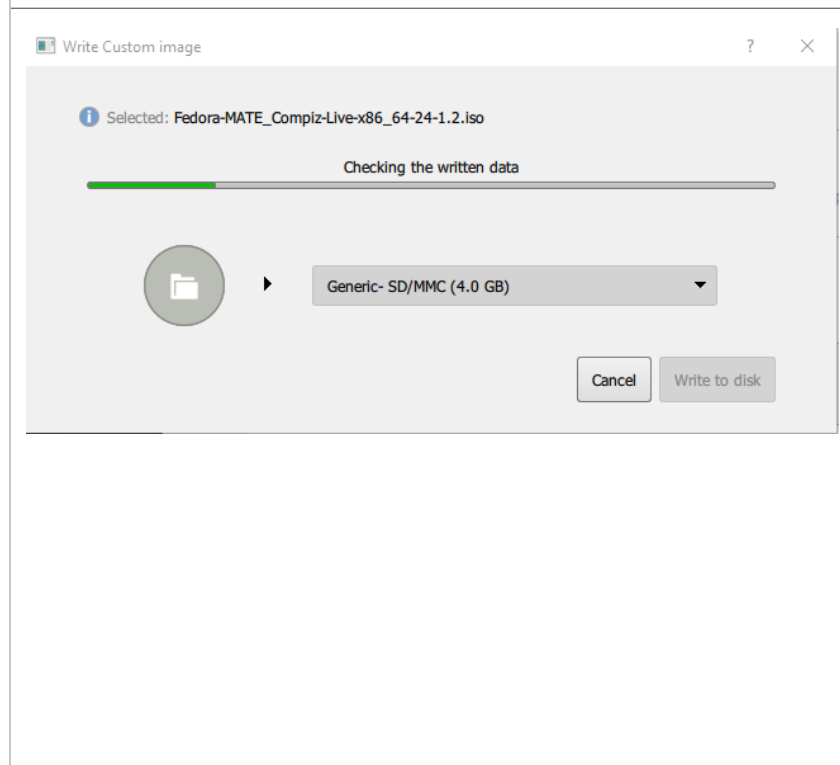
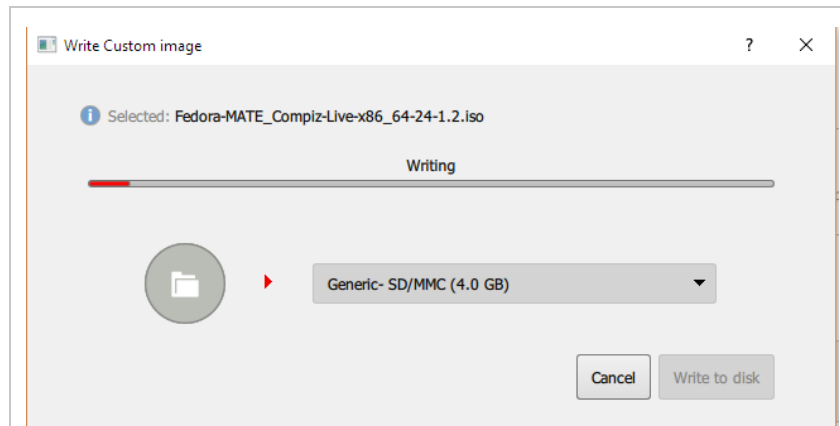
5. Next, select your USB stick:

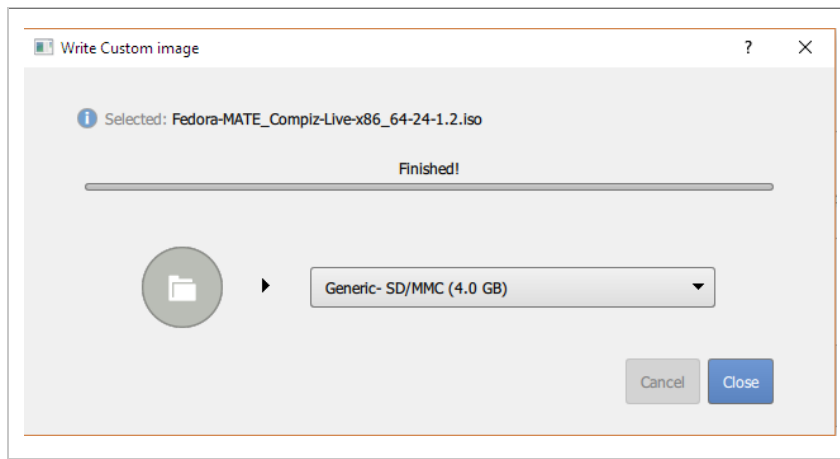


Selected:



6. Click *Write* and the image will overwrite the entire contents of your USB stick:





### Write the image using Rufus

Rufus is a Win32 USB writing utility. If you collect good Windows utilities, you might want to use this. Using Rufus is described in this [LifeHacker article](#).

