

Staying RHELlevant In Your Home Lab.

...

Use The Free Developer Licence To Harness The Power Of The Enterprise.

Who is this talk for?

Who is this presentation for?

- **Beginners to Linux**
- **Someone who has started playing with**
 - **Fedora**
 - **CentOS**
 - **Rocky**
 - **Alma**
 - **Red Hat**
- **Those who want to get a Job as a RHEL Sys-Admin**



- A simple guide I've found to be the best way to get started!
- If you have been using linux for a while, this will be information you already know

Who's First SCaLE is this?

Who has been coming for 2-5 years?

Who has been coming for 6-10 years?

Who has been coming for 10+ years?

ONE DOES NOT SIMPLY



Staying RHELlevant In Your Home Lab.

...

Use The Free Developer Licence To Harness The Power Of The Enterprise.

Agenda

1. My Background
2. Steps For Success
3. Free RHEL Developers Licence
4. Download RHEL
5. Create a bootable linux thumb drive
6. First RHEL Install
7. Register RHEL
8. Update and Install software
9. Set up Virtual Machines
10. Current Hardware Suggestions
11. Resources

The Slides Will Be
Posted ->





Joshua Loscar

Jscar Hawk

jscar-hawk.github.io

- Senior Technical Account Manager for Red Hat
 - Hacker
 - Podcaster
 - Maker
 - 3D Printer
 - Hardware Geek
 - Open Source & Open Hardware Lover!
 - I am a Husband & Father of 3 Boys
 - I have a very loving and patient wife
-

How Did I Get Here?

How Did I Get Here?

- I Was Not A Linux Native
- Self Starter
- Give Back To The Community & Network
- I Had A Call To Action

First Linux Job

1. No Documentation
2. No Network Diagrams
3. No Configuration Of The machines
4. No Consistency
5. No Internet Connection. (working in a disconnected network)

Steps For Success

1. Document your Processes
 2. Create your Network map
 3. Version control your documentation
 4. Automate your setup
 5. Utilize resources
 6. Share what you are working on
-
7. Logging all the things
 8. Go from Reactive To Proactive IT

Who has a home lab?

Who wants to build a home lab?

Let's Get Started With Why

Why Choose Red Hat?

Red Hat Subscriptions get you access to:

- Software Repositories (Repos)
- Security Patches
- Access To The Customer Portal
- Access To Red Hat Insights
- Hardening guides to help comply with compliance needs

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Red Hat Enterprise Linux

Easy access to a more secure OS, larger ecosystem, and a broader selection of languages and developer tools on which to build and deploy apps in the hybrid cloud.

Download RHEL at no-costMore ways to try

OverviewDownload/Sign UpGet started

★ Recommended

No-cost RHEL for developers subscription

This subscription includes:

- Red Hat Enterprise Linux provided via this subscription is for individual developers only. For Corporate and Enterprise subscription options, [please see this](#).
- Red Hat Enterprise Linux Server (all currently supported releases)
- Additional development tools
- Numerous add-ons such as resilient storage, scalable file systems, and high-performance networking
- Access to the Red Hat Customer Portal for software updates and thousands of knowledge-based articles

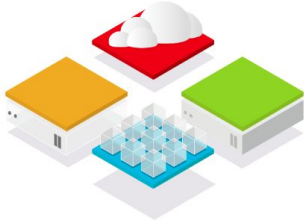
Activate your subscriptionRead the FAQ

Ready to use RHEL in production?

- To learn more, [contact a sales rep](#).
- Explore subscription options in the [Red Hat store](#).

Red Hat Enterprise Linux user guides. [Click here for more details](#).

- Get Red Hat Enterprise Linux (RHEL)



<https://developers.redhat.com/products/rhel/download>

Article

No-cost Red Hat Enterprise Linux Individual Developer Subscription: FAQs

February 5, 2021 [Twitter](#) [Facebook](#) [LinkedIn](#) [Email](#) [RSS](#) [Linux](#)Red Hat Developer
Guest Author[Table of contents:](#)

General

1. What is the Red Hat Developer program's Red Hat Developer Subscription for Individuals?

The Red Hat Developer Subscription for Individuals is a no-cost offering of the [Red Hat Developer program](#) and includes access to [Red Hat Enterprise Linux](#) among other Red Hat products. It is a program and an offering designed for individual developers, available through the [Red Hat Developer program](#).

2. What Red Hat Enterprise Linux developer subscription is made available at no cost?

The no-cost Red Hat Developer Subscription for Individuals is available and includes Red Hat Enterprise Linux along with numerous other Red Hat technologies. Users can access this no-cost subscription by joining the Red Hat Developer program at [developers.redhat.com/register](#). Joining the program is free.

3. What Red Hat Enterprise Linux variant and components are included in the no-cost Red Hat Developer Subscription for Individuals?

The Red Hat Developer Subscription for Individuals includes the following Red Hat Enterprise Linux components:

- Red Hat Enterprise Linux Server (includes GUI)
- Red Hat Software Collections and Application Streams
- Red Hat Developer Toolset and Compilers
- Numerous Red Hat Enterprise Linux infrastructure add-ons

4. Are the Red Hat Enterprise Linux binaries offered via the Red Hat Developer Subscription for



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Check Out FAQ's

<https://developers.redhat.com/articles/faqs-no-cost-red-hat-enterprise-linux>

Create Account

 **Red Hat**

All Red Hat  Register

Log in to your Red Hat account

Red Hat login or email

Next

[Register for a Red Hat account →](#)

[Forgot your password?](#)

 **Red Hat**

Log in or register to access product trials and purchase subscriptions. Your account, in combination with an active subscription, provides access to technical support knowledge and the ability to manage users, subscriptions, and certifications.

 **Red Hat**



Create a Red Hat account

Sign up and use this Red Hat account to access all of Red Hat's applications, communities, support, and more.

Red Hat will collect your contact and account information to create your Red Hat account. We use your personal data to identify you and to provide you with information, support, and customer service. For more information, please see Red Hat's [privacy statement](#).

* Required fields

Choose a Red Hat login *

Your login is a user ID for accessing your account across all Red Hat sites. It must be at least 5 characters and **cannot be changed once created**.

Email address *

First name *

Last name *

Job role *

Choose a password *

Fill Out The Form

Verify Your Email

 **Red Hat**

All Red Hat

 You need to verify your email address to continue.

**Red Hat**
Email address verification
An email with instructions to verify your email address has been sent to your address opentechknowversity@protonmail.com.
Haven't received a verification code in your email? [Click here to resend the email.](#)

 **Red Hat**

Products	Tools	Try, buy, sell	Communicate	About Red Hat
Red Hat Enterprise Linux	My account	Product trial center	Contact consulting	We're the world's leading provider of enterprise open source solutions—including Linux, cloud, container, and Kubernetes. We deliver hardened solutions that make it easier for enterprises to work across platforms and environments, from the core datacenter to the network edge.
Red Hat OpenShift	Console	Red Hat Store	Contact sales	Subscribe to our newsletter, Red Hat Shares
Red Hat Ansible Automation Platform	Customer support	Red Hat Marketplace	Contact training	Sign up now →
Cloud services	Partner resources	Find a partner	Social	
See all products	Developer resources			
	Training and certification			

Finish Verification

The screenshot displays the Proton Mail web interface. On the left, a sidebar shows the 'Inbox' with 99 messages. The main area shows a list of emails, with the top one highlighted: 'no-reply@redhat.com' with the subject 'Verify email for Red Hat account' and a timestamp of 2:59 AM. Below this, a list of YouTube comments is visible, including '[2] New reply to a comment on "How to Stain Wood Like a PRO - 4 Simple Steps"', 'Biscuit Tree Woodworks loves your comment', '[3] New comment on "Framework Ethernet Module"', 'New reply to a comment on "Enabling Xe Graphics on the Framework Laptop"', 'Love Make Share loves your comment', 'Thanks for your report to YouTube', '[3] New comment on "Framework Laptop Hinge Upgrade"', 'Black Hills Information Security is live now: Future Red Team Rants: A breakdo...', '[2] New comment on "Steam Deck Skin"', and 'StackRox Community is live now: The Secure Cloud Cast (E5) | Compliance an...'. At the bottom of the list, a URL is visible: <https://sso.redhat.com/auth/realms/redhat-external/login-actions/action-token?key=eyJhb...>.

On the right, the email content is displayed under the heading 'Verify email for Red Hat account'. The 'From' field is 'no-reply@redhat.com' and the 'To' field is 'opentechknowversity@protonmail.com'. The email body contains the following text:

Someone has created a Red Hat account with this email address. If this was you, click the link below to verify your email address

[Link to e-mail address verification](#)

This link will expire within 1 day.

If you didn't create this account, just ignore this message.

Set Up Your Profile





Update Your Account

You're attempting to access content that requires a Red Hat login with a complete profile. Please take a moment to complete your profile!

*** Account Type**

☐ **Corporate** A corporate Red Hat account allows a set of users to centrally purchase or administer systems within a corporate organization (system administrators, purchasing agents, IT management, etc.)

☐ **Personal** A personal Red Hat account is for purchasing or administering your own personal systems.

Need access to an account? If your company has an existing Red Hat account, your organization administrator can [grant you access](#). If you have questions, [contact customer service](#).

Login Information

*** Create a Red Hat**
Login: opentechknowversity

Your login is a user ID for accessing your account across all Red Hat sites. It must be at least five characters and cannot be changed once created.

*** Email Address:**

*** Password:** [Show](#)

Your password must be at least 8 characters long. A strong password combines lower case letters, upper case letters, numbers, and symbols.

*** Confirm Password:** [Show](#)

Waiting for access.redhat.com...

<https://access.redhat.com/>

Set Up Your Profile

* First name:

* Last name:

* Country or Region:

* Address line 1:

Address line 2:

Address line 3:

* Postal code:

* City:

* County:

* State:

* Phone number:

Fax number:



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 **Red Hat**
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Open Source Assurance Agreement (OSA) -United States (English) [View](#) [or Download](#)

► Change agreement's location and language

☒ I have read and agree to the terms.
☐ I wish to decline the terms
☐ I wish to defer my decision

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► Change agreement's location and language

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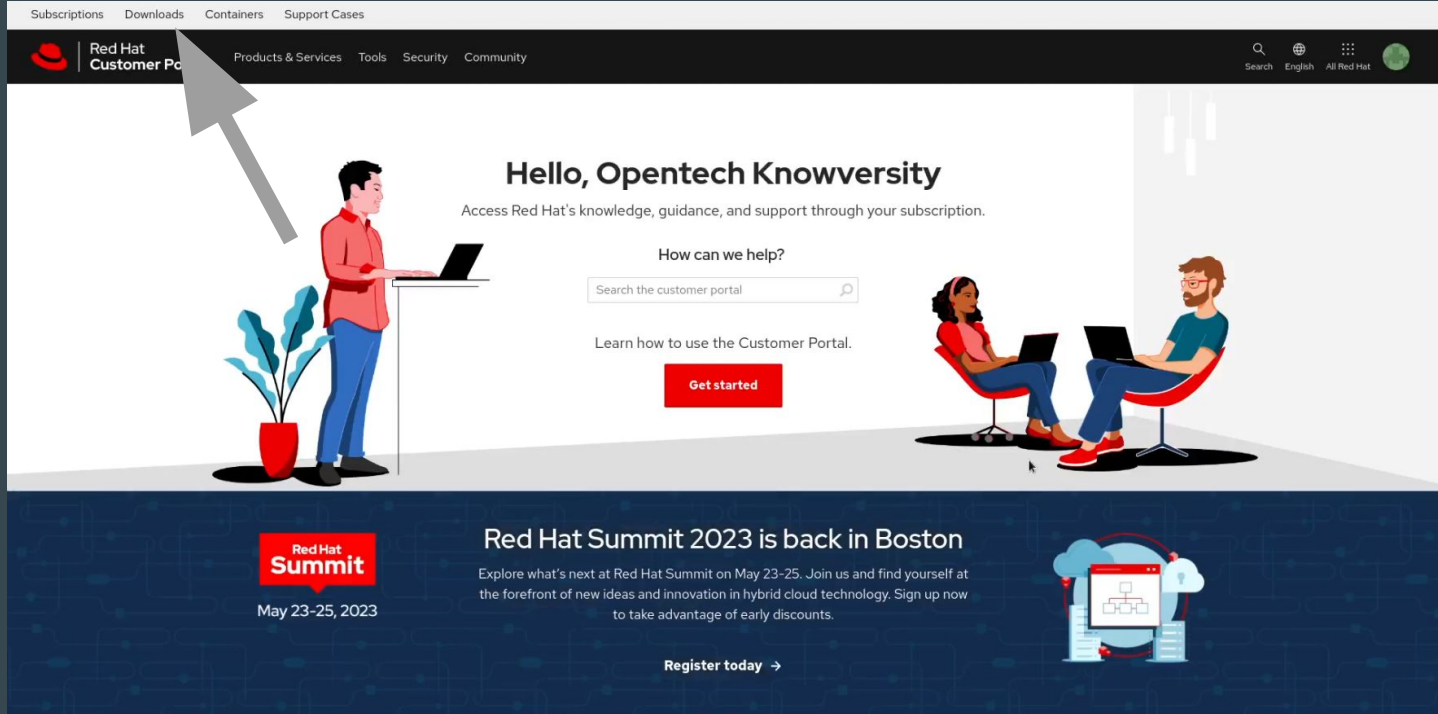
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You Are Ready To
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The screenshot shows the Red Hat Customer Portal homepage. At the top, a dark navigation bar contains links for Subscriptions, Downloads, Containers, and Support Cases. Below this, the Red Hat logo and 'Customer Portal' are on the left, while Products & Services, Tools, Security, and Community are on the right. Search, English, and All Red Hat links are in the top right corner. The main content area features an illustration of a man at a laptop and two people sitting on chairs. The heading 'Hello, Opentech Knowversity' is followed by the text 'Access Red Hat's knowledge, guidance, and support through your subscription.' Below this is a search bar with the placeholder 'Search the customer portal' and a 'Get started' button. A section for 'Red Hat Summit' is at the bottom left, with the text 'Red Hat Summit May 23-25, 2023'. To the right of this is a section for 'Red Hat Summit 2023 is back in Boston' with the text 'Explore what's next at Red Hat Summit on May 23-25. Join us and find yourself at the forefront of new ideas and innovation in hybrid cloud technology. Sign up now to take advantage of early discounts.' and a 'Register today' button with a right arrow. An illustration of a cloud with a diagram inside is on the bottom right.

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Red Hat Customer Portal

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Access Red Hat's knowledge, guidance, and support through your subscription.

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Search the customer portal

Learn how to use the Customer Portal.

[Get started](#)

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May 23-25, 2023

Red Hat Summit 2023 is back in Boston

Explore what's next at Red Hat Summit on May 23-25. Join us and find yourself at the forefront of new ideas and innovation in hybrid cloud technology. Sign up now to take advantage of early discounts.

