Fedora 37 Installation on the Framework Laptop

How to install Fedora 37 Linux on a Framework Laptop.

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INTRODUCTION

Once you have your Framework Laptop set up following the [Quick Start Guide](#), you're ready to install your preferred OS. The Framework Laptop is running some very recent hardware, and we've worked with the team at Fedora to improve support. Fedora 37 is one of the Linux distributions we recommend most, as it has full hardware support with very little setup required, and it offers a great user experience overall.

One note on Fedora is that the distro follows a fairly aggressive update policy on new kernels. This means that if you have the most recent generation of hardware, there is a higher risk that a kernel update could have a driver regression. On older platforms, this is less of a risk. To avoid this risk altogether, you can use a more conservative distro like Ubuntu LTS.

⚙ PARTS:

- [Storage Expansion Card](#) (1)

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## Step 1 — Preparing Fedora Installation Media
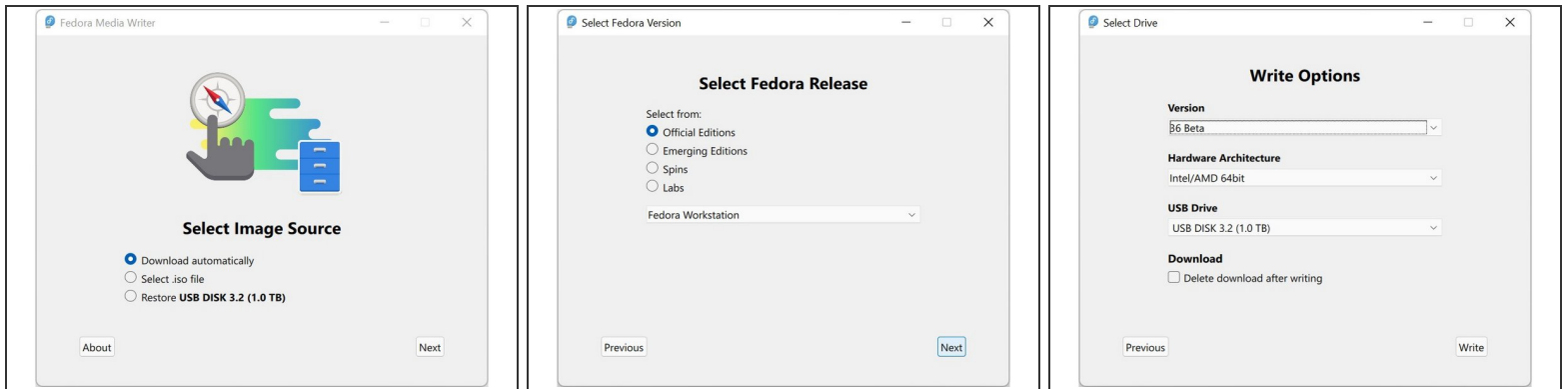
- Fedora has a fantastic tool called Fedora Media Writer to create USB installers. It's available for Windows, OS X, and Linux. For Windows and OS X, you can download it here: https://getfedora.org/en/workstation/dow...

  ⓘ If you're coming from another Fedora install or Linux distro, you can install Fedora Media Writer following the steps here: https://docs.fedoraproject.org/en-US/fed...

- Insert your USB drive (2GB or larger). Note that it will be reformatted, so make sure you are ok with erasing any data that is on it.

- After installing Fedora Media Writer, run it. Click Next to go to the "Select Fedora Release" screen. We'll proceed with the Official Fedora Workstation release for this guide, but there are a range of other options available. No click Next.

- The latest version of Fedora will be selected by default. Make sure the correct USB Drive is selected in the drop down, and then click Write.

- Once the USB drive creation is complete, you can click Finish, close Fedora Media Writer, eject your USB drive, and if you'd like to, delete the downloaded ISO file.

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Step 2 — Running Fedora

- Insert the USB drive into your powered off Framework Laptop, and then power on. If you have an existing OS installed on the Storage drive in your laptop, you'll need to tap F12 as you boot to bring up the Boot Manager screen. You can then select the EFI USB Device item with your arrow keys and hit Enter.

