



Windows
Windows 11
Windows 10
Windows 8
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Windows XP
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Tools
Products
Tips
How-To
Help Desk
MS Office
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Other
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Virtualization
WordPress
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Reading: How to Install a Linux Distro on Your Chromebook

[Back To Top](#)

How to Install a Linux Distro on Your Chromebook

Without affecting the Chrome OS



Written by: [Sodiq Olanrewaju](#)

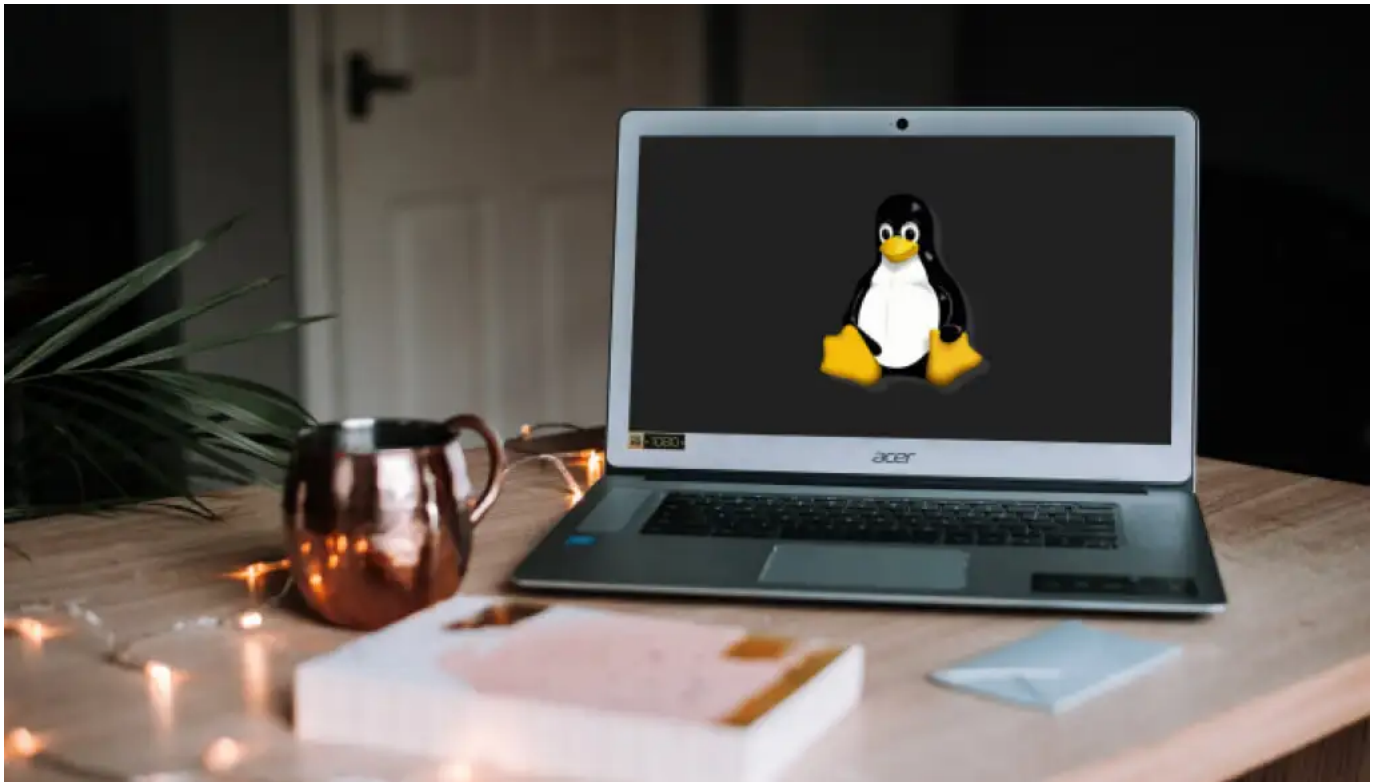
Posted on: September 14th, 2021 in: [Linux Tips](#)

Although Chromebooks ship with Chrome OS, a Linux-based operating system, out-of-the-box, they can also run [unadulterated Linux distributions](#) without issues. In fact, you can run Chrome OS and another Linux distro simultaneously on the same Chromebook.

In this tutorial, we'll show you how to install [Linux](#) on a Chromebook without affecting the Chrome OS. You'll also learn how to install the experimental Linux environment built into Chrome OS and a third-party Linux distro (Ubuntu).

Table of Contents

- [Install Linux Beta \(Crostini\) on Chromebook](#)
- [First Things First: Create a Recovery Drive](#)
- [Enable Developer Mode in Chromebook](#)
- [Install Ubuntu Linux on Chromebook \(Using Crouton\)](#)
- [Remove or Uninstall Linux On Chromebook](#)



Install Linux Beta (Crostini) on Chromebook

Crostini describes Google's official project that allows Chromebook users to run Linux without entering the [Chrome OS Developer Mode](#). The major advantage of this feature is that you get to enjoy Linux-based apps and tools in a secured environment. Think of it as a contained virtual machine for running Linux in Chrome OS without having to deal with Linux codes and commands.

This Linux environment has official support from Google and has very little chance of breaking your Chromebook or voiding its warranty. The environment is also protected from malicious apps and files through Sandboxing—one of the [security features built into Chromebooks](#).

Installing this Linux environment on your Chromebook depends on your device's hardware and software configurations. Not all older Chromebook models support the Linux Beta (Crostini) feature out-of-the-box.


Additionally, installing this Linux environment on Chromebook requires Chrome OS 69 or later. Head to **Settings > About Chrome OS** to check the Chrome OS version or update your Chromebook's operating system. Install any available update or restart your device to finish pending updates.


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About Chrome OS

 **Google Chrome OS**

 Nearly up to date! Restart your device to finish updating.
Version 91.0.4472.167 (Official Build) (64-bit)