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In the top left side click downloads



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Red Hat Directory Server		▼
Red Hat Certificate System		▼
Red Hat Satellite		▼
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Red Hat Software Collections		▼
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Product Variant: ⓘ[Switch to Version 7 and below](#)**Version:****Architecture:** ⓘ

Red Hat Enterprise Linux for x86_64

9.1 (latest)

x86_64

About Red Hat Enterprise Linux for x86_64

Only Red Hat Enterprise Linux provides an intelligent OS that is the consistent foundation for the enterprise hybrid cloud. Delivering any application on any footprint at any time giving you Control. Confidence. Freedom.

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Installers and Images for Red Hat Enterprise Linux for x86_64 (v. 9.1 for x86_64)

Full installation image

Red Hat Enterprise Linux 9.1 Binary DVD **recommended**

Run the installation program and complete installation without requiring any additional package repositories. Use this image if the system you are installing will not have network access, as it contains all of the required packages to complete an installation of Red Hat Enterprise Linux.

Last modified: 2022-10-31 SHA-256 Checksum: d9dcae2b6e76d0f9dcf4a517bddc227d5fa3f213a8323592f4a07a05aa542a2

[Download Now](#)

8.44 GB

Additional installation images

Red Hat Enterprise Linux 9.1 Boot ISO

Initiate your network install with this minimal install image. To complete installation, you will need an active network

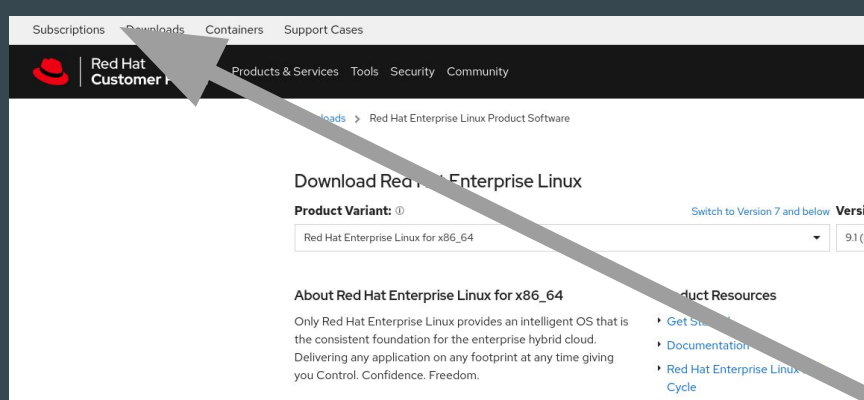
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Downloads > Red Hat Enterprise Linux Product Software

Download Red Hat Enterprise Linux

Product Variant: ^① Red Hat Enterprise Linux for x86_64 [Switch to Version 7 and below](#) **Version:** 9.1 (latest) **Architecture:** ^② x86_64

About Red Hat Enterprise Linux for x86_64
Only Red Hat Enterprise Linux provides an intelligent OS that is the consistent foundation for the enterprise hybrid cloud. Delivering any application on any footprint at any time giving you Control. Confidence. Freedom.

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Product Software Modules Packages Source Errata

Installers and Images for Red Hat Enterprise Linux for x86_64 (v. 9.1 for x86_64)

Full installation image

Red Hat Enterprise Linux 9.1 Binary DVD **recommended** [Download Now](#) 

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Last modified: 2022-10-31 SHA-256 Checksum: d9dcae2b6e760d0f9dcf4a517bddc227d5fa37213a832359214a07a05aa542a2

Additional installation images

Red Hat Enterprise Linux 9.1 Boot ISO [Download Now](#) 

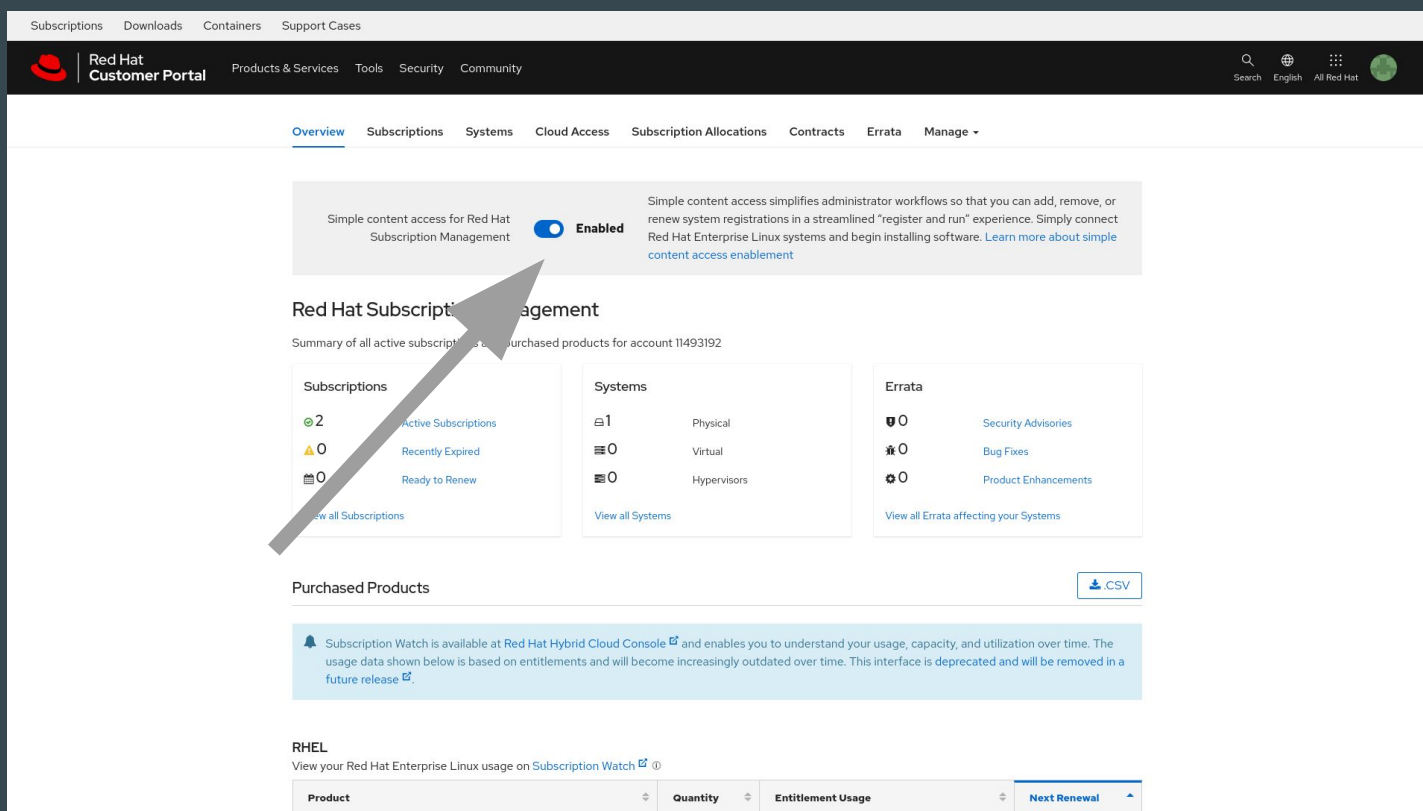
Initiate your network install with this minimal install image. To complete installation, you will need an active network

8.44 GB

805 MB

Click The Subscription Link

Check Your Subscription



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Simple content access for Red Hat Subscription Management **Enabled**

Simple content access simplifies administrator workflows so that you can add, remove, or renew system registrations in a streamlined "register and run" experience. Simply connect Red Hat Enterprise Linux systems and begin installing software. [Learn more about simple content access enablement](#)

Red Hat Subscription Management

Summary of all active subscriptions and purchased products for account 11493192

Subscriptions

- 2 Active Subscriptions
- 0 Recently Expired
- 0 Ready to Renew

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Systems

- 1 Physical
- 0 Virtual
- 0 Hypervisors

[View all Systems](#)

Errata

- 0 Security Advisories
- 0 Bug Fixes
- 0 Product Enhancements

[View all Errata affecting your Systems](#)

Purchased Products

[Download CSV](#)

Subscription Watch is available at Red Hat Hybrid Cloud Console and enables you to understand your usage, capacity, and utilization over time. The usage data shown below is based on entitlements and will become increasingly outdated over time. This interface is deprecated and will be removed in a future release.

RHEL

View your Red Hat Enterprise Linux usage on [Subscription Watch](#)

Product	Quantity	Entitlement Usage	Next Renewal
---------	----------	-------------------	--------------

Click to Enable
Simple content access for Red Hat Subscription Management

Download Balena Etcher

The screenshot shows the Balena Etcher website. At the top is a navigation bar with the Balena logo, links for 'More Products', 'Resources', 'Customers & Partners', 'Pricing', and 'Contact', a 'Login' link, and a blue 'Sign Up' button. The main section has a dark blue background with the word 'ETCHER' in green, followed by the headline 'Flash. Flawless.' and the subtext 'Flash OS images to SD cards & USB drives, safely and easily.' Below this is a three-step process diagram: 'Select image' (with a plus icon), 'Select drive' (with a laptop icon), and 'Flash!' (with a lightning bolt icon). A large green 'Download Etcher' button is centered below the diagram. The bottom section is white and features the heading 'RESOURCES' in green, followed by five rounded buttons: 'Docs', 'About', 'EtcherPro', 'FAQs', and 'Forums'. At the very bottom, there is a question 'Why balenaEtcher?' and a line of small text: 'Here at balena we have thousands of users working through our getting started' followed by a link 'Create USB installation media from bootable ISOs'.

balena

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ETCHER

Flash. Flawless.

Flash OS images to SD cards & USB drives, safely and easily.

Select image → Select drive → Flash!

Download Etcher

RESOURCES

Docs About EtcherPro FAQs Forums

Why balenaEtcher?

Here at balena we have thousands of users working through our getting started • Create USB installation media from bootable ISOs

There are many tools that can be used



Open Source

Made with JS, HTML, node.js and [Electron](#). Etcher is built on open source tools and is and always will be free and open source to use!



Cross Platform

Works for everyone whether you are on Windows, Linux or Mac with no complicated install instructions.



Simultaneous Writing

Using balena EtcherPro you can flash up to 16 drives at once. [Find out more here.](#)

Download Balena Etcher For Your OS

DOWNLOAD

Download Etcher

ASSET

ETCHER FOR WINDOWS (X86|X64) (INSTALLER)
ETCHER FOR WINDOWS (X86|X64) (PORTABLE)
ETCHER FOR WINDOWS (LEGACY 32 BIT) (X86|X64) (PORTABLE)
ETCHER FOR MACOS
ETCHER FOR LINUX X64 (64-BIT) (APPIMAGE)
ETCHER FOR LINUX (LEGACY 32 BIT) (APPIMAGE)

OS

WINDOWS X86|X64
WINDOWS X86|X64
WINDOWS X86|X64
MACOS X64
LINUX X64
LINUX X86

ARCH

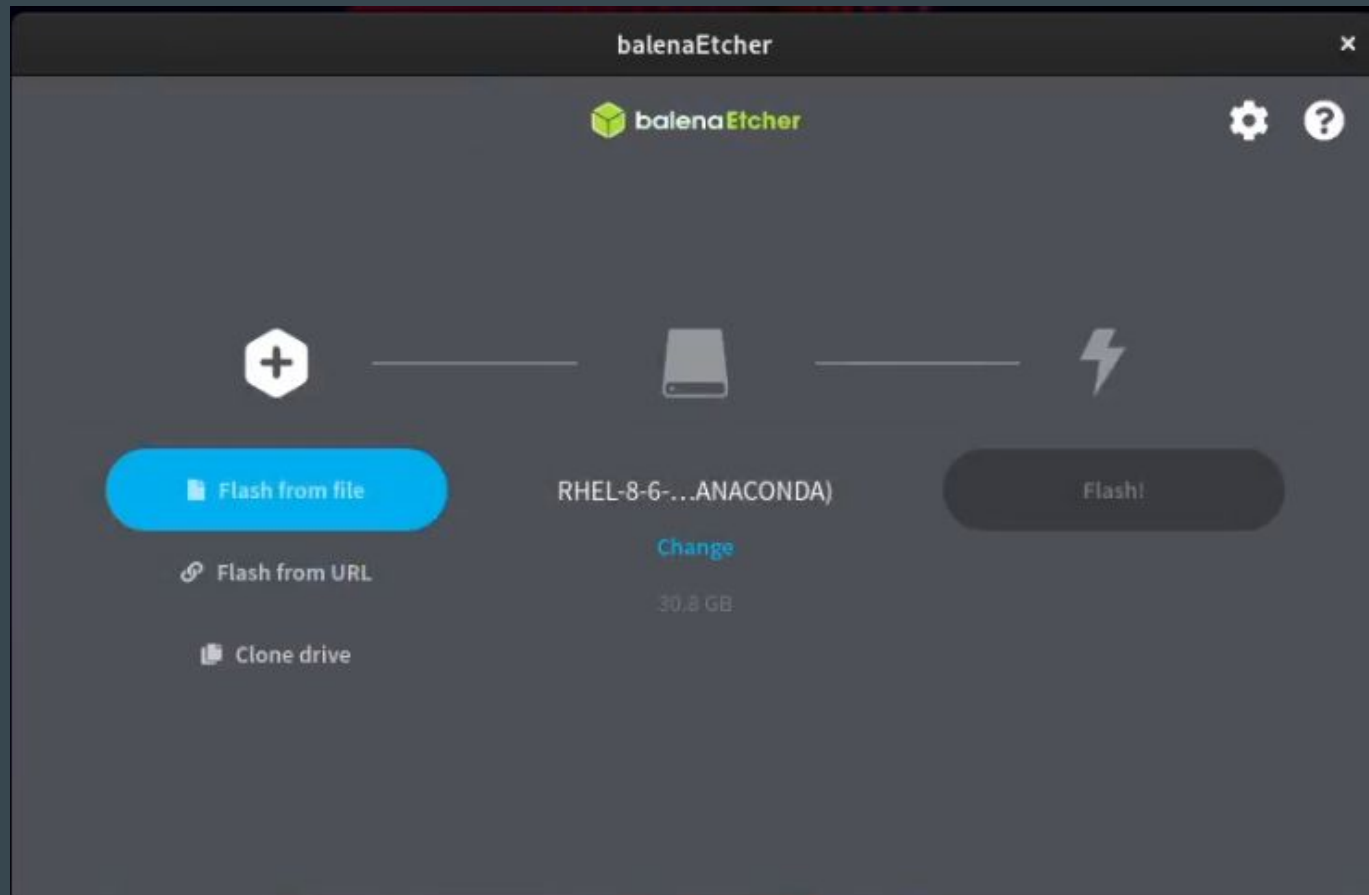
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Looking for [Debian \(.deb\)](#) packages or [Red Hat \(.rpm\)](#) packages?