### On Linux

- Open a terminal window
- To check the drive name of the USB stick, the last system messages should tell you: `dmesg | tail`  
You might see a message saying :

```
$ dmesg | tail
[35246.926813] sd 6:0:0:0: [sd] 7975296 512-byte logical blocks: (4.08 GB/3.80 GiB)
[35246.927397] sd 6:0:0:0: [sd] Write Protect is off
[35246.927404] sd 6:0:0:0: [sd] Mode Sense: 43 00 00 00
[35246.927905] sd 6:0:0:0: [sd] No Caching mode page found
[35246.927910] sd 6:0:0:0: [sd] Assuming drive cache: write through
[35246.932978] sdc: sdc1 sdc2
[35246.935868] sd 6:0:0:0: [sd] Attached SCSI removable disk
[35247.181511] ISO 9660 Extensions: Microsoft Joliet Level 3
[35247.183189] ISO 9660 Extensions: Microsoft Joliet Level 3
[35247.187857] ISO 9660 Extensions: RRIP_1991A
```

Or you might use the command `lsblk` which will list all your drives.

```
$ lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE  MOUNTPOINT
sda          8:0    0 119.2G  0 disk
├─sda1       8:1    0   953M  0 part
├─sda2       8:2    0     1K  0 part
├─sda5       8:5    0   953M  0 part
├─sda6       8:6    0    94M  0 part
├─sda7       8:7    0   46.6G  0 part
└─sda8       8:8    0   70.7G  0 part
sdb          8:16   0 119.2G  0 disk
sdc         8:32   1   3.8G  0 disk
├─sdc1       8:33   1   616M  0 part  /media/jreynolds/Ubuntu-Server 15.04 amd64
└─sdc2       8:34   1    2.2M  0 part
```

For this example, we'll assume your USB stick is `/dev/sdc`

- You can use the `dd` utility on the command line.

```
$ cd ~/Downloads
$ sudo dd iflag=fullblock oflag=direct bs=4M if=Fedora-MATE_Compiz-Live-x86_64-27-1.6.iso of=/dev/sdc
```

That might take a few minutes to write.

### 3. Boot the USB stick

There are two ways to get to the BIOS boot menu.

1. Place the USB stick in the intended LANforge machine, power it on and press the Delete key Del while it boots up to get into the BIOS. Go to the EXIT menu and select that USB drive as a boot over-

```
Aptio Setup Utility - Copyright (C) 2012 American  
Main Advanced Event Logs IPMI Boot Security Save & Exit  
-----  
Discard Changes and Exit  
Save Changes and Reset  
  
Save Options  
Save Changes  
Discard Changes  
  
Restore Optimized Defaults  
Save as User Defaults  
Restore User Defaults  
  
Boot Override  
IBA GE Slot 0300 v1404  
debian  
UEFI: Built-in EFI Shell  
UEFI OS
```

ride.

2. Press the F7 key during boot to get a boot list. Here is an example boot choice menu:

```
Please select boot device:  
-----  
IBA GE Slot 8100 v1395  
UEFI: Built-in EFI Shell  
P0: ST91000640NS  
P1: ST91000640NS  
Enter Setup  
-----  
↑ and ↓ to move selection  
ENTER to select boot device  
ESC to boot using defaults
```