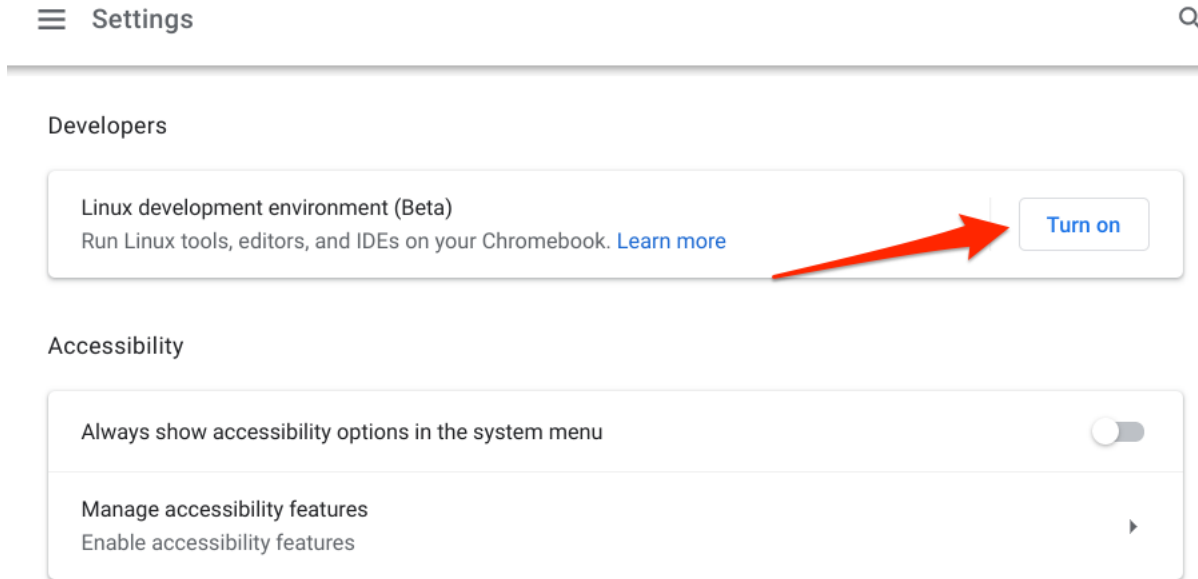
[Restart](#)

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[Get help with Chrome OS](#) 

The environment is experimental and locked by default. So, the first line of action is to activate the Linux development environment. Connect your Chromebook to the internet and follow these steps:

1. Launch the **Settings** app, expand the **Advanced** category, scroll to the **Developers** section, and select the **Turn on** button on the "Linux development environment (Beta)" row.

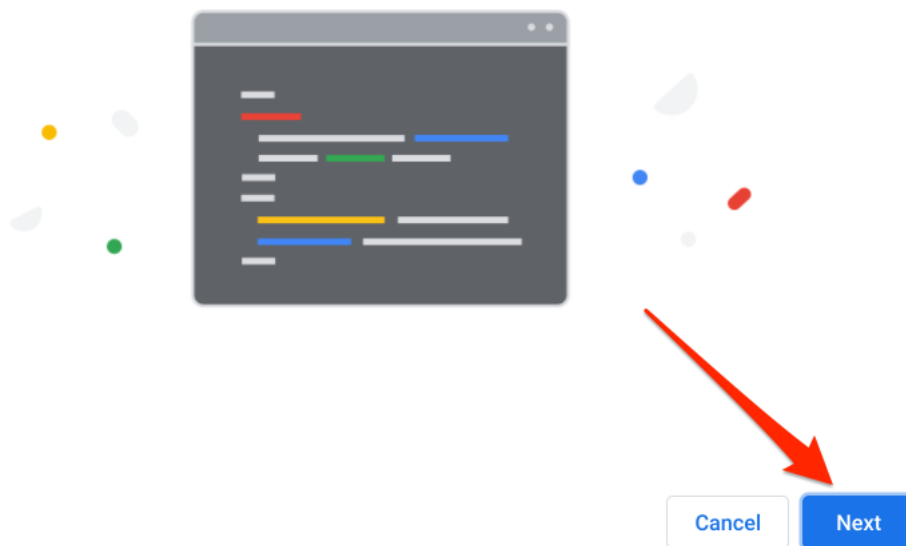


2. Select **Next** to continue.



Set up Linux development environment (Beta)

Get tools for developing websites, Android apps, and more. Installing Linux will download 450 MB of data.
[Learn more](#)



3. Create a username, select the recommended disk space, and select **Install**.



Set up Linux development environment (Beta)

Change how Linux apps will work.

Username

sodiq

Disk size

This can be modified later in Settings

☒ Recommended (7.5 GB)

☐ Custom

Back

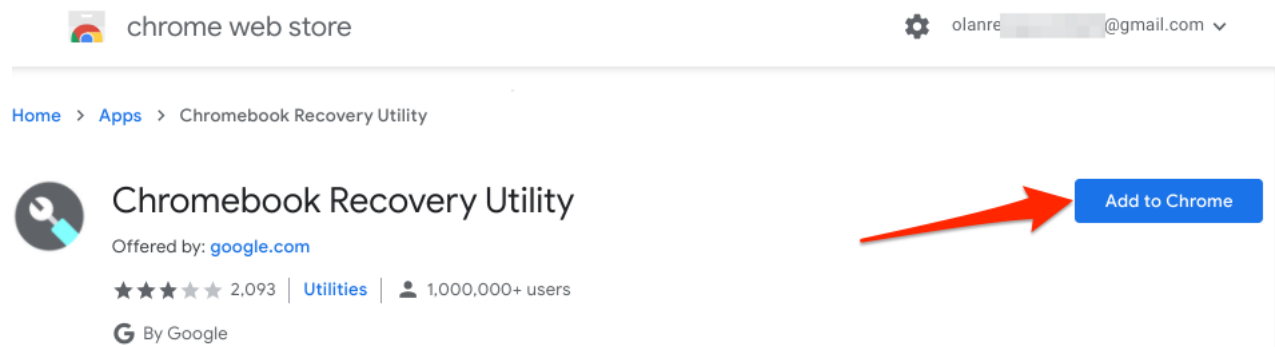
Install

Now let's show you how to install a third-party Linux distro on your Chromebook.

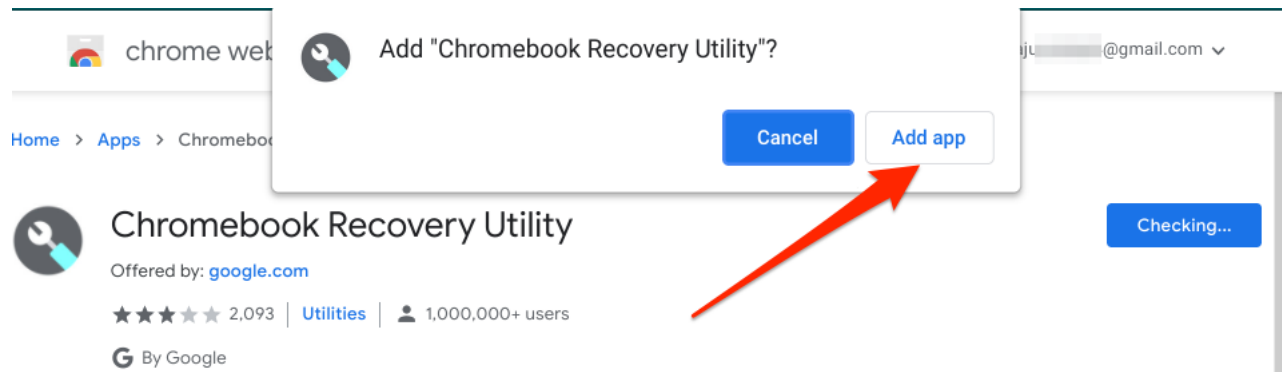
First Things First: Create a Recovery Drive

Although installing a third-party Linux distro on Chromebook is pretty straightforward, things can sometimes go south during the process. Therefore, we strongly advise creating a backup of your device using the Chromebook Recovery Utility. This requires an external storage disk with at least 8GB of free storage space.