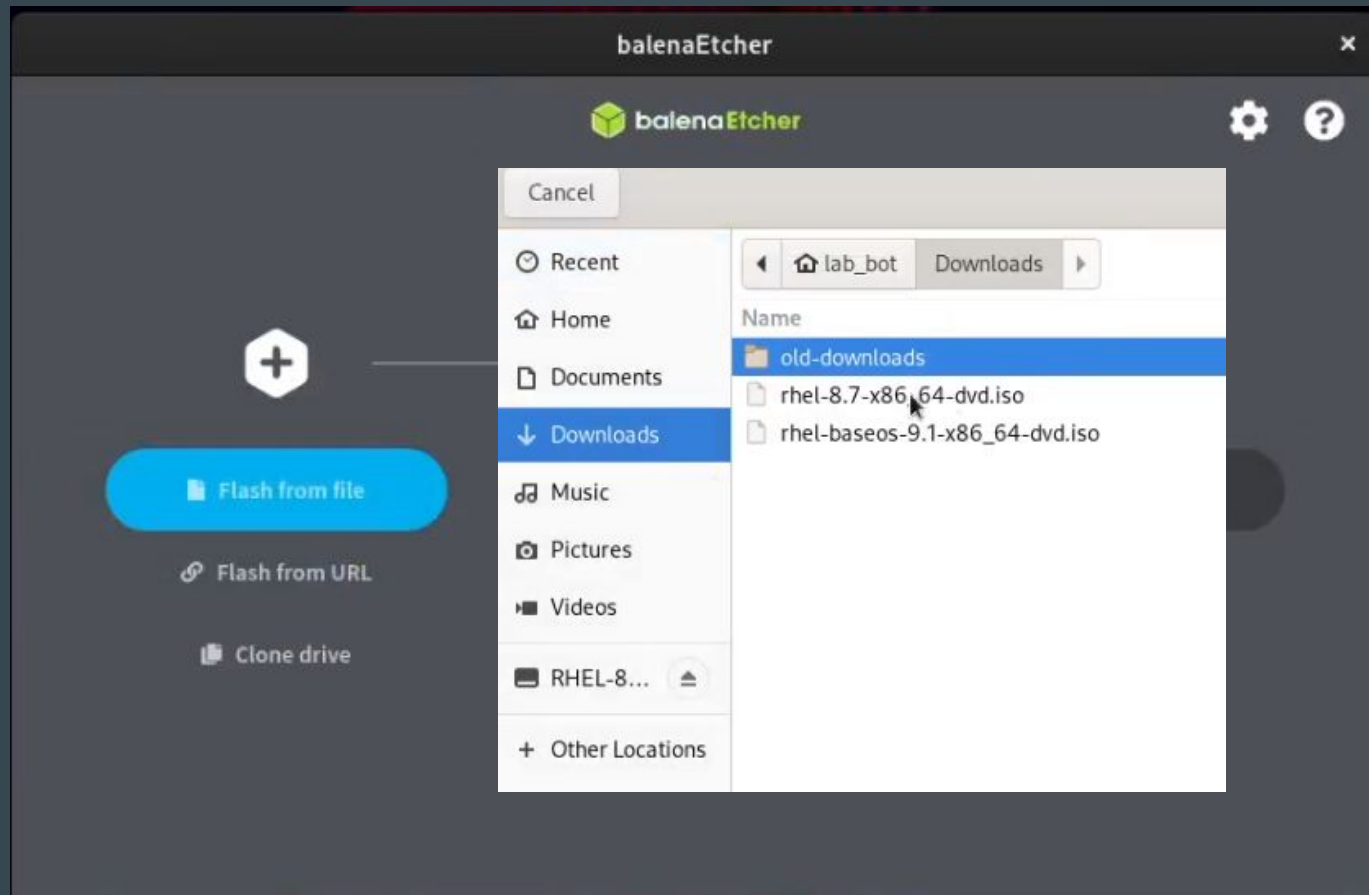
🚀 OSS hosting by [cloudsmith](#)

COMMUNITY

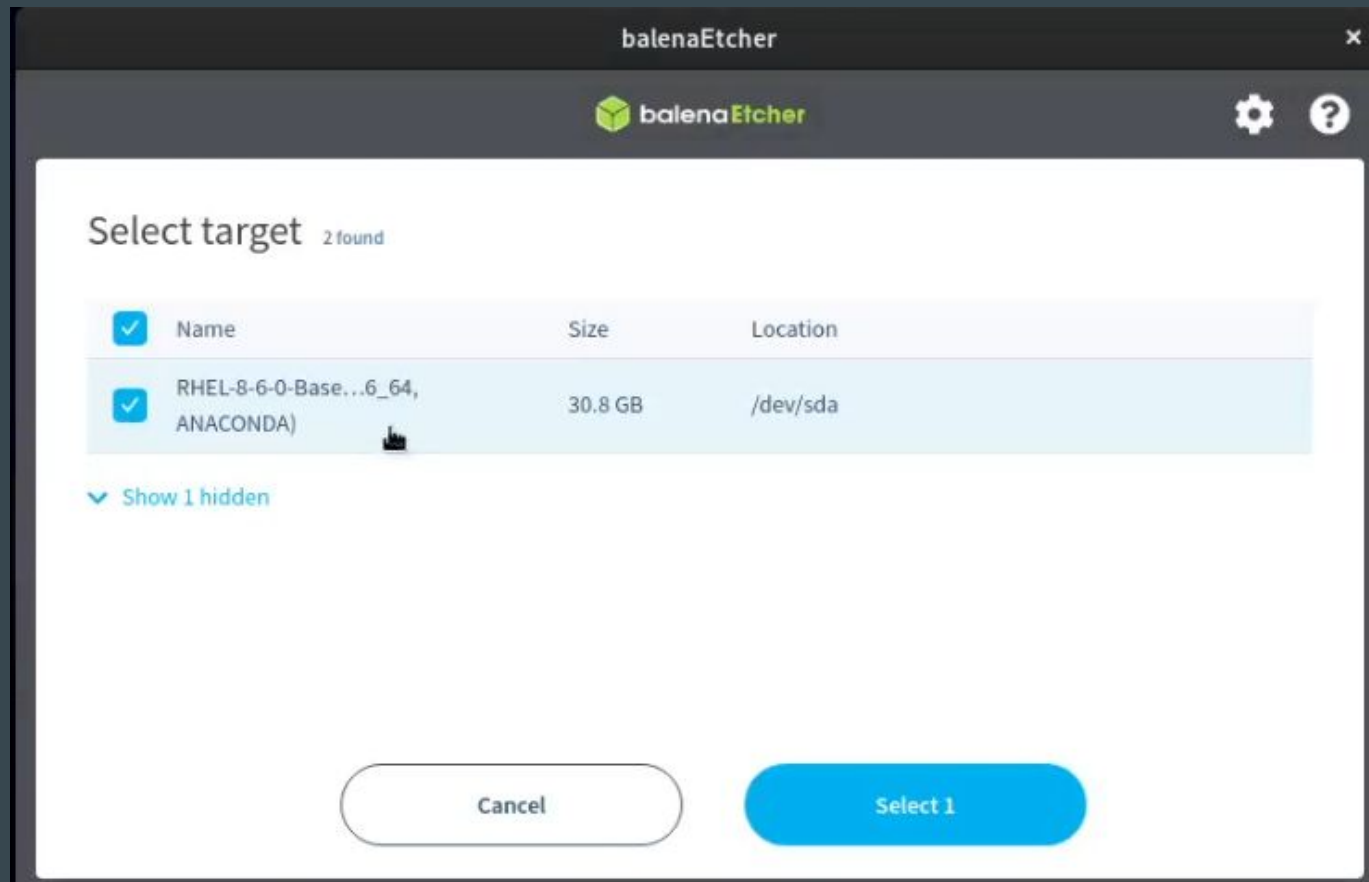
Plug In Your Thumb Drive



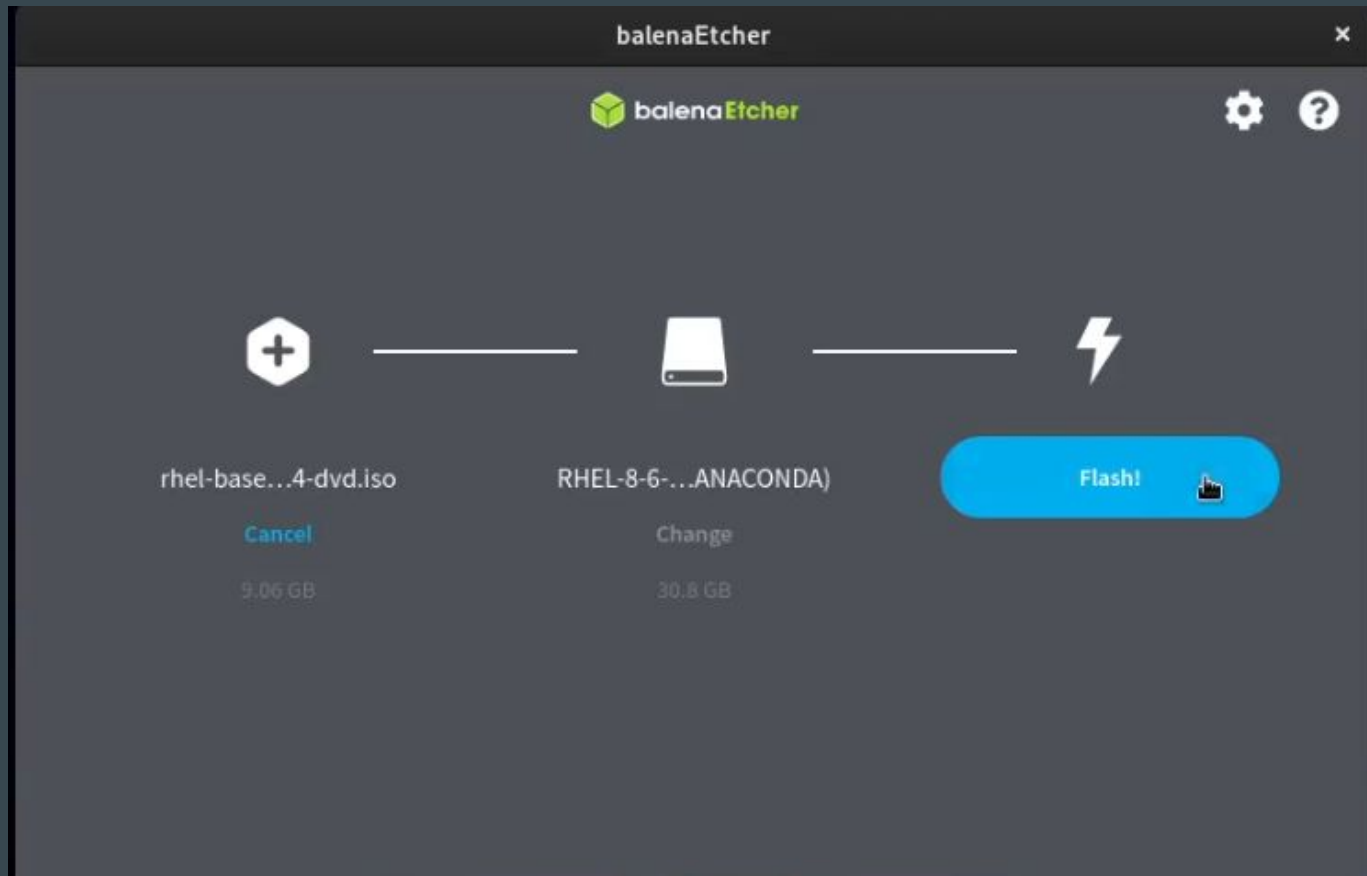
Chose The ISO



Chose The
Thumb Drive



Flash the Iso



Wait For It To Finish

balenaEtcher – 7% Flashing...

rhel-ba...dvd.iso

9.06 GB

RHEL-8-...ACONDA)

Flashing... 7%

Cancel

64.50 MB/s

ETA: 2m10s

balenaEtcher

Want to flash multiple drives at high speeds?

Ready to ship

Write to 16 cards or usb disks at once at extreme speeds, using the same interface you know and love.

Get EtcherPro

Wait For It To
Validate

balenaEtcher – 23% Validating...

+

rhel-ba...dvd.iso

9.06 GB

RHEL-8-...ACONDA)

⚡

Validating... 23%

Skip

136.80 MB/s

ETA: 0m50s

balenaEtcher

Want to flash multiple drives at high speeds?

Ready to ship

Write to 16 cards or usb disks at once at extreme speeds, using the same interface you know and love.

Get EtcherPro

You May Now Remove The Thumb Drive

balenaEtcher





rhel-baseos..._64-dvd.iso

Flash Completed!

1 Successful target

Effective speed: 21.5 MB/s

Flash another

Task	Solution
☒ Flash device	 balenaEtcher
☐ Update and manage devices	 balenaCloud

Etcher is just one tool in your kit

We also build tools to deploy, manage, and remotely update fleets of small devices at any scale. Provision, deploy, manage, update and maintain with balena.

Find out more



When it comes to hardware

- Reset your BIOS to Default
- Enable booting from USB
- Under your Performance/Processor settings
 - Hyper-Threading = Enable*
 - Virtualization Technology = Enabled
- Under security/boot settings
 - Secure Boot = Disabled
 - UEFI Boot = Disabled
 - Legacy Boot = Enabled



Who has heard about the Cockpit Project?

Manage & Control from a Webpage



 COCKPIT

InstallDocumentationContributeBlogSearch

The easy-to-use, integrated, glanceable, and open web-based interface for your servers

Released 22 Feb 2023: **Version 286**

Introducing Cockpit

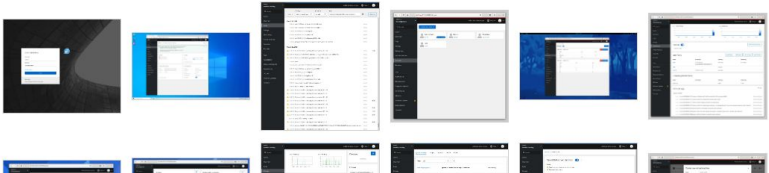
Cockpit is a web-based graphical interface for servers, intended for everyone, especially those who are:

- **new to Linux**
(including Windows admins)
- **familiar with Linux**
and want an easy, graphical way to administer servers
- **expert admins**
who mainly use other tools but want an overview on individual systems

Thanks to Cockpit intentionally using system APIs and commands, a whole team of admins can manage a system in the way they prefer, including the command line and utilities right alongside Cockpit.

Take a look

A picture is worth a thousand words. Click a thumbnail to see screenshots of Cockpit in action.

<https://cockpit-project.org/>

It can be installed on
most linux distros

Installation & Setup

	Tested	Available	
 fedora	✓	✓	View instructions
 Red Hat Enterprise Linux	✓	✓	View instructions
 fedora COREOS	✓	✓	View instructions
 CentOS	✓	✓	View instructions
 debian	✓	✓	View instructions
 ubuntu	✓	✓	View instructions
 Clear Linux		✓	View instructions
 archlinux		✓	View instructions
 Tumbleweed		✓	View instructions
SUSE Linux Enterprise Micro		✓	View instructions

! "Tested" in this table means actively tested by the Cockpit team using automated integration testing with a specific virtual machine image. Distributions listed on this page likely do their own downstream testing in addition.

