



# Installations



# Obtaining RedHat Installation Media

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- Download files from URL
  - Curl
  - wget
- Download DVD ISO from mirrors
  - Contains stable versions of rpms
  - <https://developers.redhat.com>

# Writing ISO Installation Image to USB Drive

- From Windows
  - Download any disk creator
- From Mac OS
  - Download any disk creator
  - Or use of DD command
- From any other Linuxes
  - Use DD command
- Make sure PC / Server can boot from USB drive



# Installing RedHat

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- Dual Boot
- Via Virtualization software
  - Vmware Workstation
  - Vmware Vsphere
  - Oracle VirtualBox
  - OpenKVM
  - Microsoft VirtualPC / HyperV
  - QEMU
- Docker Containerization

# Test media

Red Hat Enterprise Linux 9.0

Install Red Hat Enterprise Linux 9.0

Test this media & install Red Hat Enterprise Linux 9.0

Troubleshooting >

Press Tab for full configuration options on menu items.

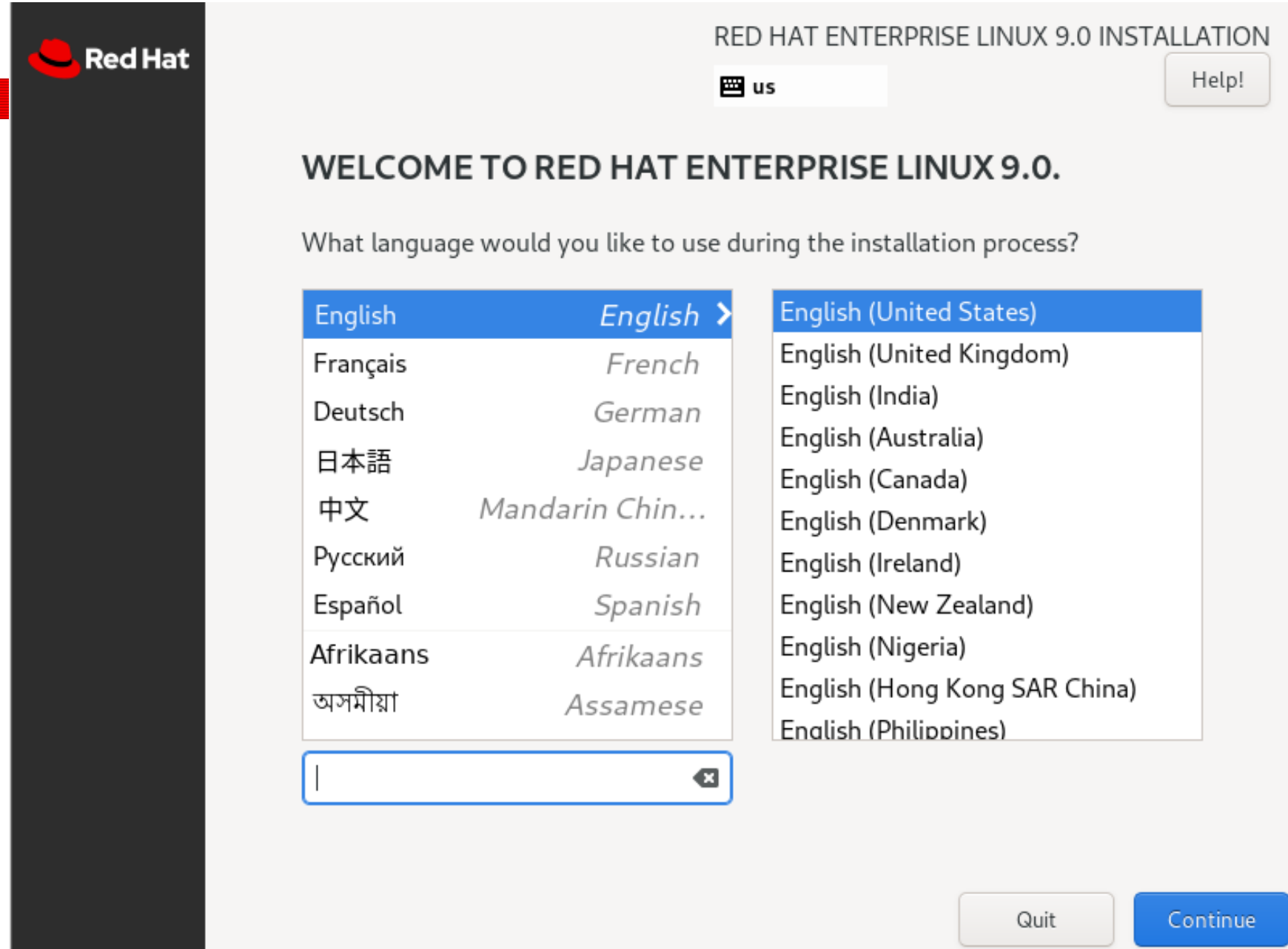
Automatic boot in 39 seconds...