  - (i) If you don't have an internal storage drive installed or it is blank, the laptop will boot to the USB drive directly.

- Hit Enter again to test the media and boot into Fedora.

- After a few seconds, you're in! If you just want to try Fedora out, you can click on the Try Fedora button and browse through the live USB version of it without touching the internal storage drive. If you do want to install Fedora to the internal storage drive, go on to the next step.

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Step 3 — Installing Fedora to a drive
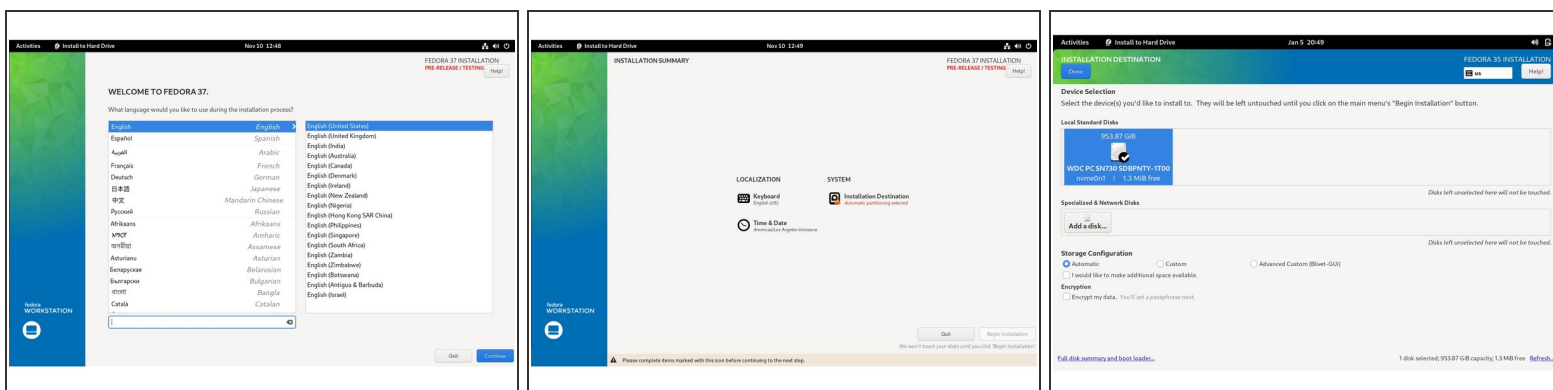
- Click on the Install to Hard Drive button.

- Select the keyboard language you'd like to use. On the next screen, click on the Installation Destination button to choose the disk. Note that you can install Fedora onto a USB drive or a Storage Expansion Card as an alternative to installing it onto your internal drive.

  - (i) If there is an OS already installed on the target drive, you'll need to follow the guided steps in the installer to resize partitions or delete the existing partitions. This is out of scope of this guide, but Fedora has very detailed documentation: https://docs.fedoraproject.org/en-US/fed...

- Click Finish Installation and then reboot into your new Fedora install!

  - (i) We've seen the installer sometimes close the window but not reboot. You can click on the power icon in the top right, click Power Off / Log Out, and click Restart.