Choose your OS and follow the instructions

Install Cockpit On RHEL

Cockpit is available in Red Hat Enterprise Linux 7 and later.

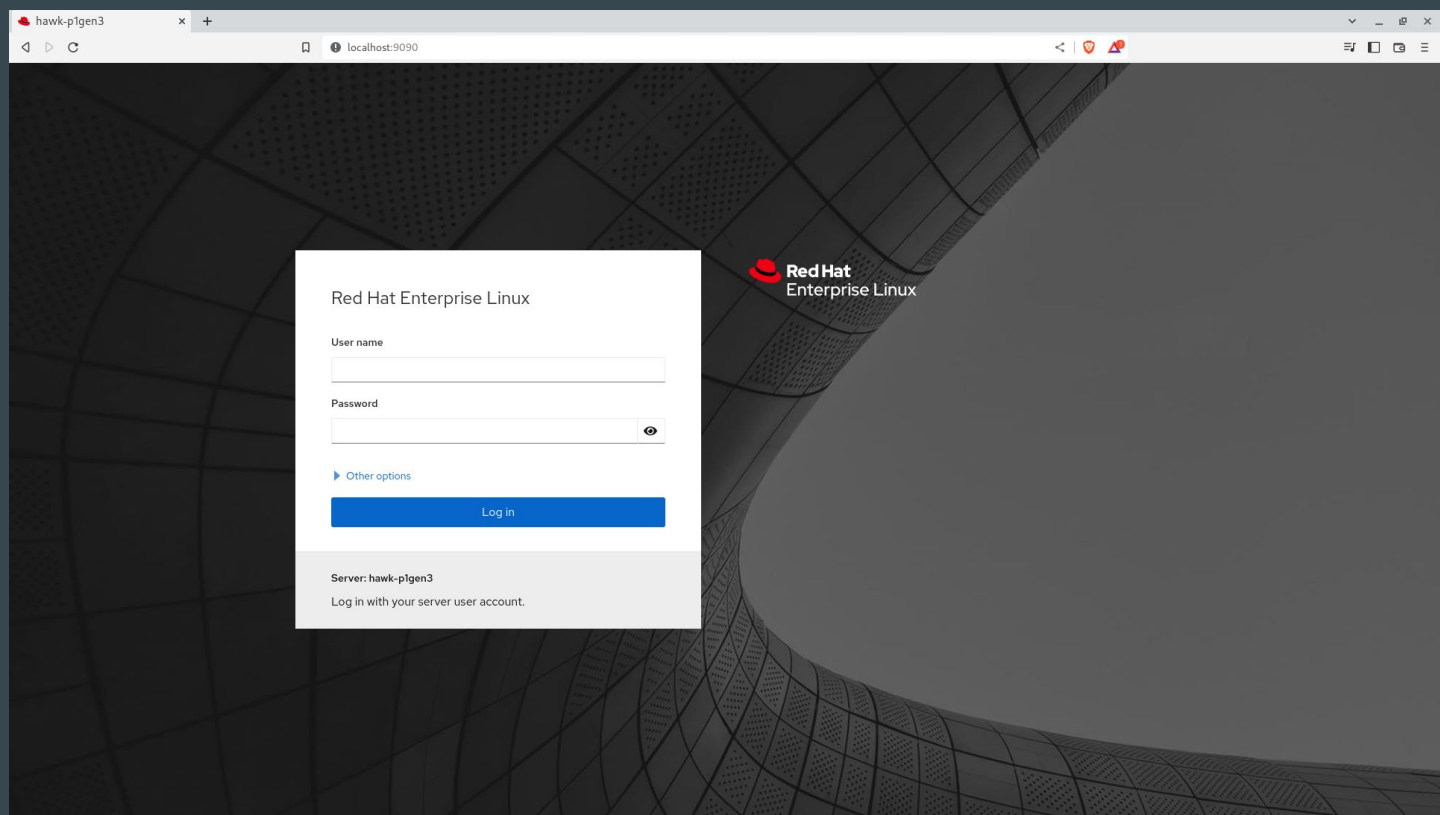
Install cockpit:

```
sudo yum install cockpit
```

Enable cockpit:

```
sudo systemctl enable --now cockpit.socket
```

Log into Cockpit



Open A Web Browser

Go to your ip address, localhost + Colon 9090

I.E. localhost:9090

Use your same username and password to log into Cockpit for the first time.

Cockpit: Overview

The screenshot shows the Cockpit Overview page for a system named **hawk-plgen3**, which is running Red Hat Enterprise Linux 9.1 (Plow). The interface includes a left-hand navigation menu with options like System, Overview (selected), Logs, Storage, Networking, Podman containers, Virtual machines, Accounts, Services, Tools, Applications, Diagnostic reports, Kernel dump, SELinux, Software updates, Subscriptions, and Terminal. The main content area displays four panels: Health, Usage, System information, and Configuration. The Health panel shows the system is up to date and the last successful login was on Nov 16, 07:59 AM. The Usage panel shows CPU usage at 5% of 12 CPUs and memory usage at 16 / 60 GiB. The System information panel lists the model as LENOVO 20TJSS400, machine ID as 9fc17ec61bdf43a39b5e011cafbfecc5, and uptime as about 10 hours. The Configuration panel shows the hostname as hawk-plgen3, system time as Nov 16, 2022, 3:40 PM, domain as Join domain, performance profile as none, crypto policy as Default, and secure shell keys as Show fingerprints. A top bar indicates limited access and provides a link to turn on administrative access.

lab_bot@
hawk-plgen3

Web console is running in limited access mode. [Turn on administrative access](#)

hawk-plgen3 running Red Hat Enterprise Linux 9.1 (Plow)

Health

✓ System is up to date

Last successful login: Nov 16, 07:59 AM on tty2
[View login history](#)

Usage

CPU  5% of 12 CPUs

Memory  16 / 60 GiB

[View metrics and history](#)

System information

Model	LENOVO 20TJSS400
Machine ID	9fc17ec61bdf43a39b5e011cafbfecc5
Uptime	about 10 hours

[View hardware details](#)

Configuration

Hostname	hawk-plgen3
System time	Nov 16, 2022, 3:40 PM ⓘ
Domain	Join domain
Performance profile	none
Crypto policy	Default
Secure shell keys	Show fingerprints

This is your default starter view

Cockpit: User

The screenshot displays the Cockpit web interface for a user named 'lab_bot@hawk-plgen3'. The interface is divided into a left sidebar with navigation options and a main content area. The main content area shows the system is running Red Hat Enterprise Linux 9.1 (Plow) and is in 'Limited access' mode. A yellow banner at the top indicates 'Web console is running in limited access mode' with a button to 'Turn on administrative access'. The main content area is divided into four panels: Health, Usage, System information, and Configuration.

Health

- System is up to date
- Last successful login: Nov 16, 07:59 AM on tty2
- [View login history](#)

Usage

- CPU: 5% of 12 CPUs
- Memory: 16 / 60 GiB
- [View metrics and history](#)

System information

- Model: LENOVO 20TJSS400
- Machine ID: 9fc17ec61bdf43a39b5e011cafbfecc5
- Uptime: about 10 hours
- [View hardware details](#)

Configuration

Hostname	hawk-plgen3
System time	Nov 16, 2022, 3:40 PM ⓘ
Domain	Join domain
Performance profile	none
Crypto policy	Default
Secure shell keys	Show fingerprints

By Default you are logged in as the user.

Cockpit: Admin Access

The screenshot displays the Cockpit web interface for a system named 'hawk-plgen3' running Red Hat Enterprise Linux 9.1 (Plow). The interface is divided into a left sidebar with navigation options and a main content area. The top of the main area features a yellow banner indicating 'Limited access' with a blue button to 'Turn on administrative access', which is highlighted by a grey arrow. The main content area is organized into four panels: Health, Usage, System information, and Configuration.

Health

- System is up to date
- Last successful login: Nov 16, 07:59 AM on tty2
- [View login history](#)

Usage

- CPU: 5% of 12 CPUs
- Memory: 16 / 60 GiB
- [View metrics and history](#)

System information

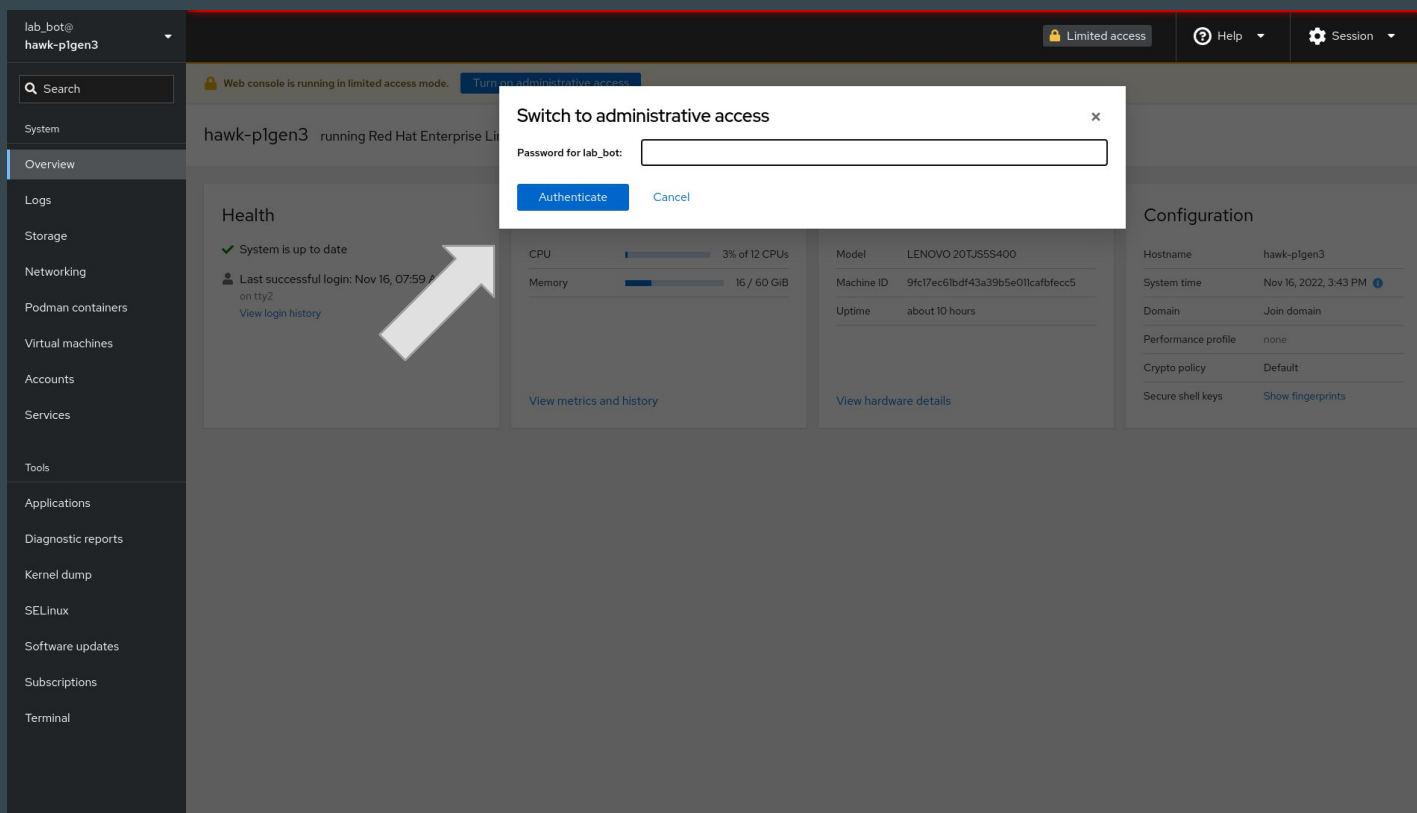
- Model: LENOVO 20TJSS400
- Machine ID: 9fc17ec61bdf43a39b5e011cafbfecc5
- Uptime: about 10 hours
- [View hardware details](#)

Configuration

Hostname	hawk-plgen3
System time	Nov 16, 2022, 3:40 PM ⓘ
Domain	Join domain
Performance profile	none
Crypto policy	Default
Secure shell keys	Show fingerprints

If you want to do tasks as an elevated user you will need to click the blue button in the top middle of the screen.

Cockpit: Switch To Admin



The screenshot shows the Cockpit web console interface. At the top, a banner indicates "Web console is running in limited access mode." with a button to "Turn on administrative access". The left sidebar contains a navigation menu with options like System, Overview, Logs, Storage, Networking, Podman containers, Virtual machines, Accounts, Services, Tools, Applications, Diagnostic reports, Kernel dump, SELinux, Software updates, Subscriptions, and Terminal. The main content area displays system health and configuration details for a machine named "hawk-plgen3". A modal dialog box titled "Switch to administrative access" is open, asking for the "Password for lab_bot:" and providing "Authenticate" and "Cancel" buttons. A large white arrow points from the "Authenticate" button to the dialog box.

lab_bot@ hawk-plgen3

Search

System

Overview

Logs

Storage

Networking

Podman containers

Virtual machines

Accounts

Services

Tools

Applications

Diagnostic reports

Kernel dump

SELinux

Software updates

Subscriptions

Terminal

Web console is running in limited access mode. Turn on administrative access

hawk-plgen3 running Red Hat Enterprise Linux

Health

✓ System is up to date

Last successful login: Nov 16, 07:59 AM on tty2
[View login history](#)

CPU 3% of 12 CPUs

Memory 16 / 60 GiB

[View metrics and history](#)

Model LENOVO 20TJSS400

Machine ID 9fc17ec61bdf43a39b5e011cafbfecc5

Uptime about 10 hours

[View hardware details](#)

Configuration

Hostname	hawk-plgen3
System time	Nov 16, 2022, 3:43 PM ⓘ
Domain	Join domain
Performance profile	none
Crypto policy	Default
Secure shell keys	Show fingerprints

Log in with your password and click Authenticate.

Cockpit: Overview

The screenshot displays the Cockpit Overview page for a system named **hawk-plgen3**, which is running Red Hat Enterprise Linux 9.1 (Plow). The interface is divided into a left sidebar with navigation options and a main content area with four panels: Health, Usage, System information, and Configuration.

Administrative access is indicated in the top right corner, with a large grey arrow pointing to it.

Health Panel:

- System is up to date (green checkmark)
- Insights: 1 important hit (link)
- Last successful login: Nov 16, 07:59 AM on tty2 (link to View login history)

Usage Panel:

- CPU: 3% of 12 CPUs (progress bar)
- Memory: 16 / 60 GiB (progress bar)
- Link: View metrics and history

System information Panel:

- Model: LENOVO 20TJS5S400
- Machine ID: 9fc17ec61bdf43a39b5e011cafbf5cc5
- Uptime: about 10 hours
- Link: View hardware details

Configuration Panel:

- Hostname: hawk-plgen3 (link to edit)
- System time: Nov 16, 2022, 3:48 PM (link to info)
- Domain: (link to Join domain)
- Performance profile: none
- Crypto policy: Default
- Secure shell keys: Show fingerprints

Left Sidebar Navigation:

- lab_bot@ hawk-plgen3
- Search
- System
- Overview (selected)
- Logs
- Storage
- Networking
- Podman containers
- Virtual machines
- Accounts
- Services
- Tools
- Applications
- Diagnostic reports
- Kernel dump
- SELinux
- Software updates
- Subscriptions
- Terminal

Now you can see that you are logged in with Administrative Access.