1. Launch Chrome, head to the [Chromebook Recovery Utility page](#) on the Chrome web store, and select **Add to Chrome**.



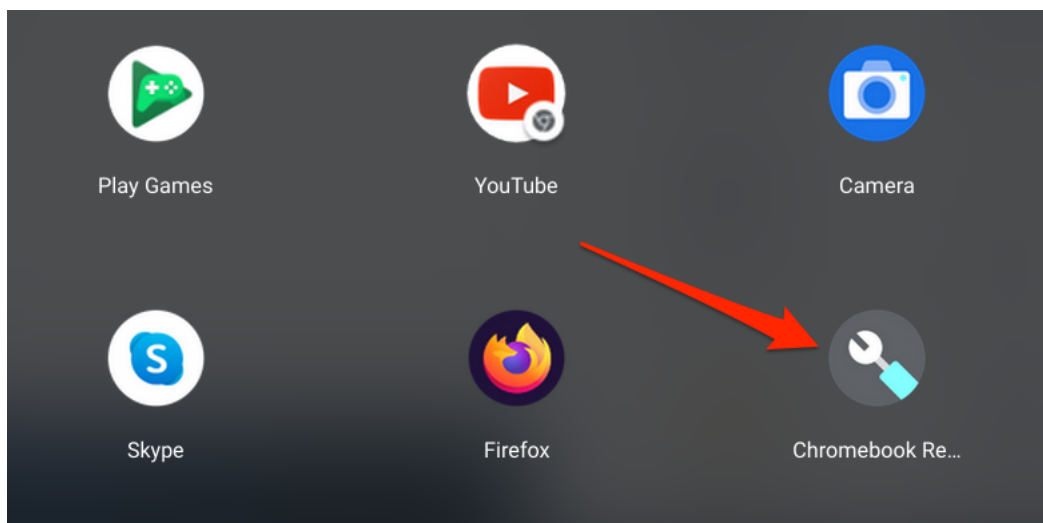
2. Select **Add app** on the confirmation prompt.



You should see the download progress at the bottom-left corner of your Chromebook's screen. Plug an external storage drive with 8GB or larger storage into your Chromebook when you get an installation success alert in the notification area.

Note that the recovery utility will erase all data and partitions on the drive. So, make sure you back up any important data on the drive to another device before using it as your Chromebook's recovery disk.

3. Launch the Chrome Recovery Utility in the app launcher.



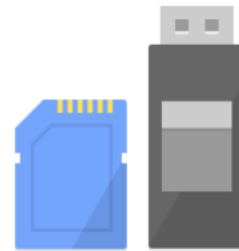
4. Wait for the app to prepare your device for recovery and select **Get started**.



Create a recovery media for your Chromebook

You'll need an 8 GB or larger USB flash drive or SD card that you don't mind erasing.

As announced publicly on the [Chromium blog](#), Google is dropping support for Chrome Apps in June 2021. Please use the [Chromebook Recovery Utility extension](#) and related documentation to recover your device(s).



[Learn more](#)

Get started

5. The alphanumeric digit on the screen is your Chromebook's model number. Enter the digits in the provided dialog box and select **Continue** to proceed.



Identify your Chromebook

Enter the model number of the Chromebook to recover. It can be found on the recovery screen.

For this Chromebook, enter DRAGONAIR-TMTX C4Q-N9C-D5D-F8B-

O6A-A5E

DRAGONAIR-TMTX C4Q-N9C-D5D-F8B-O6A-A5E

✓ Found a match with the exact model name

[Select a model from a list](#)

[Learn more](#)



HP Chromebook x360 14c
(13904.55.0)

Go back

Continue

6. Select the media device you'd like to use to create the recovery image and select **Continue**.

Chromebook Recovery Utility > Step 2 of 3

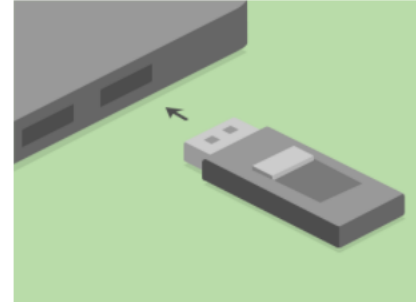
HP Chromebook x360 14c



Insert your USB flash drive or SD card

Select the media you'd like to use.

USB Drive - 14.6 GB

[Learn more](#)

Go back

Continue

7. Select the **Create now** button.

Chromebook Recovery Utility > Step 3 of 3

HP Chromebook x360 14c



Create a recovery image

Important: All data and partitions on your recovery media will be deleted.

USB Drive - 14.6 GB[Learn more](#)

Go back

Create now

Wait for the utility to download and write the necessary files to the recovery media. This might take several minutes or hours depending on factors like your Chromebook model and Chrome OS version. Removing the recovery drive will interrupt the download process, so ensure the drive fits tightly in your Chromebook's USB port.

You'll also need a fast internet connection to download files that'll constitute the recovery media. So, make sure your Chromebook is connected to a Wi-Fi or an Ethernet network.

Chromebook Recovery Utility

HP Chromebook x360 14c



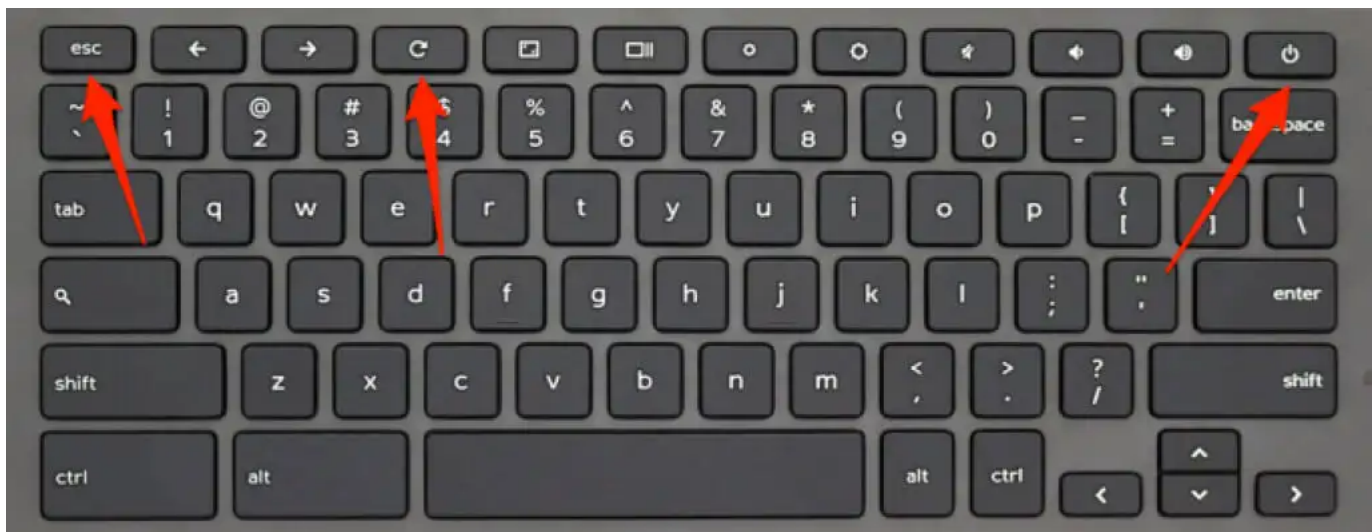
Success! Your recovery media is ready

You can remove your recovery media now.