Step 4 — Welcome to Fedora Screen - Setting Up
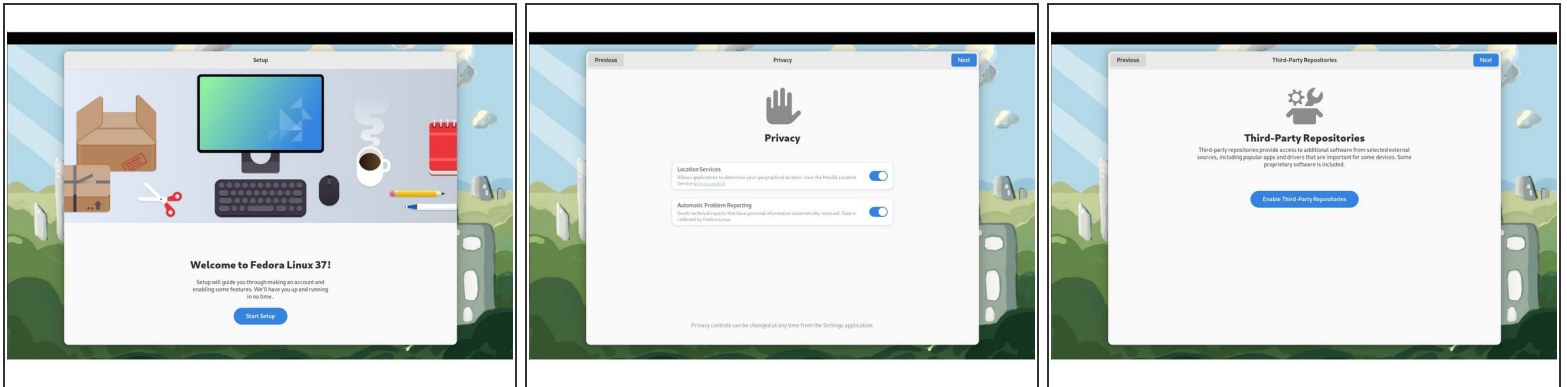
- Click on Start Setup button. This begins the process of completing the initial setup of your Fedora installation.

- Connect to Wi-Fi or Skip. If you wish not to connect to wireless just yet, you can skip this and return to connecting to Wi-Fi later on.

- Choose your Privacy settings. Here you can decide if you would like to allow Location Services using Mozilla Location Service or not.

- Click on Enable Third-Party Repositories. Unless you have a specific reason for not doing so, it's recommended that these repositories are enabled for access to additional drivers and applications.

- Connect Online Accounts or Skip. Connect to Google, Nextcloud or Microsoft online accounts to access your email, calendar, contacts, documents and photos.
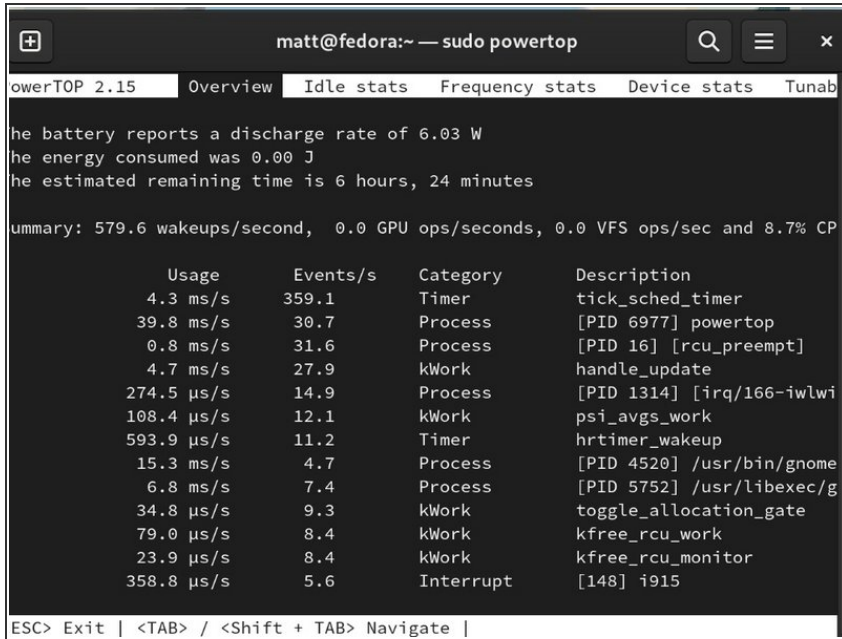
Step 5 — Completing Initial Setup

- If you have not done so already, follow the on-screen instructions to connect to Wi-Fi, configure some basic Fedora settings, and create a user account using a strong password you'll remember.

- Once the user is created, make sure to update your packages using "*sudo dnf upgrade*" or the Software application to get the latest kernel version, which includes further improvements for the latest Intel CPUs and for the Framework Laptop specifically.

- That's it! Wi-Fi, Bluetooth, touchpad gestures, media keys, and just about everything else works right out of the box on the latest Fedora.