Cockpit: Applications

lab_bot@hawk-plgen3

Search

System

Overview

Logs

Storage

Networking

Podman containers

Virtual machines

Accounts

Services

Tools

Applications

Diagnostic reports

Kernel dump

SELinux

Software updates

Subscriptions

Terminal

hawk-plgen3 running Red Hat Enterprise Linux 9.1 (Plow)

Reboot

Health

✔ System is up to date

☐ Insights: 1 important hit

Last successful login: Nov 16, 07:59 AM on tty2

[View login history](#)

Usage

CPU

2% of 12 CPUs

Memory

16 / 60 GiB

[View metrics and history](#)

System information

ModelLENOVO 20TJS5S400

Machine ID9fc17ec61bdf43a39b5e011cafbf5cc5

Uptimeabout 10 hours

[View hardware details](#)

Configuration

Hostnamehawk-plgen3 [edit](#)

System timeNov 16, 2022, 3:55 PM

Domain[Join domain](#)

Performance profilenone

Crypto policyDefault

Secure shell keysShow fingerprints

Next you want to click on Applications

Cockpit: Applications

lab_bot@hawk-plgen3

Search

System

Overview

Logs

Storage

Networking

Podman containers

Virtual machines

Accounts

Services

Tools

Applications

Diagnostics reports

Kernel dump

SELinux

Software updates

Subscriptions

Terminal

Administrative access

Help

Session

Applications

Image Builder	Build customized operating system images	Install
Machines	Manage your virtual machines	Install
Podman	Cockpit component for Podman containers	Remove
Session Recording	Session Recording module for Cockpit	Install
Storage	Manage storage	Remove
Subscription Manager	Subscription Manager in Cockpit	Remove

Find the Entry for Machines, and Click the Install Button

Cockpit: Applications

lab_bot@hawk-plgen3

Administrative access

Help

Session

Search

System

Overview

Logs

Storage

Networking

Podman containers

Virtual machines

Accounts

Services

Tools

Applications

Diagnostic reports

Kernel dump

SELinux

Software updates

Subscriptions

Terminal

Applications

	Image Builder	Build customized operating system images	Install
	Machines	Manage your virtual machines	Install
	Podman	Cockpit component for Podman containers	Remove
	Session Recording	Session Recording module for Cockpit	Install
	Storage	Manage storage	Remove
	Subscription Manager	Subscription Manager in Cockpit	Remove

You could also automate this by running the commands

```
sudo yum install libvirt cockpit cockpit-machines -y
```

```
sudo systemctl enable libvirtd --now
```

Cockpit: Applications

lab_bot@hawk-plgen3

Search

System

Overview

Logs

Storage

Networking

Podman containers

Virtual machines

Accounts

Services

Tools

Applications

Diagnostic reports

Kernel dump

SELinux

Software updates

Subscriptions

Terminal

Administrative access

Help

Session

Applications

Image Builder

Build customized operating system images

Install

Machines

Manage your virtual machines

Remove

Podman

Cockpit component for Podman containers

Remove

Session Recording

Session Recording module for Cockpit

Install

Storage

Manage storage

Remove

Subscription Manager

Subscription Manager in Cockpit

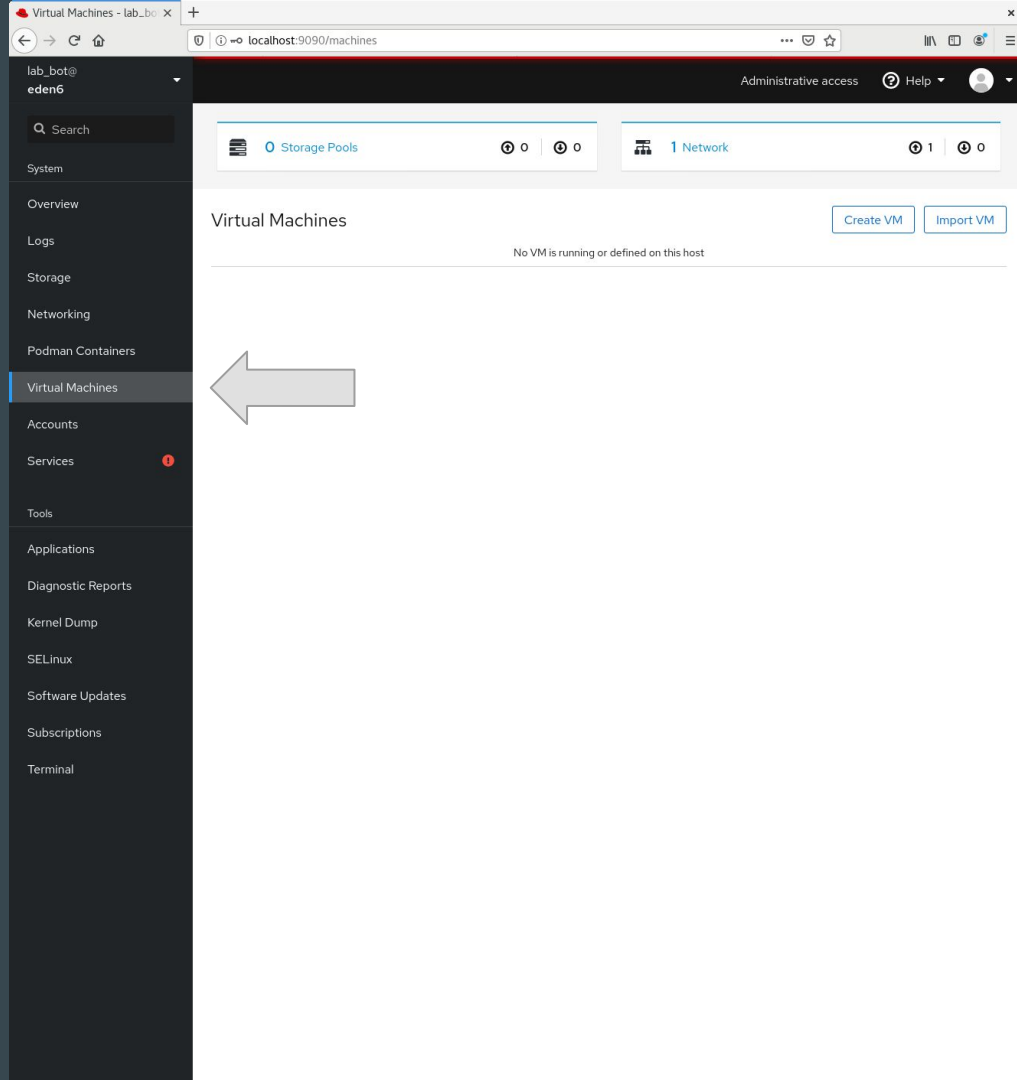
Remove

Once It's installed we can move onto the next Tab

Cockpit: Virtual Machines

Once you click on the "Virtual Machine" option, you will see the following screen.

At the top of the Page you will see "Storage Pools" and "Networks".



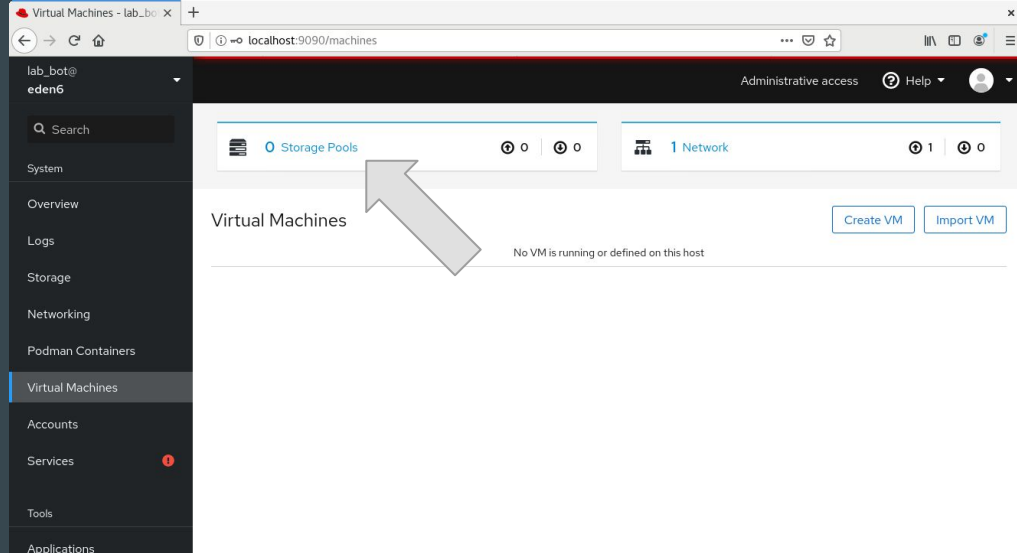
Cockpit: Virtual Machines

Click on Storage Pools

Create a new one and call it “default”

Type: Filesystem Directory

Target Path: /var/lib/libvirt/



Create storage pool

Connection ☒ System ☐ User session

Name default

Type Filesystem directory

Target path /var/lib/libvirt/

Startup ☒ Start pool when host boots

Create

Cancel

Cockpit: Networking

To Bridge or Not to Bridge

Next you will need to decide if you will want to touch the rest of your network or just have your virtual machines talk on this 1 host.

The screenshot displays the Cockpit Networking interface. The left sidebar contains navigation links: lab_bot@eden6, Search, System, Overview, Logs, Storage, Networking (highlighted), Podman Containers, Virtual Machines, Accounts, Services, Tools, Applications, Diagnostic Reports, Kernel Dump, SELinux, Software Updates, Subscriptions, and Terminal. The main content area shows two line graphs for 'Sending' and 'Receiving' traffic in Kbps over time. Below the graphs, a toggle switch for '2 Active Zones' is shown. The 'Interfaces' section includes buttons for 'Add Bond', 'Add Team', 'Add Bridge', and 'Add VLAN', followed by a table of active interfaces. The 'Unmanaged Interfaces' section shows a table of unmanaged interfaces. The 'Networking Logs' section displays a log of network events for December 3, 2020.

Administrative access Help

Kbps Sending Kbps Receiving

2 Active Zones

Interfaces

Name	IP Address	Sending	Receiving
enp5s0	172.16.0.10/24	0 bps	0 bps
virbr0	192.168.122.1/24	No carrier	

Unmanaged Interfaces

Name	IP Address	Sending	Receiving
virbr0-nic			

Networking Logs

December 3, 2020

10:59 AM <info> [1607021973.8356] manager: (vnet0): new Tun device (/org/freedesktop/NetworkManager/... NetworkManager

10:59 AM <info> [1607021967.8812] device (vnet1): released from master device virbr0 NetworkManager

10:59 AM <info> [1607021967.8806] device (vnet1): state change: activated -> unmanaged (reason 'unmanag... NetworkManager

10:59 AM <info> [1607021945.6195] manager: (vnet0): new Tun device (/org/freedesktop/NetworkManager/... NetworkManager

10:58 AM <info> [1607021927.7552] device (vnet0): released from master device virbr0 NetworkManager

10:58 AM <info> [1607021927.7546] device (vnet0): state change: activated -> unmanaged (reason 'unmanag... NetworkManager

10:53 AM <info> [1607021589.8360] device (virbr0): carrier: link connected NetworkManager

10:53 AM <info> [1607021588.0667] device (vnet1): Activation: successful, device activated. NetworkManager

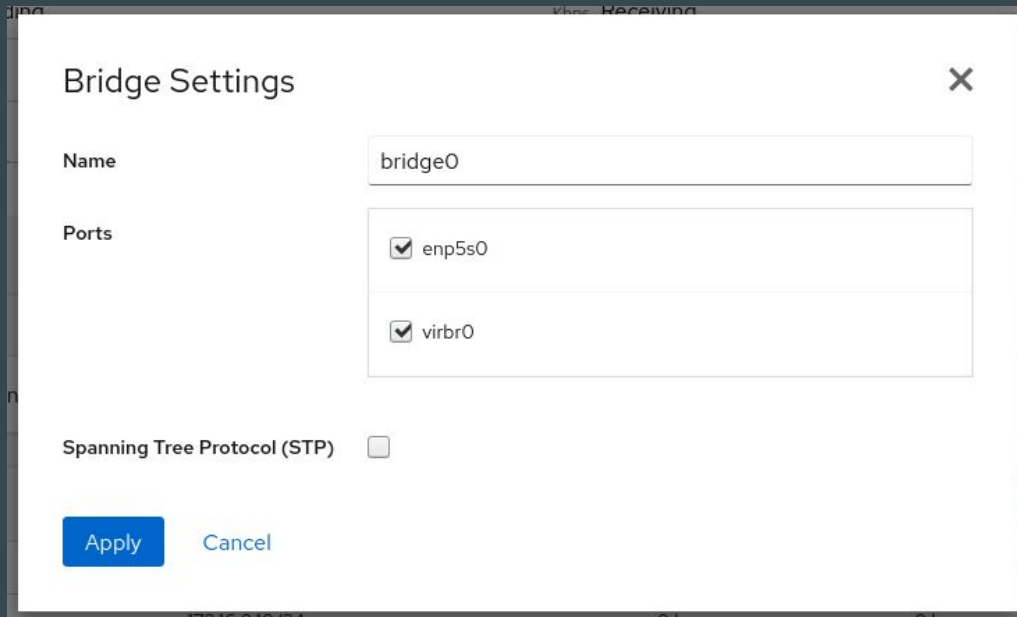
10:53 AM <info> [1607021588.0659] device (vnet1): state change: secondaries -> activated (reason 'none', sys... NetworkManager

10:53 AM <info> [1607021588.0657] device (vnet1): state change: ip-check -> secondaries (reason 'none', sys... NetworkManager

Cockpit: Network Bridge

If you are using the Ethernet, I'd suggest using the Bridge

The rest of your network will be accessible



The image shows a 'Bridge Settings' dialog box with a close button (X) in the top right corner. It contains the following fields and controls:

- Name:** A text input field containing 'bridge0'.
- Ports:** A list of ports with checkboxes. 'enp5s0' and 'virbr0' are both checked.
- Spanning Tree Protocol (STP):** A checkbox that is currently unchecked.
- Buttons:** 'Apply' (blue) and 'Cancel' (light blue) buttons at the bottom.

Field	Value
Name	bridge0
Ports	☒ enp5s0 ☒ virbr0
Spanning Tree Protocol (STP)	☐

Cockpit: Network Bridge

With the 2 prerequisites out of the way let's spin up our first VM's

The screenshot shows the Cockpit web interface for a system named 'lab_bot@eden6'. The left sidebar contains a navigation menu with the following items: System, Overview, Logs, Storage, Networking, Podman Containers, Virtual Machines (highlighted), Accounts, Services, Tools, Applications, Diagnostic Reports, Kernel Dump, SELinux, Software Updates, Subscriptions, and Terminal.