- To recover your Chromebook, plug the recovery media in to your Chromebook.
- After recovery, you can erase your recovery media using this utility.

[Learn more](#)[Create another](#)[Done](#)

If something ever goes wrong while installing Linux, shut down your Chromebook, boot into recovery mode (press **Esc** + **Refresh** + **Power** button), insert the recovery media, and follow the on-screen instructions.



Enable Developer Mode in Chromebook

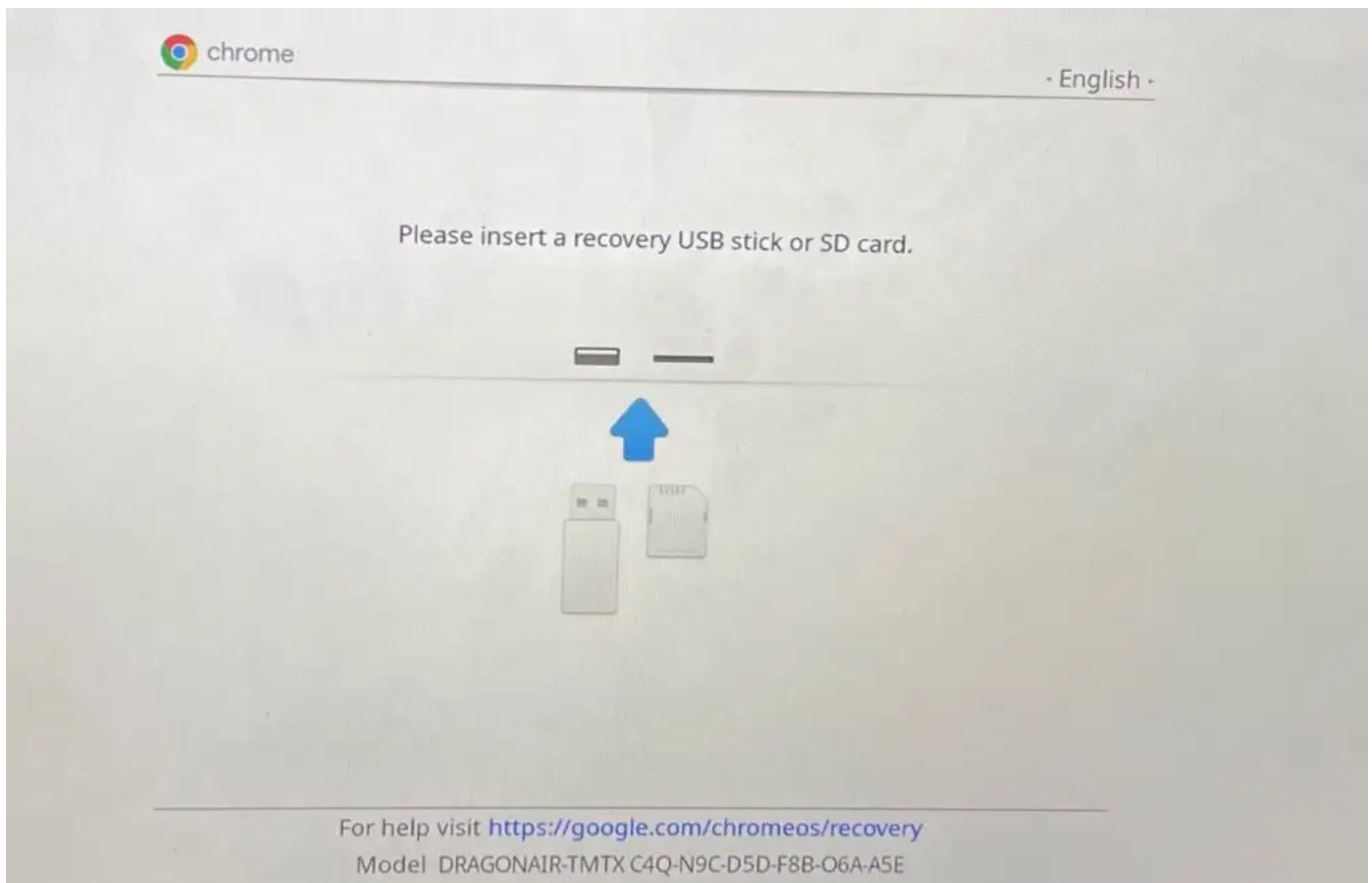
You need to have your Chromebook in Developer Mode to install any Linux distribution. That will erase all data stored on your Chromebook's storage, so ensure you backup your files to the cloud or an external disk before activating Developer Mode.

It's also important to state that activating Developer Mode will disable many built-in security features on your device. Likewise, the operation might also void your Chromebook's warranty. Power off your Chromebook and follow the steps below.