#### 4. Install Fedora

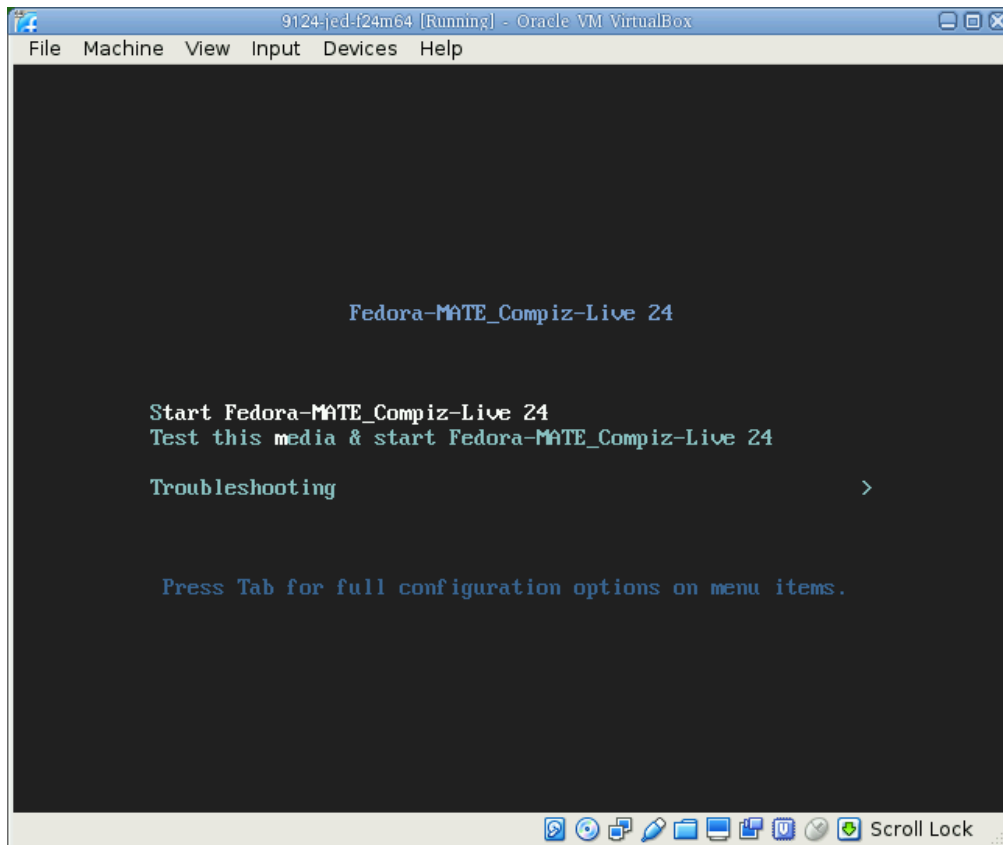
A default install of Fedora will work well enough, but some settings we require:

- Create a user `lanforge` and make that user *an Administrator*

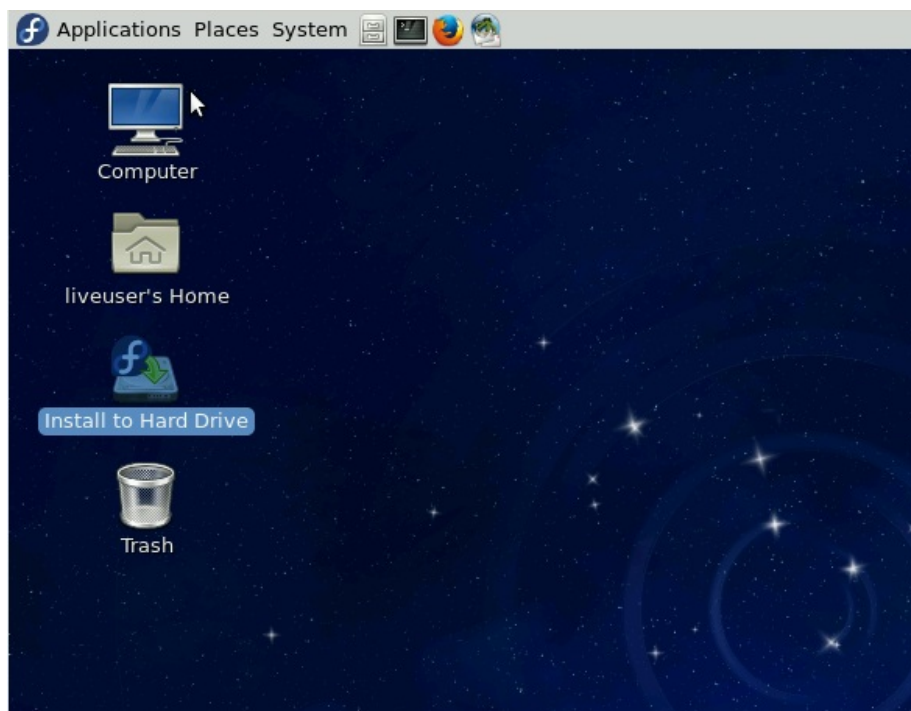
Optional settings:

- Root password: `lanforge`. You can change the root password if necessary, but this is the root password that matches our documentation.
- User, `lanforge`, password `lanforge`. You can change this password if necessary, but this is the password that matches our documentation.