The main content area is titled 'Virtual Machines' and includes a 'Create VM' button and an 'Import VM' button. Below this, there is a table of virtual machines:

Name	Connection	State			
▼ RHEL_7.9	System	shut off			
Overview Usage Disks Network Interfaces Consoles					
Add Network Interface					
Type	Model type	MAC Address	IP Address	Source	State
bridge	virtio	52:54:00:8b:b0:cb	Unknown	bridge0	up
Unplug Edit Delete					
> RHEL_8.3			System	shut off	Run

Install libguestfs

`sudo yum install libguestfs-tools libguestfs`

```
lab_bot@eden6:~  
File Edit View Search Terminal Help  
[lab_bot@eden6 ~]$ sudo yum install libguestfs-tools libguestfs  
  
lab_bot@eden6:~  
File Edit View Search Terminal Help  
perl-hivex x86_64 1.3.18-20.module+el8.3.0+6423+e4cb6418 rhel-8-for-x86_64-appstream-rpms 315 k  
perl-libintl-perl x86_64 1.29-2.el8 rhel-8-for-x86_64-appstream-rpms 60 k  
scrub x86_64 2.5.2-14.el8 rhel-8-for-x86_64-appstream-rpms 816 k  
supermin x86_64 5.1.19-10.module+el8.3.0+6423+e4cb6418 rhel-8-for-x86_64-appstream-rpms 45 k  
syslinux x86_64 6.04-4.el8 rhel-8-for-x86_64-appstream-rpms 709 k  
syslinux-extlinux x86_64 6.04-4.el8 rhel-8-for-x86_64-baseos-rpms 579 k  
syslinux-extlinux-nonlinux x86_64 6.04-4.el8 rhel-8-for-x86_64-baseos-rpms 141 k  
noarch 6.04-4.el8 rhel-8-for-x86_64-baseos-rpms 386 k  
syslinux-nonlinux noarch 6.04-4.el8 rhel-8-for-x86_64-baseos-rpms 555 k  
Installing weak dependencies:  
libguestfs-xfs x86_64 1:1.40.2-25.module+el8.3.0+7421+642fe24f rhel-8-for-x86_64-appstream-rpms 9.7 k  
perl-File-ShareDir noarch 1.104-3.el8 rhel-8-for-x86_64-appstream-rpms 29 k  
  
Transaction Summary  
=====  
Install 18 Packages  
  
Total download size: 12 M  
Installed size: 44 M  
Is this ok [y/N]: y
```

Pre-built Images

This package lets us use preconfigured images

use this command to list them all

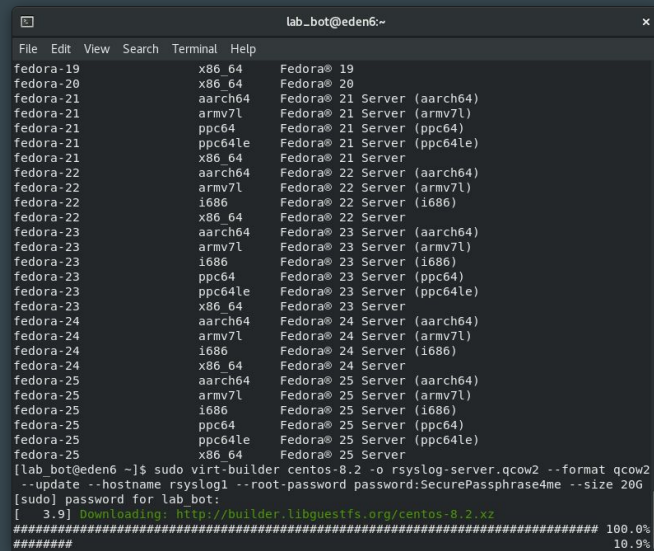
`virt-builder --list`

We are going to grab a centos 8 build

```
lab_bot@eden6:~  
File Edit View Search Terminal Help  
ubuntu-14.04      x86_64      Ubuntu 14.04 (Trusty)  
ubuntu-16.04      x86_64      Ubuntu 16.04 (Xenial)  
ubuntu-18.04      x86_64      Ubuntu 18.04 (bionic)  
fedora-18         x86_64      Fedora® 18  
fedora-19         x86_64      Fedora® 19  
fedora-20         x86_64      Fedora® 20  
fedora-21         aarch64     Fedora® 21 Server (aarch64)  
fedora-21         armv7l      Fedora® 21 Server (armv7l)  
fedora-21         ppc64       Fedora® 21 Server (ppc64)  
fedora-21         ppc64le     Fedora® 21 Server (ppc64le)  
fedora-21         x86_64      Fedora® 21 Server  
fedora-22         aarch64     Fedora® 22 Server (aarch64)  
fedora-22         armv7l      Fedora® 22 Server (armv7l)  
fedora-22         i686        Fedora® 22 Server (i686)  
fedora-22         x86_64      Fedora® 22 Server  
fedora-23         aarch64     Fedora® 23 Server (aarch64)  
fedora-23         armv7l      Fedora® 23 Server (armv7l)  
fedora-23         i686        Fedora® 23 Server (i686)  
fedora-23         ppc64       Fedora® 23 Server (ppc64)  
fedora-23         ppc64le     Fedora® 23 Server (ppc64le)  
fedora-23         x86_64      Fedora® 23 Server  
fedora-24         aarch64     Fedora® 24 Server (aarch64)  
fedora-24         armv7l      Fedora® 24 Server (armv7l)  
fedora-24         i686        Fedora® 24 Server (i686)  
fedora-24         x86_64      Fedora® 24 Server  
fedora-25         aarch64     Fedora® 25 Server (aarch64)  
fedora-25         armv7l      Fedora® 25 Server (armv7l)  
fedora-25         i686        Fedora® 25 Server (i686)  
fedora-25         ppc64       Fedora® 25 Server (ppc64)  
fedora-25         ppc64le     Fedora® 25 Server (ppc64le)  
fedora-25         x86_64      Fedora® 25 Server
```

Pre-built Images

```
sudo virt-builder centos-8.2 -o rsyslog-server.qcow2 --format qcow2 --update  
--hostname rsyslog1 --root-password password:SecurePassphrase4me --size 20G
```



```
lab_bot@eden6:~  
File Edit View Search Terminal Help  
fedora-19      x86_64      Fedora® 19  
fedora-20      x86_64      Fedora® 20  
fedora-21      aarch64     Fedora® 21 Server (aarch64)  
fedora-21      armv7l      Fedora® 21 Server (armv7l)  
fedora-21      ppc64       Fedora® 21 Server (ppc64)  
fedora-21      ppc64le     Fedora® 21 Server (ppc64le)  
fedora-21      x86_64      Fedora® 21 Server  
fedora-22      aarch64     Fedora® 22 Server (aarch64)  
fedora-22      armv7l      Fedora® 22 Server (armv7l)  
fedora-22      i686        Fedora® 22 Server (i686)  
fedora-22      x86_64      Fedora® 22 Server  
fedora-23      aarch64     Fedora® 23 Server (aarch64)  
fedora-23      armv7l      Fedora® 23 Server (armv7l)  
fedora-23      i686        Fedora® 23 Server (i686)  
fedora-23      ppc64       Fedora® 23 Server (ppc64)  
fedora-23      ppc64le     Fedora® 23 Server (ppc64le)  
fedora-23      x86_64      Fedora® 23 Server  
fedora-24      aarch64     Fedora® 24 Server (aarch64)  
fedora-24      armv7l      Fedora® 24 Server (armv7l)  
fedora-24      i686        Fedora® 24 Server (i686)  
fedora-24      x86_64      Fedora® 24 Server  
fedora-25      aarch64     Fedora® 25 Server (aarch64)  
fedora-25      armv7l      Fedora® 25 Server (armv7l)  
fedora-25      i686        Fedora® 25 Server (i686)  
fedora-25      ppc64       Fedora® 25 Server (ppc64)  
fedora-25      ppc64le     Fedora® 25 Server (ppc64le)  
fedora-25      x86_64      Fedora® 25 Server  
[lab_bot@eden6 ~]$ sudo virt-builder centos-8.2 -o rsyslog-server.qcow2 --format qcow2  
--update --hostname rsyslog1 --root-password password:SecurePassphrase4me --size 20G  
[sudo] password for lab_bot:  
[ 3.9] Downloading: http://builder.libguestfs.org/centos-8.2.xz  
##### 100.0%  
##### 10.9%
```

RHEL 9 KVM Images



Download Red Hat Enterprise Linux

Product Variant: ①[Switch to Version 7 and below](#)**Version:****Architecture:** ①

Red Hat Enterprise Linux for x86_64

9.1 (latest)

x86_64

About Red Hat Enterprise Linux for x86_64

Only Red Hat Enterprise Linux provides an intelligent OS that is the consistent foundation for the enterprise hybrid cloud. Delivering any application on any footprint at any time giving you Control. Confidence. Freedom.

Product Resources

- ▶ [Get Started](#)
- ▶ [Documentation](#)
- ▶ [Red Hat Enterprise Linux Life Cycle](#)

Get Help

- ▶ [Contact Support](#)
- ▶ [Create installation media](#)

Product Software

Modules

Packages

Source

Errata

Installers and Images for Red Hat Enterprise Linux for x86_64 (v. 9.1 for x86_64)

Full installation image

Red Hat Enterprise Linux 9.1 Binary DVD **Recommended**

Run the installation program and complete installation without requiring any additional package repositories. Use this image if the system you are installing will not have network access, as it contains all of the required packages to complete an installation of Red Hat Enterprise Linux.

Last modified: 2022-10-31 SHA-256 Checksum: d9dcae2b6e760d0f9dcf4a517bddc227d5fa3f213a8323592f4a07a05aa542a2

[Download Now](#)

8.44 GB

Additional installation images

Red Hat Enterprise Linux 9.1 Boot ISO

Run the installation program with a minimal boot image. To complete installation, you will need an active network connection and access to additional package repositories. With RHEL 8.3 and later, you can register the system during installation to get access to repositories provided by your subscriptions.

Last modified: 2022-10-31 SHA-256 Checksum: 71020b8e86246b6626fcc4d5a13ddd9ffdb031446c07c903591764c61a3be70

[Download Now](#)

805 MB

Red Hat Enterprise Linux 9.1 KVM Guest Image

Import this image to create a RHEL virtual machine on a KVM/QEMU hypervisor, such as Red Hat OpenStack, Red Hat Virtualization, or Red Hat OpenShift Virtualization.

Last modified: 2022-11-02 SHA-256 Checksum: 8a24976ed98ac43b165369353741bb3a4c72fac9ad1cd7d564956ffe8a89c968

[Download Now](#)

719 MB

RHEL 8 KVM Images

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 Red Hat has been made aware of an issue on systems upgrading to RHEL 8.3 with **fafpolicyd enabled**. Reference [this solution](#) prior to upgrading to RHEL 8.3.

Downloads > Red Hat Enterprise Linux > Product Software

Download Red Hat Enterprise Linux

Product Variant:  Switch to Version 7 and Below **Version:** 8.3 (latest) **Architecture:**  x86_64

Red Hat Enterprise Linux for x86_64

About Red Hat Enterprise Linux for x86_64

Only Red Hat Enterprise Linux provides an intelligent OS that is the consistent foundation for the enterprise hybrid cloud. Delivering any application on any footprint at any time giving you Control. Confidence. Freedom.

Product Resources

- Get Started
- Documentation
- Red Hat Enterprise Linux Life Cycle

Get Help

- Contact Support
- Create installation media

Product Software

Modules

Packages

Source

Errata

Installers and Images for Red Hat Enterprise Linux for x86_64 (v. 8.3 for x86_64)

Red Hat Enterprise Linux 8.3 Boot ISO Last modified: 2020-10-14 SHA-256 Checksum: 1b73ebfebd1f9424c806032168873b067259d8b29f4e9d39ae0e4009cce49b93	Download Now 
682 MB	
Red Hat Enterprise Linux 8.3 Binary DVD Last modified: 2020-10-14 SHA-256 Checksum: 30fd8df12d29a384bd97886fa526fa5be872213c81e853eae3f9d9674720ad0	Download Now 
8.82 GB	
Red Hat Enterprise Linux 8.3 Update KVM Guest Image Last modified: 2020-11-03 SHA-256 Checksum: 321c20a732419472ba584ea34cd2cab79db2ea1790abe467ea3c0e2ca521a6b7	Download Now 
1.23 GB	
RHEL 8.3 Supplementary Binary DVD Last modified: 2020-10-27 SHA-256 Checksum: d36c75a91948254f767cdcc072f78a7339c3b7bcfe6274cf49628fc3f41c6d0e	Download Now 
145 MB	

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Stage your RHEL images

Once you have downloaded the images

Move them to `/var/lib/libvirt/images`

Then set a root password or inject your ssh key into the image

```
sudo mv ~/Downloads/rhel9-base.qcow2 /var/lib/libvirt/images/
```

```
cd /var/lib/libvirt/images
```

```
virt-customize -a rhel9-base.qcow2 --root-password password:2023MakeGoodPasswords --uninstall cloud-init
```

Import Images

The screenshot displays the OpenStack Virtual Machines web interface. The left sidebar shows the navigation menu with 'Virtual Machines' selected. The main content area shows the 'Virtual Machines' page with a red box highlighting the 'Import VM' button. Two overlapping 'Import A Virtual Machine' dialog boxes are shown in the foreground.