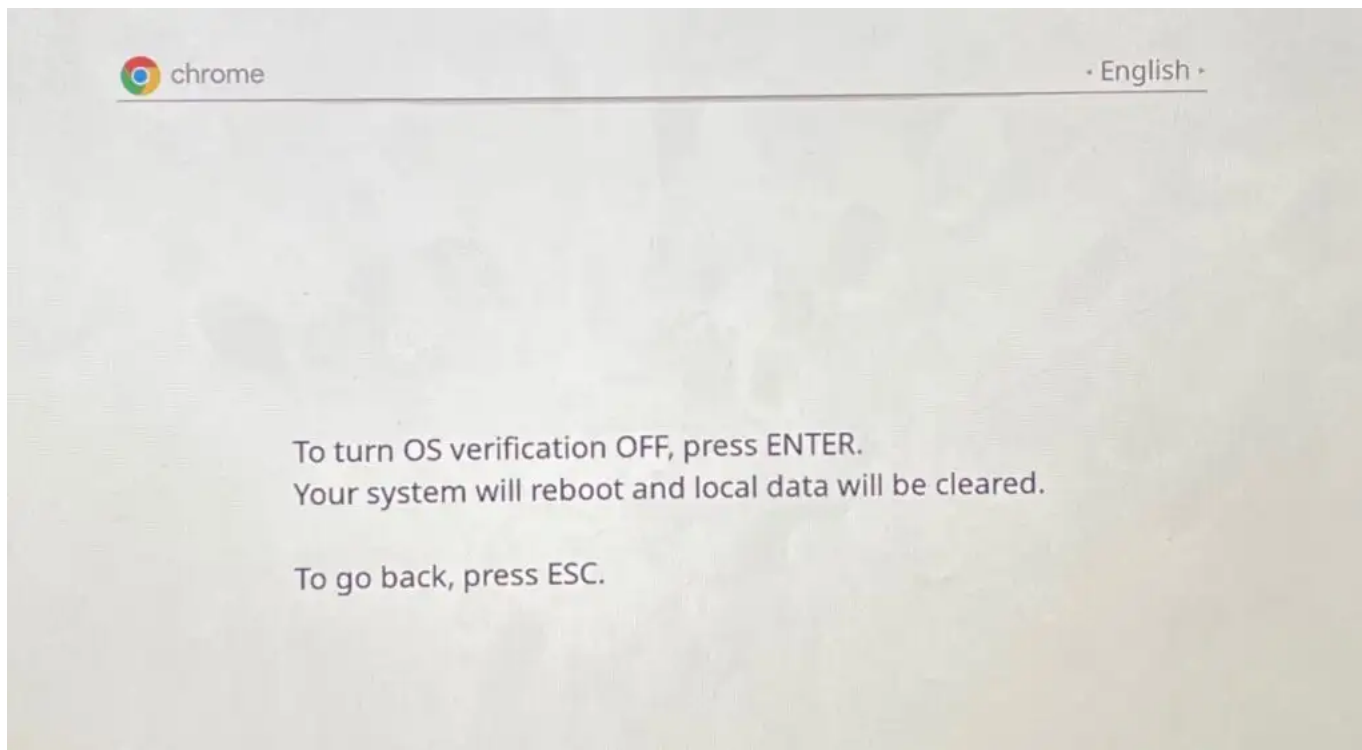
1. Press and hold the **Esc** + **Refresh** (or **F3**) keys and hold the **Power** button.



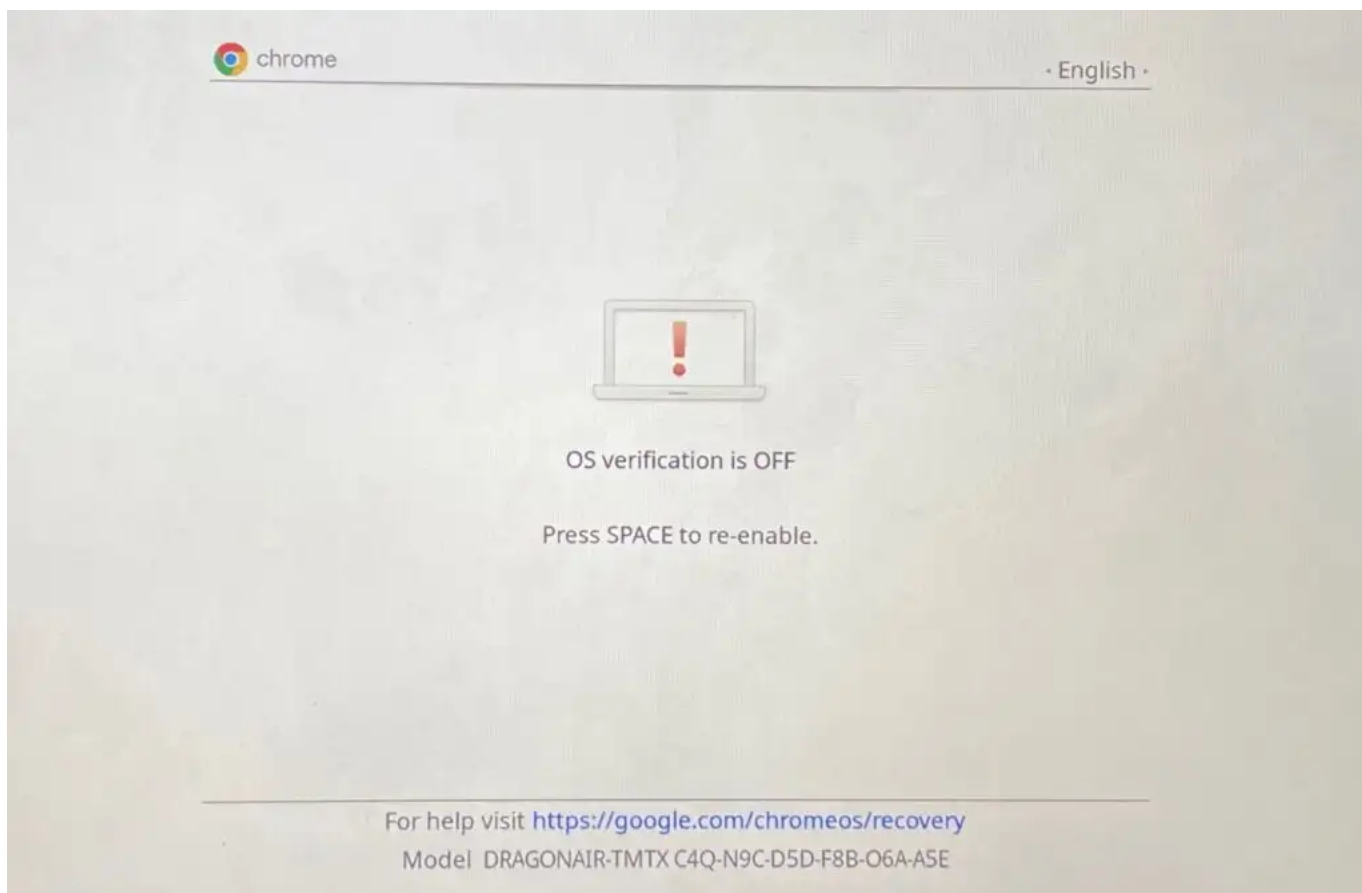
2. Release the buttons when a recovery screen comes on the Chromebook's display.
3. Ignore the "Please insert a recovery USB stick or SD card" instruction on the screen. Press **Ctrl** + **D** to activate Developer Mode.