  - (i) By default, Gnome only supports 100% and 200% display scaling. To enable fractional scaling like 150%, you can run the following command and then reboot: *gsettings set org.gnome.mutter experimental-features "['scale-monitor-framebuffer']"* **Please note:** *This is a feature that works on Wayland only.*

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ⓘ By default, Fedora doesn't enable "Tap to Click" on touchpads. You can enable it in the Mouse & Touchpad section of the Settings application or by running: *gsettings set org.gnome.desktop.peripherals.touchpad tap-to-click true*

ⓘ With some SSDs (SN750 with older firmware), there is also one optional workaround needed to get the best suspend battery life. If you are not able to update your SSD firmware, set "nvme.noacpi=1" in your kernel parameters. In Fedora, you can do this by running the following command:

ⓘ The Fingerprint Reader may need some libraries installed. fprintd and fprintd-pam Additional setup details in the code box on the left.

⚠ After installing your OS, we recommend updating to the latest firmware ([11th Gen Intel Core](#) or [12th Gen Intel Core](#)) to make sure the laptop is running at optimal performance and stability.

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Step 6 — Fedora Power Management

- Install TLP for improved battery performance. Simply install and reboot, the default settings are recommended for most individuals.

- Install and run PowerTOP in a terminal to monitor your overall power usage.

- *sudo dnf install tlp* Then reboot.

- Please see notes on enabling TLP and **Gnome power profiles at section 3.3** of the Getting started with Linux guide.

- *sudo dnf install powertop*

- *sudo powertop --calibrate* (Allow to sit for a bit, this will take some time, screen will flicker, computer will do odd things.)

- **powertop --calibrate**: Allow to sit for a bit, this will take some time, screen will flicker, computer will do odd things.

- ⓘ There are additional ways to optimize Linux battery life in this community thread.

Step 7 — Additional steps for Framework Laptop (12th Gen Intel Core)

- There's one issue that is specific to systems with 12th Gen Intel Core. The ALS (ambient light sensor) & the brightness up/down keys conflict on some current kernels. You can disable the ALS to restore brightness up/down functionality with the following command (making sure you've first updated your packages to get the latest kernel available):

  - *sudo grubby --update-kernel=ALL --args="module_blacklist=hid_sensor_hub"*

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Step 8 — Ethernet Expansion Card and TLP

```
[matt@fedora ~]$ lsusb
Bus 004 Device 001: ID 1d6b:0003 Linux Foundation 3.0 root hub
Bus 003 Device 004: ID 27c6:609c Shenzhen Goodix Technology Co.,Ltd. Goodix USB2
.0 MISC
Bus 003 Device 003: ID 0bda:5634 Realtek Semiconductor Corp. Laptop Camera
Bus 003 Device 009: ID 1038:12b3 SteelSeries ApS SteelSeries Arctis 1 Wireless
Bus 003 Device 002: ID 32ac:0002 Framework HDMI Expansion Card
Bus 003 Device 005: ID 8087:0026 Intel Corp. AX201 Bluetooth
Bus 003 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 002 Device 005: ID 0bda:8156 Realtek Semiconductor Corp. USB 10/100/1G/2.5G
LAN
Bus 002 Device 001: ID 1d6b:0003 Linux Foundation 3.0 root hub
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
[matt@fedora ~]$ sudo grubby --update-kernel=/boot/vmlinuz-$(uname -r) --args="u
sbcore.quirks=0bda:8156:k"
```

- Framework Ethernet expansion card on Framework laptops with TLP installed. If you notice the card isn't working on resume from suspend, please run the following in a terminal:

- sudo lsusb

- Look for ID 0bda:8156 Realtek Semiconductor Corp. USB 10/100/1G/2.5G, we want 0bda:8156.

- Now back in the terminal:

- sudo grubby --update-kernel=/boot/vmlinuz-$(uname -r) --args="usbcore.quirks=0bda:8156:k"

- Reboot.

- In the past, various tweaks made to the TLP config worked. During my testing, this was not longer the case and grub changes above are recommended instead.

Enjoy using Fedora on your Framework Laptop! If you have any questions or run into any issues, we recommend bringing them to the Community in the [Fedora 37 topic](#). Members of the Framework team and sometimes the Fedora team as well participate in discussions there.

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