Virtual Machines Page:

- Storage Pools: 0
- Network: 1
- Buttons: Create VM, Import VM (highlighted)
- Status: No VM is running or defined on this host

Import A Virtual Machine Dialog (Left):

- Name: RHEL_8.3
- Connection: ☒ System ☐ Session
- Installation Source: /var/lib/libvirt/images/rhel-8.3-x86_64
- Operating System: Red Hat Enterprise Linux 8.3 (Ootpa)
- Memory: 2048 (slider from 2048 to 31907)
- ☒ Immediately Start VM
- Buttons: Import, Cancel

Import A Virtual Machine Dialog (Right):

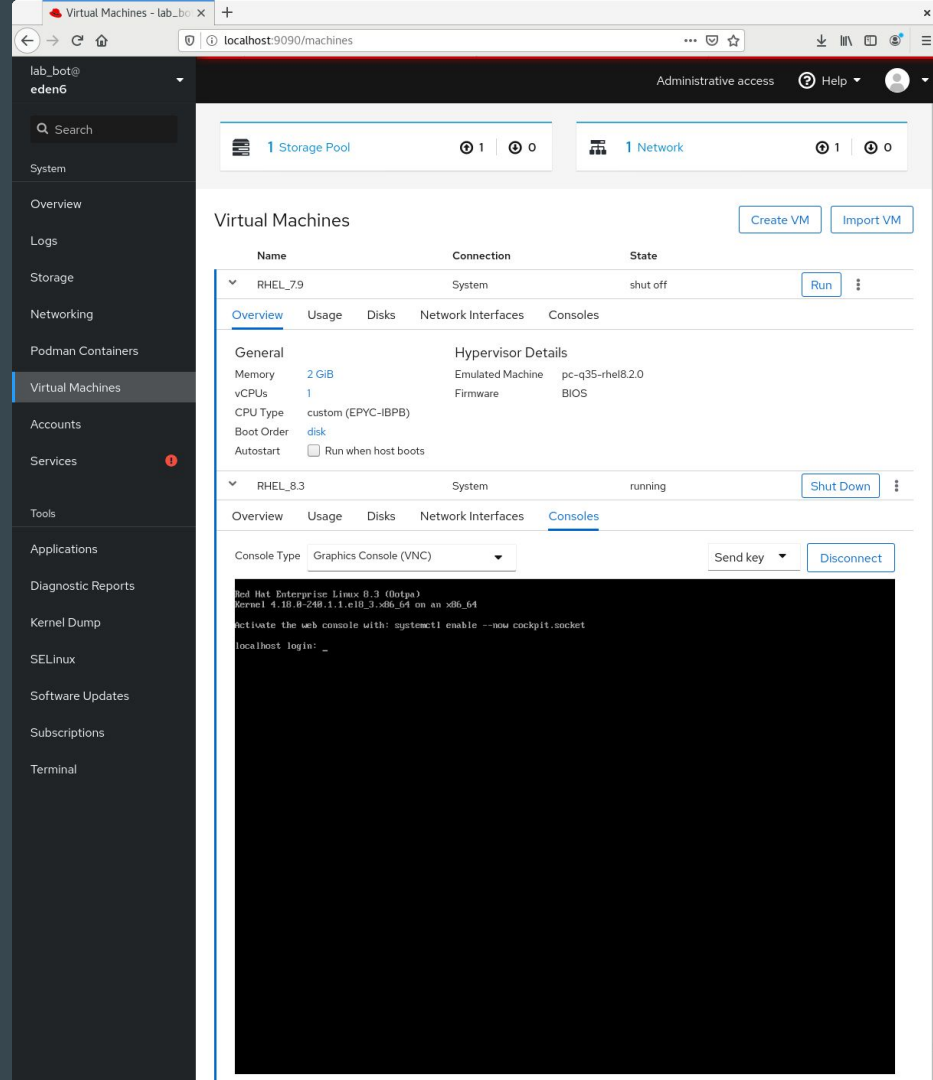
- Name: RHEL_7.9
- Connection: ☒ System ☐ Session
- Installation Source: /var/lib/libvirt/images/rhel-server-7.9-x86_64-kvm.qco ...
- Operating System: Red Hat Enterprise Linux 7.9 (Maipo)
- Memory: 2 (slider from 2 to 31) GiB
- ☒ Immediately Start VM
- Buttons: Import, Cancel

VM Networking

By default there is a private network with your host machine only.

This may be fine for your use case, but in this example we want to be able to access our local network.

So we are going to change our network interfaces to use bridge



VM Networking

Click the Edit button

On the pop up window

Under the Interface type choose “Bridge to Lan”

Source “ Bridge0”

Model you can leave as default

Save and boot your machine up

The screenshot shows the Virtual Machines management interface. On the left is a sidebar with navigation options: Overview, Logs, Storage, Networking, Podman Containers, Virtual Machines (selected), Accounts, Services, and Tools. The main panel displays the 'Virtual Machines' section for a VM named 'RHEL_7.9'. It shows the 'Network Interfaces' tab, which lists a single network interface. A red box highlights the 'Edit' button in the top right corner of the interface list. Below the interface list, a modal window titled '52:54:00:8b:b0:cb Virtual Network Interface Settings' is open. This modal contains the following settings:

- Interface Type:** Bridge to LAN
- Source:** bridge0
- Model:** virtio (Linux, perf)
- MAC Address:** 52:54:00:8b:b0:cb

At the bottom of the modal are 'Save' and 'Cancel' buttons.

You are ready to go!

Virtual Machines - lab_bot@eden6

Search

System

Overview

Logs

Storage

Networking

Podman Containers

Virtual Machines

Accounts

Services

Tools

Applications

Diagnostic Reports

Kernel Dump

SELinux

Software Updates

Subscriptions

Terminal

Administrative access Help

1 Storage Pool 1 0

1 Network 1 0

Virtual Machines

Create VM Import VM

Name	Connection	State
▼ RHEL_7.9	System	running

Overview Usage Disks Network Interfaces Consoles

Console Type Graphics Console (VNC) Send key Disconnect

```
Red Hat Enterprise Linux Server 7.9 (Maipo)
Kernel 3.10.0-1160.el7.x86_64 on an x86_64

localhost login: root
Password:
Last login: Thu Dec 3 13:53:37 on tty1
root@localhost ~# ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
    inet 172.16.0.62 netmask 255.255.255.0 broadcast 172.16.0.255
    inet6 fe80::5a64:ff:fe0b:1d0c prefixlen 64 scopeid 0x20<link>
    ether 52:54:00:1b:1d0c txqueuelen 1000 (Ethernet)
    RX packets 60 bytes 7082 (7.0 KiB)
    RX errors 0 dropped 6 overruns 0 frame 0
    TX packets 39 bytes 4000 (3.9 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 74 bytes 6132 (6.0 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 74 bytes 6132 (6.0 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

root@localhost ~#
```

▼ RHEL_8.3

System

shut off

Run

Overview Usage Disks Network Interfaces Consoles

Please start the virtual machine to access its console.

Hardware suggestion

2022 System Requirements

Platform / Virtualization

- 4 Cores
- 16 GB RAM
- 1 TB Storage

Openshift SNO

- 8 vCPUs
- 16 GB RAM
- 120GB of Storage

If you want to do virtualization you need an additional resources PER additional VM

- + 4 vCPUs
- +512 Mb RAM

What size server do you need?

...

Small Form Factor



Tower



Rackable

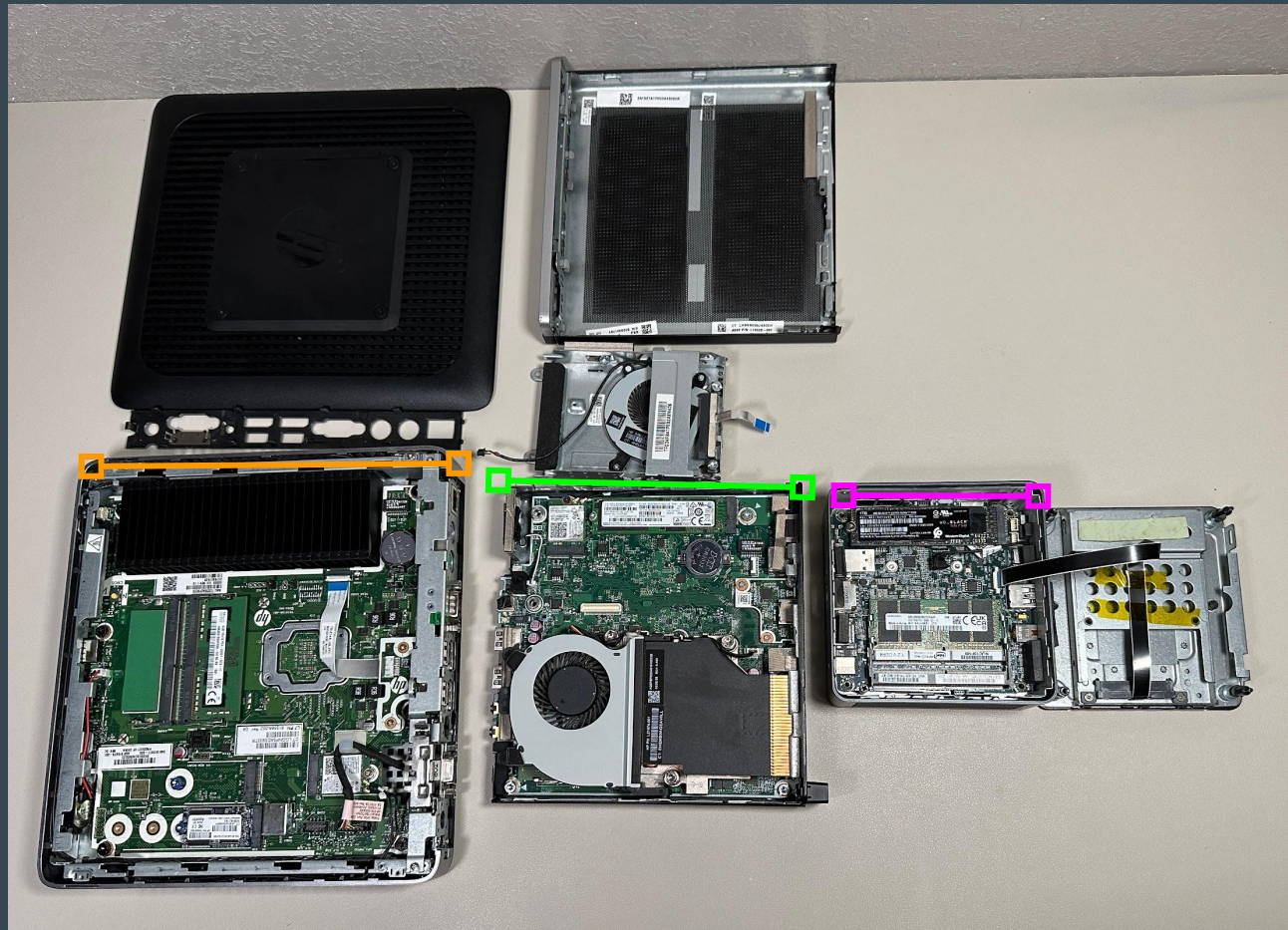


Machine Size

HP T630 - 9 ½ Inches

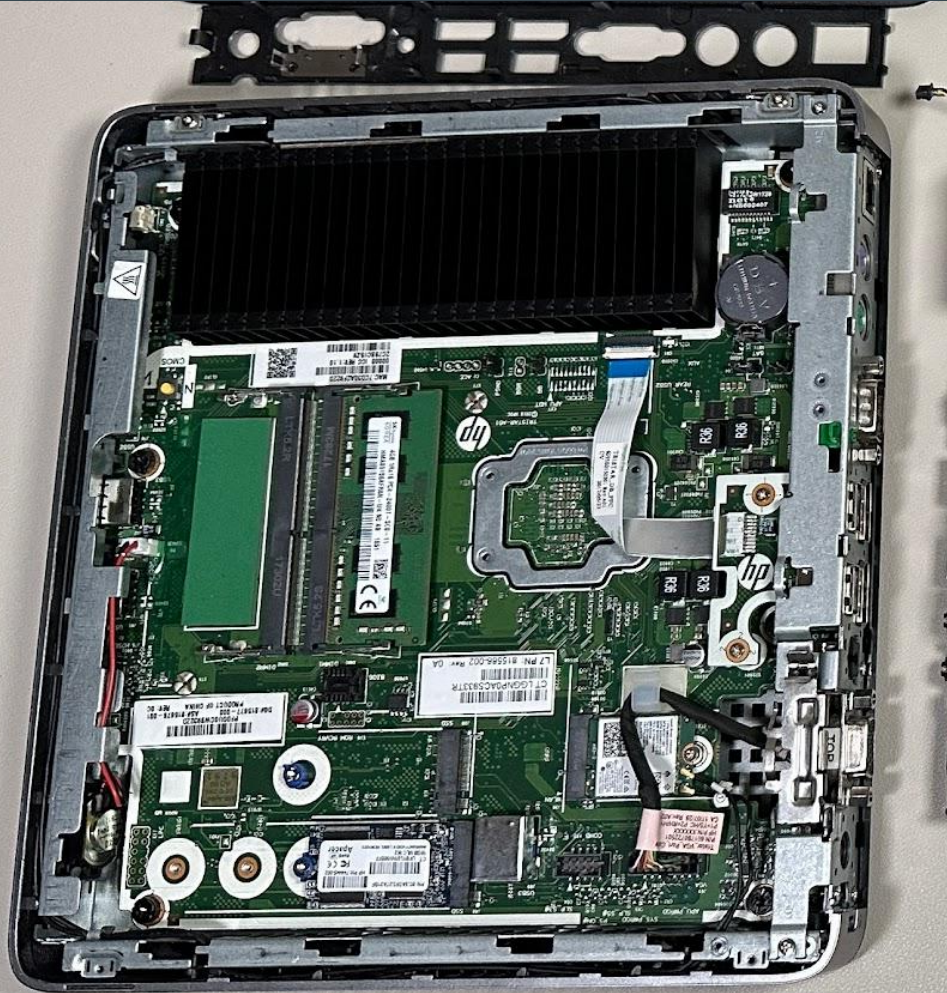
HP EliteDesk 705 G4 - 7 Inches

Intel Nuc 10th Gen - 4 ⅝ Inches



HP T630

- Used HP T630
- AMD Embedded G-Series GX-420GI Radeon R7E (4 cores)
- Radeon R5 Graphics
- 16 Gb Ram
- 1 Tb mSata
- \$35 used on Ebay

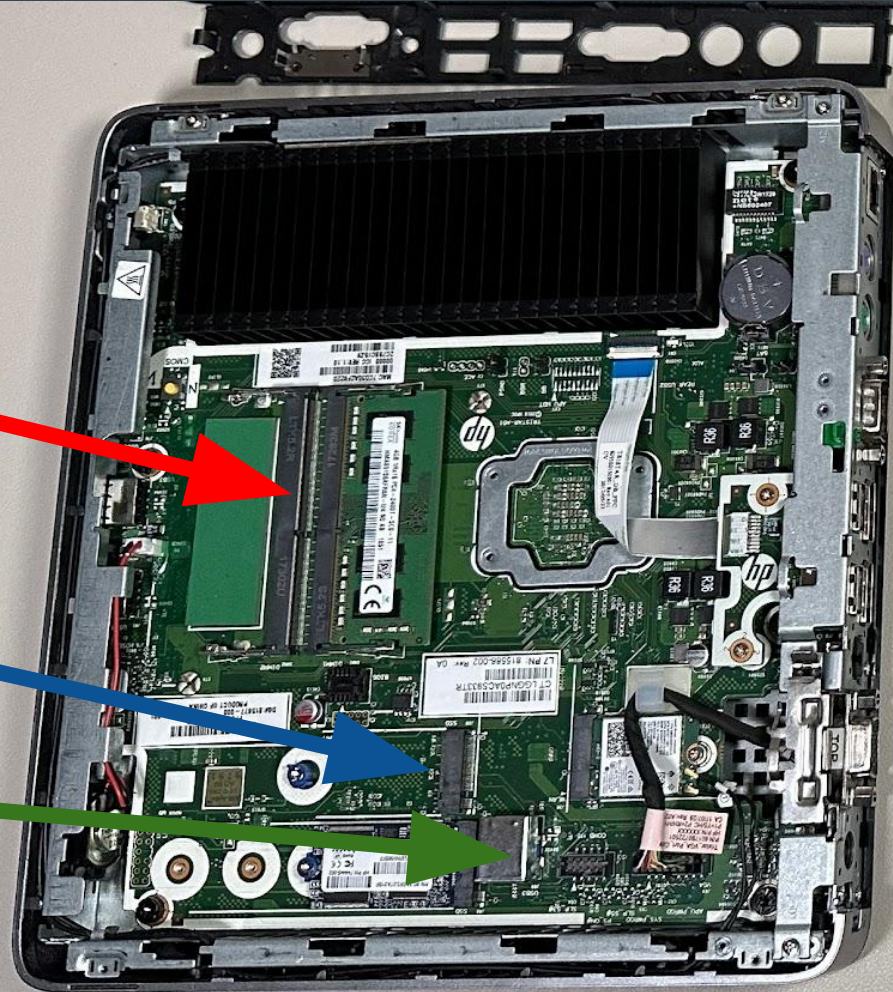


HP T630

2 Slots for DDR3 RAM

2 mSata Slots

Internal USB3 Slot



HP EliteDesk 705 G4

- 16 GB Ram
- AMD® Ryzen 5 pro 2400g with radeon vega graphics 4 core / 8 thread (8vCPU)
- AMD® Radeon vega 11 graphics
- 1 TB NVMe
- \$200 Used on Amazon