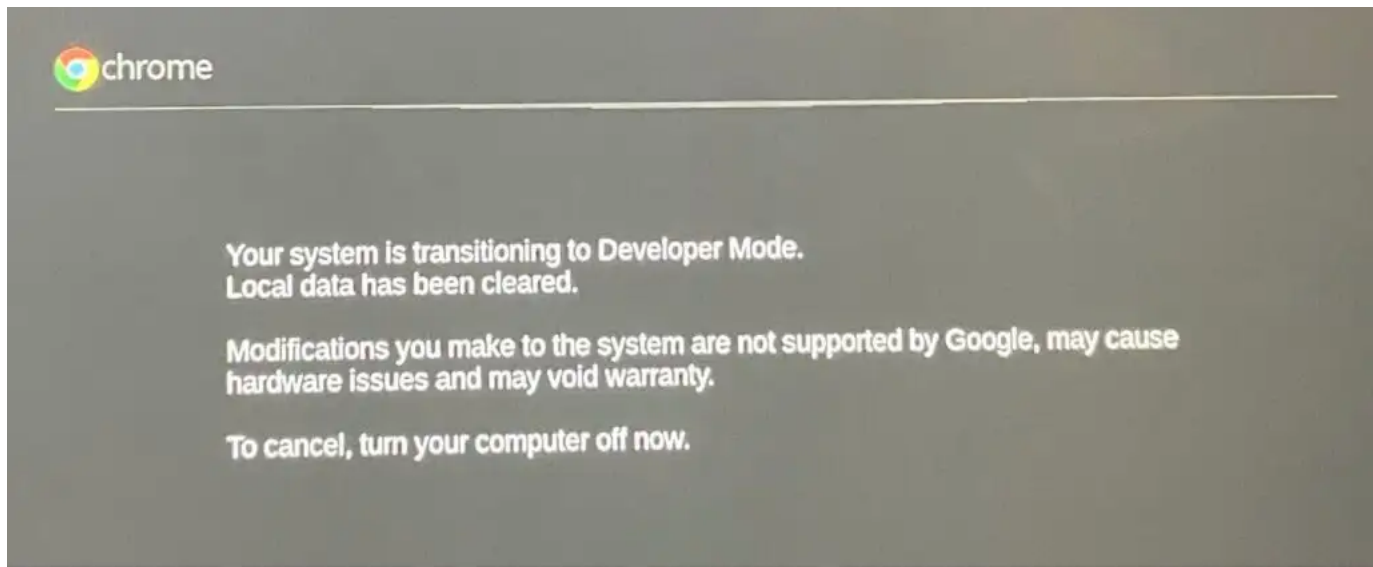
4. Press **Enter** to turn off OS verification. That will "unlock" your Chromebook to boot non-Google operating systems.



5. Press **Ctrl + D** again and wait for a couple of minutes to boot your Chromebook with Developer Mode enabled.



You'll get an on-screen notification that your Chromebook is now transitioning into Developer Mode. Do not turn off your Chromebook during the process and make sure it holds enough battery power (50% or more).



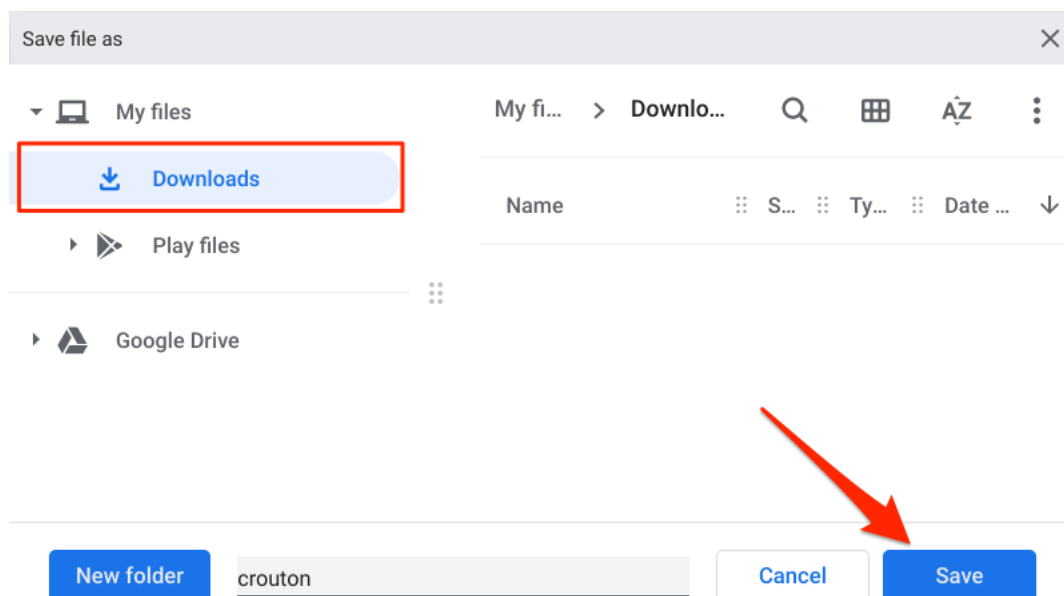
Set up your Chromebook from scratch as though it is a new device and proceed to the next section to learn how to install Ubuntu Linux on your Chromebook.

Install Ubuntu Linux on Chromebook (Using Crouton)

One major advantage of installing Linux via Crouton is that you don't need to reboot your Chromebook to switch between Chrome OS and Linux. You can do that using key combinations or shortcuts. Additionally, the Linux distro has direct access to your Chromebook's hardware and files. So you can switch to Linux and still access files created in Chrome OS.

Crouton achieves this by creating a "chroot" binary environment that runs on the Chrome OS. Unlike Google's "Crostini" project, Crouton provides a "pure" Linux environment. The only limitation is that it is limited to Ubuntu only. Crouton (presently) doesn't support other Linux distributions. Visit the [Crouton directory on GitHub](#) to learn more about the Chroot environment and how it powers the Ubuntu Linux distro on Chromebook.

1. [Download and save the crouton file](#) to your Chromebook's **Downloads** files.



2. Press **Ctrl + Alt + T** to launch Crosh—Chrome OS' Command Shell environment.
3. Type or paste **shell** in the terminal and press **Enter**.

```
Welcome to crosh, the Chrome OS developer shell.

If you got here by mistake, don't panic! Just close this tab and carry on.

Type 'help' for a list of commands.

If you want to customize the look/behavior, you can use the options page.
Load it by using the Ctrl-Shift-P keyboard shortcut.

crosh> shell
```

4. Afterward, paste **`sudo install -Dt /usr/local/bin -m 755 ~/Downloads/crouton`** in the terminal and press **Enter**. The command will convert the downloaded crouton text file into an executable file.

```
chrome-untrusted://crosh

Welcome to crosh, the Chrome OS developer shell.

If you got here by mistake, don't panic! Just close this tab and carry on.

Type 'help' for a list of commands.

If you want to customize the look/behavior, you can use the options page.
Load it by using the Ctrl-Shift-P keyboard shortcut.

crosh> shell
chronos@localhost / $ sudo install -Dt /usr/local/bin -m 755 ~/Downloads/crou
```

5. Now, type or paste **`sudo crouton -t xfce`** in the terminal and press **Enter**. If your Chromebook has a touchscreen, run this command instead: **`sudo crouton -t touch,xfce`**.

```
chrome-untrusted://crosh

Welcome to crosh, the Chrome OS developer shell.

If you got here by mistake, don't panic! Just close this tab and carry on.

Type 'help' for a list of commands.

If you want to customize the look/behavior, you can use the options page.
Load it by using the Ctrl-Shift-P keyboard shortcut.

crosh> shell
chronos@localhost / $ sudo install -Dt /usr/local/bin -m 755 ~/Downloads/crouton
chronos@localhost / $ sudo crouton -t touch,xfce
```

That'll download and install the Ubuntu Linux package on your Chromebook using the [XFCE](#)—a fast and lightweight desktop environment that consumes low system resources. You can install Linux on your Chromebook using other desktop environments like Unity, GNOME, or LXDE.