1. Boot menu:

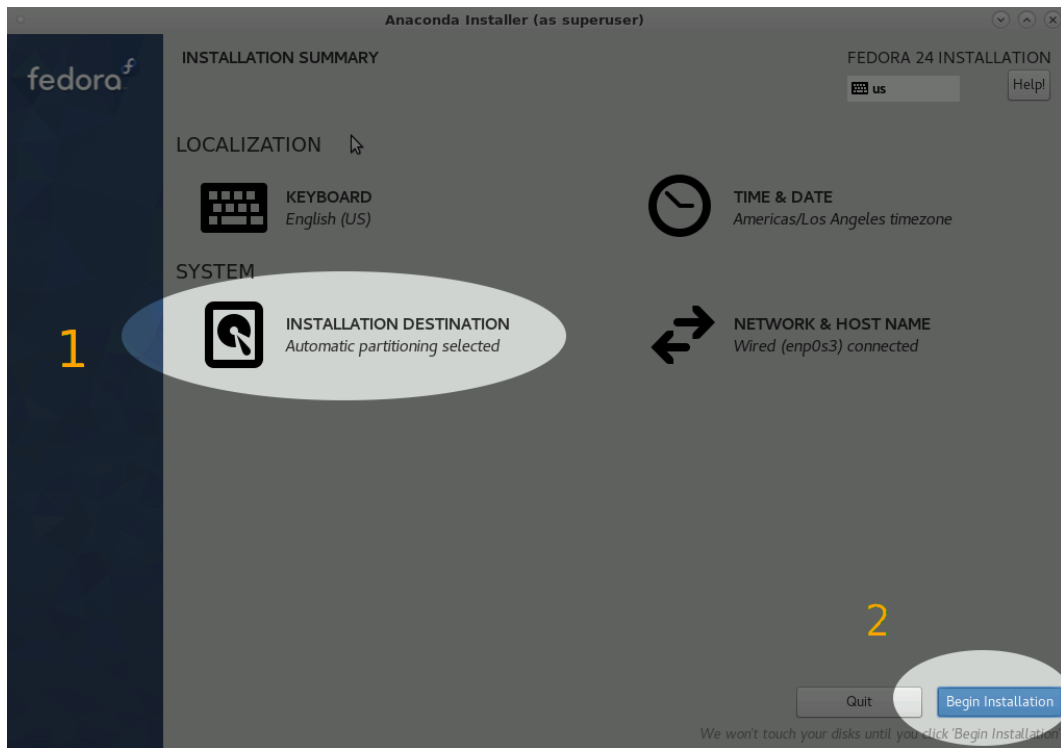


2. Select **Install to hard drive**

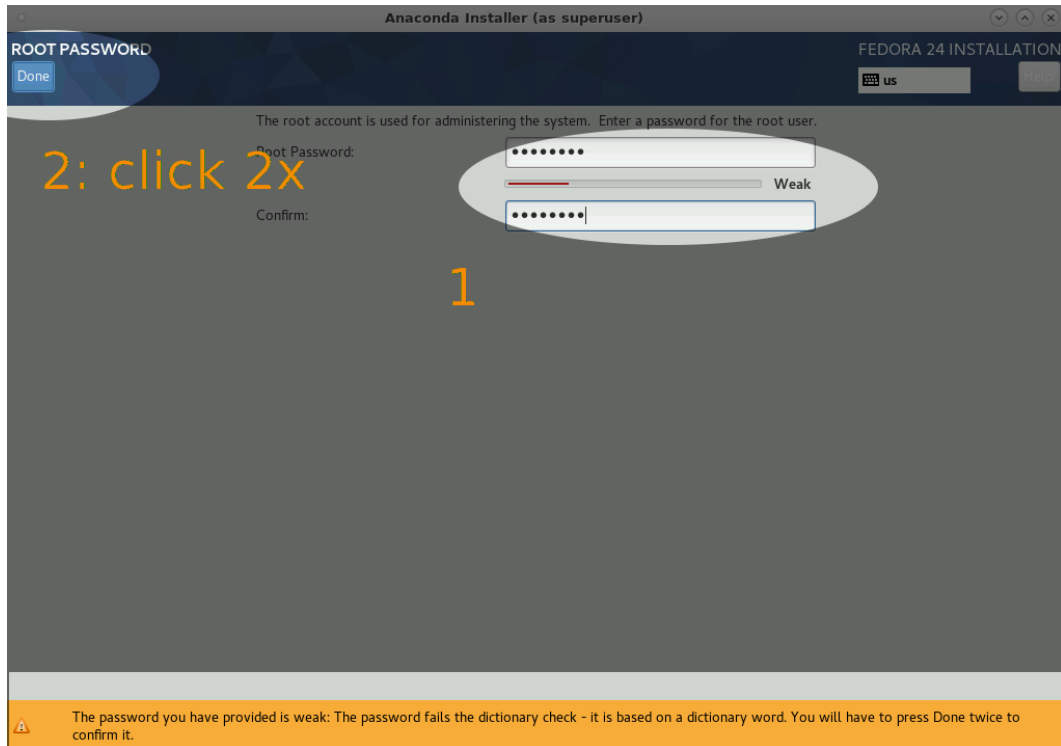


3. Select Installation Destination; then click **Begin Installation**.

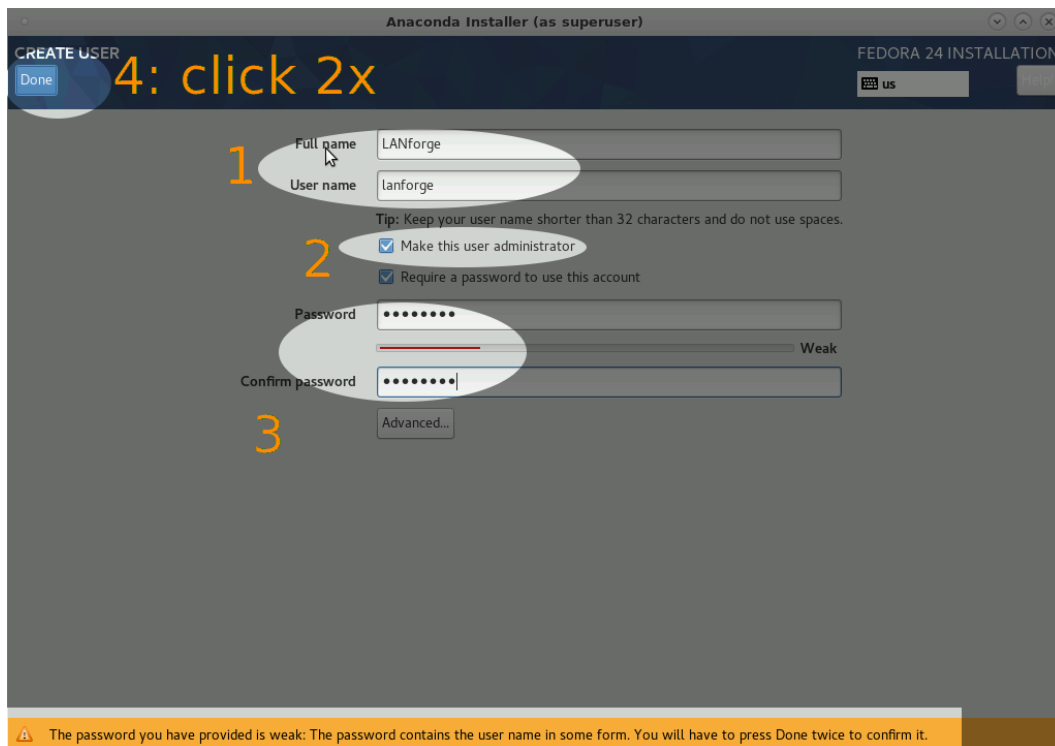




4. You will be asked for a *root* password:



5. You will be asked for a *user account*:



## 5. Reboot, Update and Reboot

Once the installation completes, reboot the system as it suggests and while the system is rebooting, remove the USB stick. Make sure you can login as user `lanforge` and that you can open a terminal and use the command `sudo -s` to become `root`.

While in that terminal, do a `sudo dnf update`. This will speed up the installation of LANforge in the next step.

Also, F24 has a tendency to get hung up when upgrading `nfs` and/or `rpcbind`. You might have to issue these commands to help the upgrade move along:

```
sudo dnf clean all
sudo dnf update -y --best --allowerasing
```

After doing those upgrades, reboot the system again.

## 6. Continue to Install LANforge

LANforge systems shipped by Candela often have additional configuration changes, such as renaming network devices and WiFi radios. Please contact support to help with redoing these changes as needed. Often, this is 'nice-to-have', and not 'required'.

You can now proceed to our [normal LANforge installation instructions](#).

*Candela Technologies, Inc., 2417 Main Street, Suite 201, Ferndale, WA 98248, USA  
www.candelatech.com | sales@candelatech.com | +1.360.380.1618*