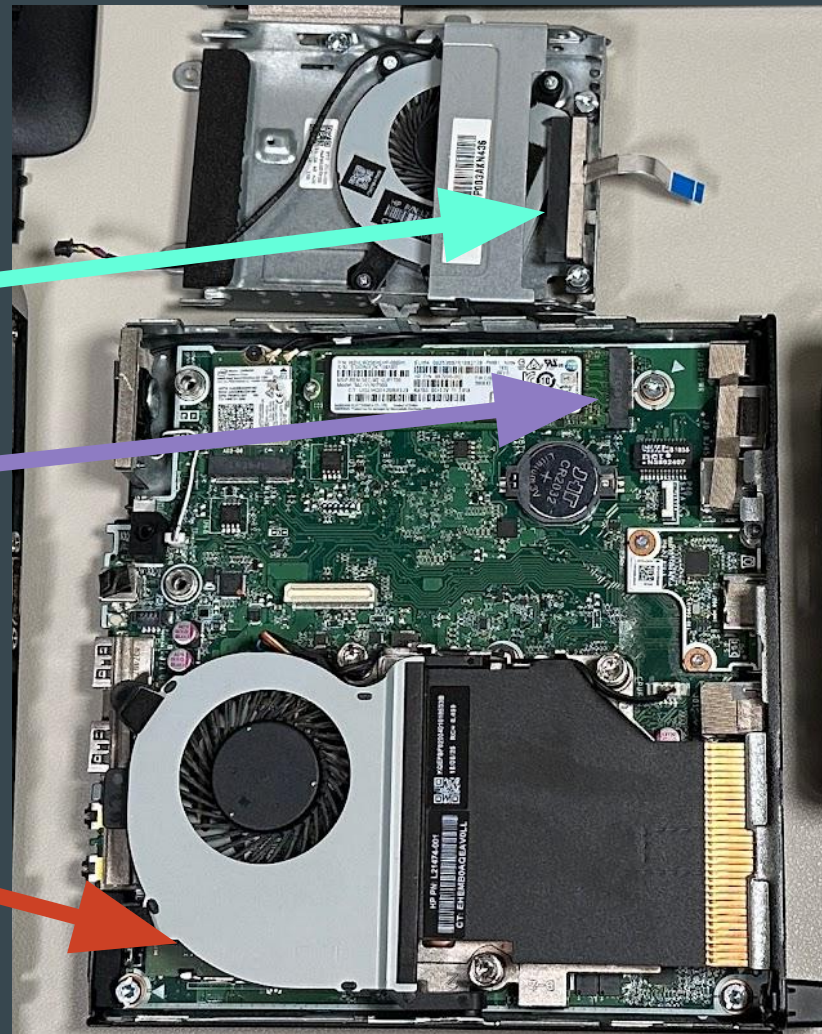


HP EliteDesk 705 G4

2.5 Inch Drive Slot

NVMe

2 Slots for DDR4 RAM



Intel Nuc 10th Gen

- Intel NUC BXNUC10I5FNH1
- Intel® Core™ i5-10210U CPU @ 1.60GHz
 - 4 Cores / 8 Threads (8vCPU)
- UHD Graphics
- 32 Gb Ram
- 1 Tb NVMe
- About \$650 cost



Intel Nuc 10th Gen

2.5 Inch Drive Slot

NVMe

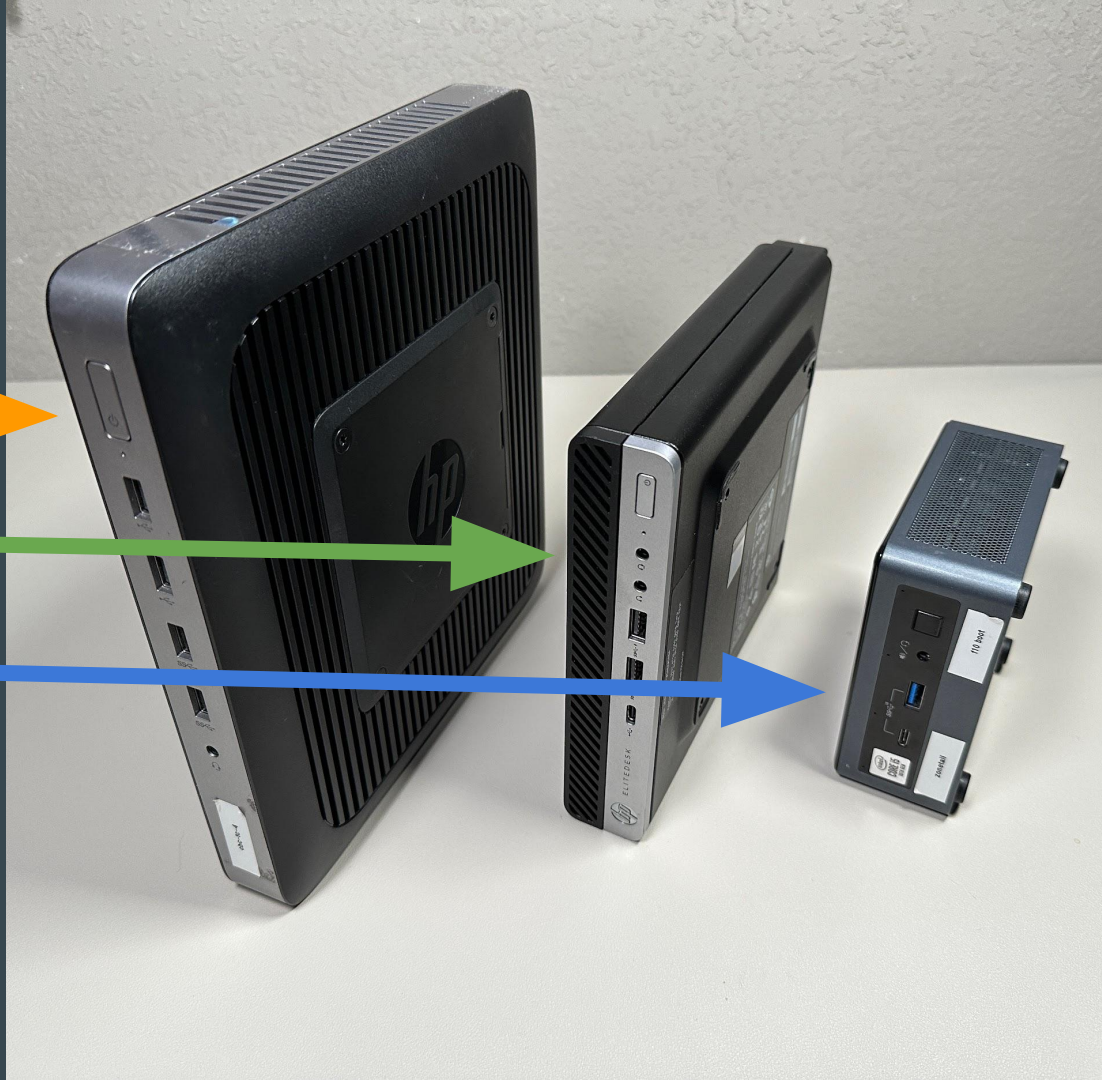
2 Slots for DDR4 RAM



\$35 Used on Ebay

\$150 Used Amazon

\$600 New Newegg





Tower

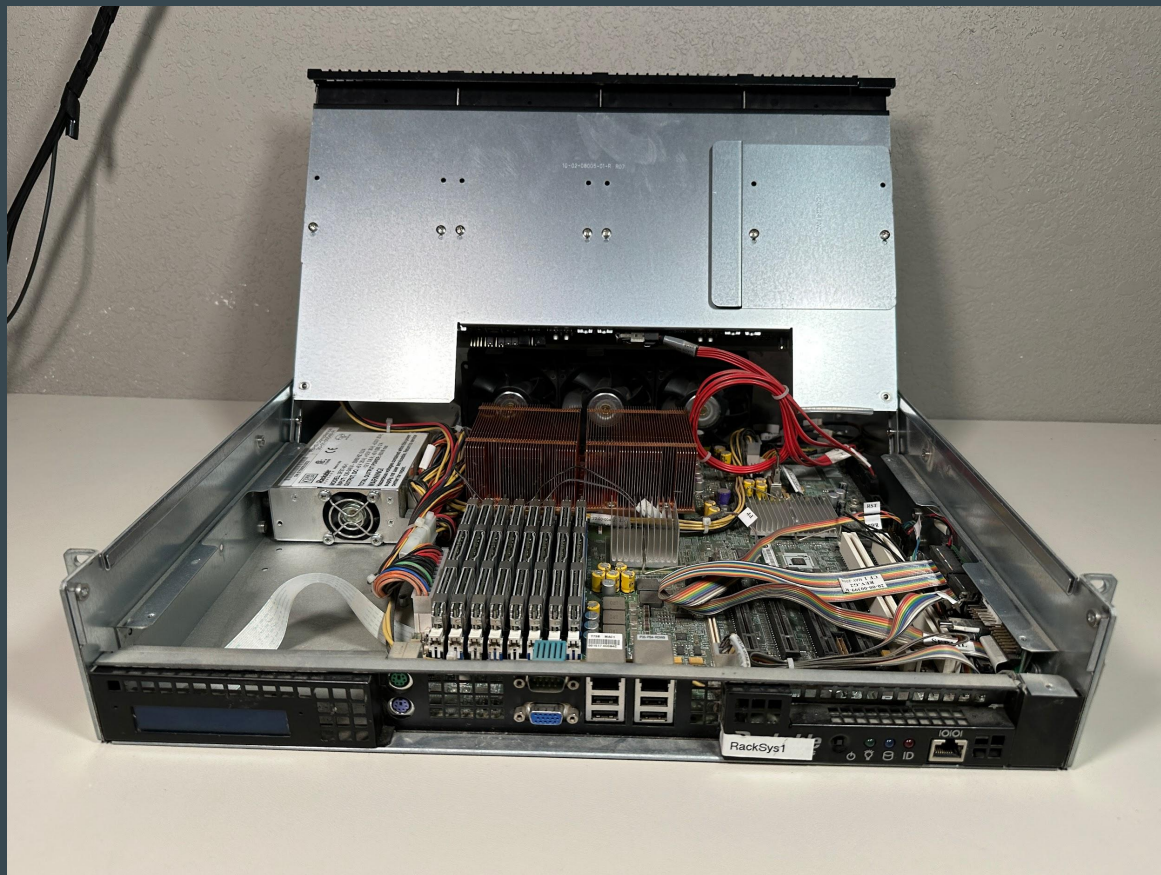
Custom Tower

- Cooler Master MasterBox Q300L Micro-ATX Tower
- Gigabyte B450 AORUS M
- AMD Ryzen 5 2600 Six-Core Processor (12 Thread)
- GeForce GTX 1050 Ti
- 32 Gb Ram
- 1 TB NVMe
- \$572 (Not including Graphics card)



Rackable Server

- 2U Box
- Dual Intel Xeon CPU's (8 cores)
- 16 Gb of ECC Ram
- 32 GB Thumb Drive for OS
- 1 TB HHD
- \$200 Used



Small Form Factor



Tower



Rackable



Resources

Resources

If you are looking for linux hardware advice

Level1Techs

<https://www.youtube.com/c/Level1Techs>

Techno Tim

<https://www.youtube.com/@TechnoTim>

If you are looking for Raspberry Pi and Ansible

Jeff Geerling

<https://www.youtube.com/@JeffGeerling>

If you are looking for MSP open source Enterprise tools

Lawrence Systems

<https://www.youtube.com/@LAWRENCESYSTEMS>

Resources

If you are looking for linux podcasts

Linux Game Cast

<https://www.youtube.com/@linuxgamecast>

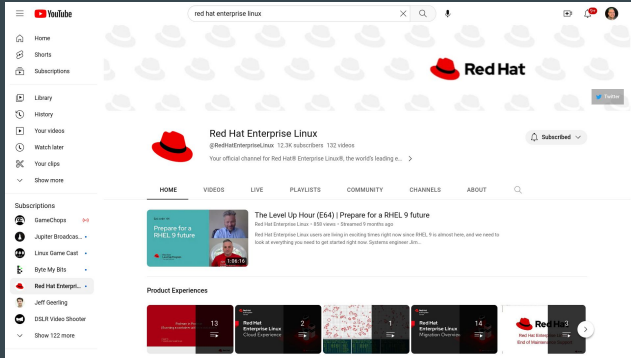
TuxDigital:Destination Linux

<https://www.youtube.com/@TuxDigitalNetwork>

LINUX Unplugged

<https://www.youtube.com/@JupiterBroadcasting>

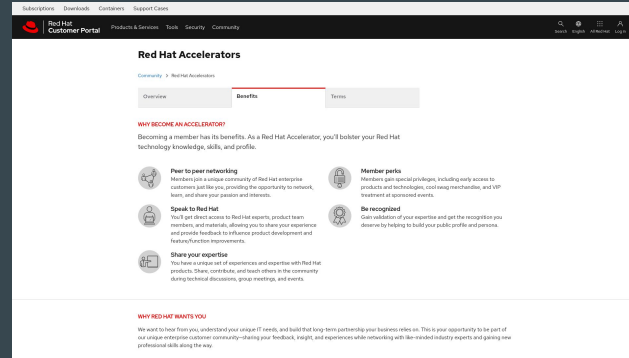
Resources



If you are looking for RHEL content

Red Hat Enterprise Linux

<https://www.youtube.com/@RedHatEnterpriseLinux>



If you are already working with Red Hat at your company

Red Hat Accelerators

<https://access.redhat.com/accelerators>

Questions?



Joshua Loscar

Jscar Hawk

jscar-hawk.github.io



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— Grab the Slides

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