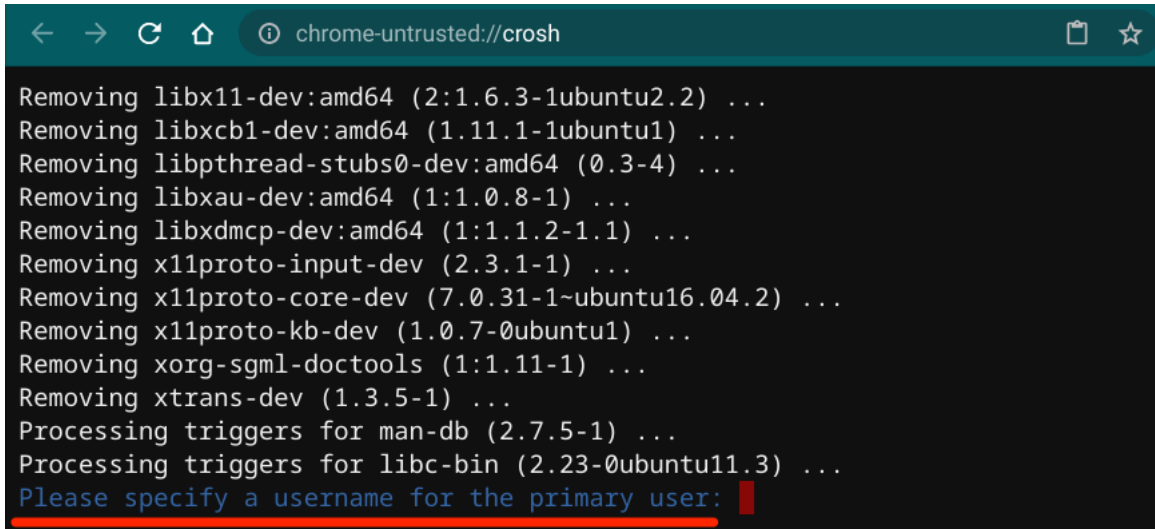
However, XFCE is recommended because it is a lot faster. Besides, Chromebooks are low-end devices with limited system resources. That makes XFCE the best-suited option.

If you're feeling experimental, you can install Linux with other desktop environments by running the following commands in the Crosh terminal:

- Unity Desktop environment: paste **sudo crouton -t unity** and press **Enter**.
- GNOME Desktop environment: paste **sudo crouton -t gnome** and press **Enter**.
- LXDE: paste **sudo crouton -t lxde** and press **Enter**.

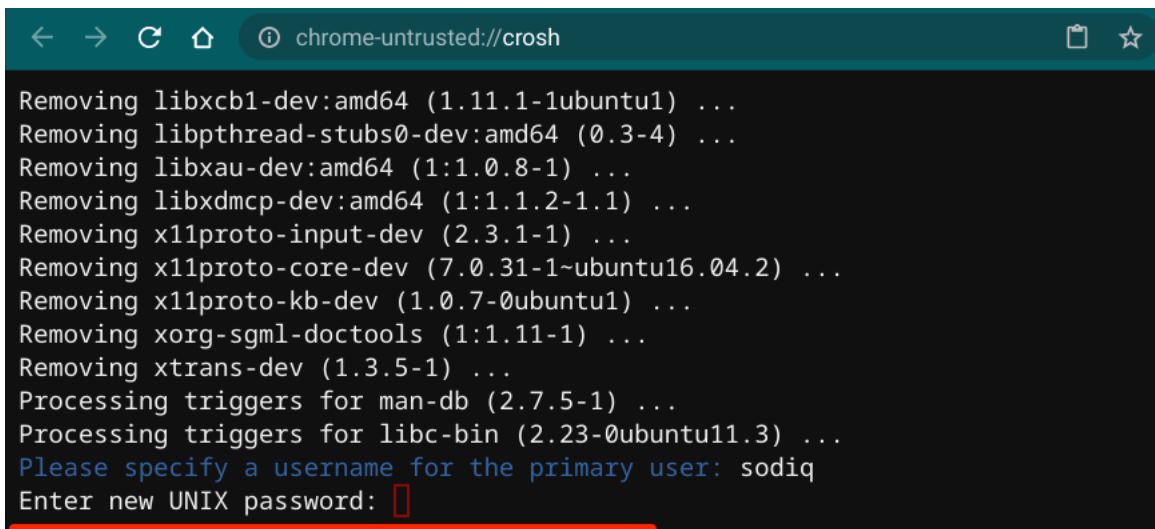
The installer will download the necessary Ubuntu packages. Make sure your Chromebook stays connected to the internet during the download and installation process. The entire operation will take a couple of minutes or hours depending on your connection speed.

6. Type a preferred username and press **Enter**.



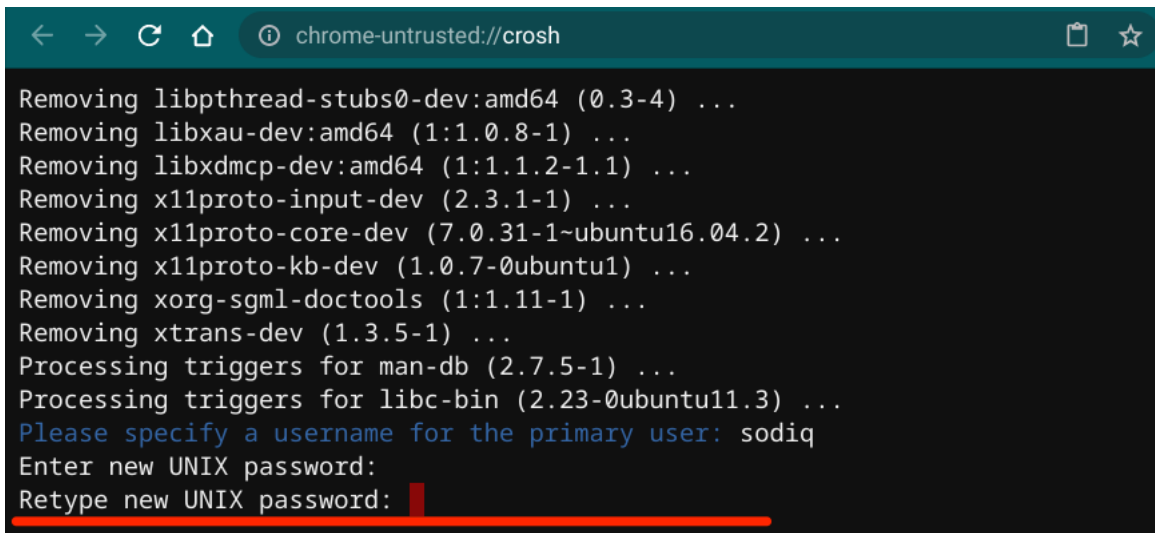
```
chrome-untrusted://crosh
Removing libx11-dev:amd64 (2:1.6.3-1ubuntu2.2) ...
Removing libxcb1-dev:amd64 (1.11.1-1ubuntu1) ...
Removing libpthread-stubs0-dev:amd64 (0.3-4) ...
Removing libxau-dev:amd64 (1:1.0.8-1) ...
Removing libxdmcp-dev:amd64 (1:1.1.2-1.1) ...
Removing x11proto-input-dev (2.3.1-1) ...
Removing x11proto-core-dev (7.0.31-1~ubuntu16.04.2) ...
Removing x11proto-kb-dev (1.0.7-0ubuntu1) ...
Removing xorg-sgml-doctools (1:1.11-1) ...
Removing xtrans-dev (1.3.5-1) ...
Processing triggers for man-db (2.7.5-1) ...
Processing triggers for libc-bin (2.23-0ubuntu11.3) ...
Please specify a username for the primary user: 
```

7. Type a password and press **Enter**.



```
chrome-untrusted://crosh
Removing libxcb1-dev:amd64 (1.11.1-1ubuntu1) ...
Removing libpthread-stubs0-dev:amd64 (0.3-4) ...
Removing libxau-dev:amd64 (1:1.0.8-1) ...
Removing libxdmcp-dev:amd64 (1:1.1.2-1.1) ...
Removing x11proto-input-dev (2.3.1-1) ...
Removing x11proto-core-dev (7.0.31-1~ubuntu16.04.2) ...
Removing x11proto-kb-dev (1.0.7-0ubuntu1) ...
Removing xorg-sgml-doctools (1:1.11-1) ...
Removing xtrans-dev (1.3.5-1) ...
Processing triggers for man-db (2.7.5-1) ...
Processing triggers for libc-bin (2.23-0ubuntu11.3) ...
Please specify a username for the primary user: sodiq
Enter new UNIX password: 
```

8. Re-enter the password and press **Enter** to continue.

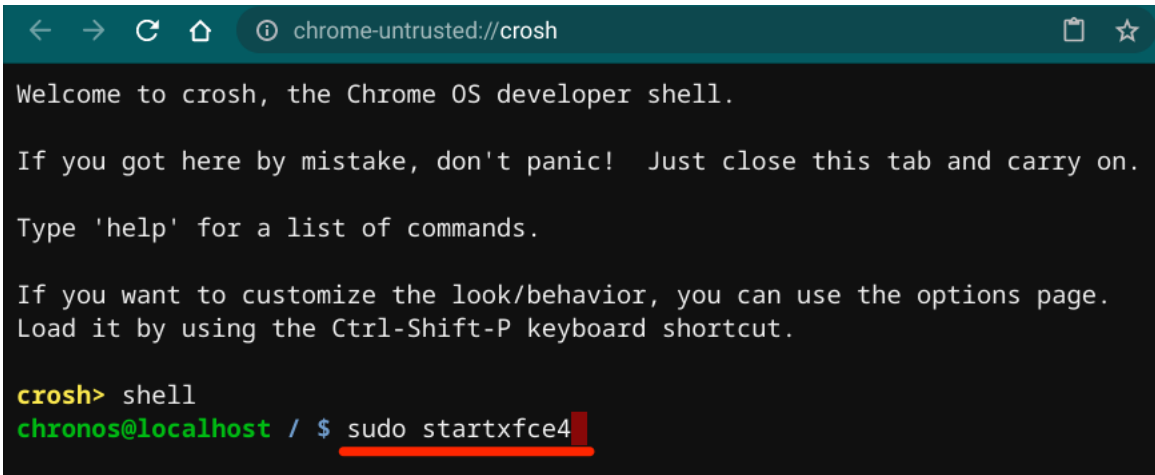


```
chrome-untrusted://crosh

Removing libpthread-stubs0-dev:amd64 (0.3-4) ...
Removing libxau-dev:amd64 (1:1.0.8-1) ...
Removing libxdmcp-dev:amd64 (1:1.1.2-1.1) ...
Removing x11proto-input-dev (2.3.1-1) ...
Removing x11proto-core-dev (7.0.31-1~ubuntu16.04.2) ...
Removing x11proto-kb-dev (1.0.7-0ubuntu1) ...
Removing xorg-sgml-doctools (1:1.11-1) ...
Removing xtrans-dev (1.3.5-1) ...
Processing triggers for man-db (2.7.5-1) ...
Processing triggers for libc-bin (2.23-0ubuntu11.3) ...
Please specify a username for the primary user: sodiq
Enter new UNIX password:
Retype new UNIX password:
```

You can start using Ubuntu Linux on your Chromebook when you get a “password updated successfully” message.

Press **Ctrl + Alt + T** to launch Crosh, type **shell** in the terminal, press **Enter**, type/paste **sudo startxfce4** and, press **Enter**.



```
chrome-untrusted://crosh

Welcome to crosh, the Chrome OS developer shell.

If you got here by mistake, don't panic! Just close this tab and carry on.

Type 'help' for a list of commands.

If you want to customize the look/behavior, you can use the options page.
Load it by using the Ctrl-Shift-P keyboard shortcut.

crosh> shell
chronos@localhost / $ sudo startxfce4
```

If the Ubuntu Linux environment is loading a blank screen, type your username, press **Enter**, type your password, and press **Enter**. If the problem persists, switch back to Chrome OS and back to Ubuntu.

Use the keyboard shortcuts **Ctrl + Alt + Shift + Back** or **Ctrl + Alt + Shift + Forward** to switch back and forth between both operating systems.



Remove or Uninstall Linux On Chromebook

Is the Linux distribution crashing your device? Or you no longer want to run Linux on your Chromebook. All you need to remove the Linux distro is to disable Developer Mode and re-enable OS verification. Power off your Chromebook, press **Space Bar** on the page that displays “OS verification is OFF,” and press **Enter** to confirm the action.

That'll re-enable OS verification and boot Chrome OS normally. Note that disabling Developer Mode will also erase your Chromebook's data.

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Sodiq has written thousands of tutorials, guides, and explainers over the past 4 years to help people solve problems with Android, iOS, Mac, and Windows devices. He also enjoys reviewing consumer tech products (smartphones, smart home devices, accessories, etc.) and binge-watching comedy series in his spare time. [Read Sodiq's Full Bio](#)

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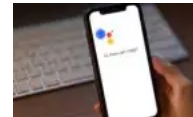
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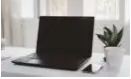
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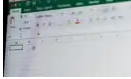


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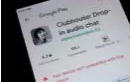
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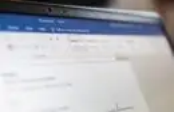
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