# The installation screen


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- Language & Locale selection
- Country / Regional settings
- Time zone
- Date & Time
- Keyboard layout
- Kernel Dumps
- Network configuration
- Software Packages
- Security Profiles
- Partitioning
  - LVM
  - LVM Thin Provisioning
  - RAID
  - Type of File System
  - Mount point (Folder)
- User Settings

# Language & Locale selection



# Installation Summary

 **Red Hat**


INSTALLATION SUMMARY


RED HAT ENTERPRISE LINUX 9.0 INSTALLATION


us

Help!


LOCALIZATION


 **Keyboard**  
*English (US)*


 **Language Support**  
*English (United States)*

 **Time & Date**  
*Asia/Kuala Lumpur timezone*


SOFTWARE


 **Connect to Red Hat**  
*Not registered.*


 **Installation Source**  
*Local media*


 **Software Selection**  
*Server with GUI*

SYSTEM

 **Installation Destination**  
*No disks selected*

 **KDUMP**  
*Kdump is enabled*

 **Network & Host Name**  
*Connected: ens224, ens192, ens160*


 **Security Profile**  
*No profile selected*

ADDITIONAL SETTINGS

Quit

Begin Installation

We won't touch your disks until you click 'Begin Installation'.

 Please complete items marked with this icon before continuing to the next step.



# Time, Date and Timezone

TIME & DATE

RED HAT ENTERPRISE LINUX 9.0 INSTALLATION

Done

us

Help!

Region: Asia

City: Kuala Lumpur

Network Time ☒

09:50

☒ 24-hour  
☐ AM/PM

05

28

2022

You have no working NTP server configured

# NTP Configuration

TIME & DATE Done RED HAT ENTERPRISE LINUX 9.0 INSTALLATION us Help!

Region: Asia

**Add and mark for usage NTP servers**


+

☒ This URL refers to a pool of NTP servers

☐ Server supports Network Time Security (NTS) authentication

Host Name	Pool	NTS	Working	Use
2.rhel.pool.ntp.org	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Cancel OK

 You have no working NTP server configured

# Register for support

CONNECT TO RED HAT RED HAT ENTERPRISE LINUX 9.0 INSTALLATION

Done us Help!

Authentication ☒ Account ☐ Activation Key

User name

Password

Purpose ☐ Set System Purpose

Insights ☒ Connect to Red Hat Insights

► Options

**Not registered.**

# Installation Source

INSTALLATION SOURCE

RED HAT ENTERPRISE LINUX 9.0 INSTALLATION

Done

us

Help!

Which installation source would you like to use?

☒ Auto-detected installation media:

Device: sr0  
Label: Verify

☐ Red Hat CDN

☐ On the network:

URL type:

**Additional repositories**

Enabled	Name
<input checked="" type="checkbox"/>	AppStream

Name:

URL type:

Proxy URL:

User name:

Password:

# Software Group and Package selection

SOFTWARE SELECTION

RED HAT ENTERPRISE LINUX 9.0 INSTALLATION

Done

us

Help!

Base Environment

☒ **Server with GUI**  
An integrated, easy-to-manage server with a graphical interface.

☐ **Server**  
An integrated, easy-to-manage server.

☐ **Minimal Install**  
Basic functionality.

☐ **Workstation**  
Workstation is a user-friendly desktop system for laptops and PCs.

☐ **Custom Operating System**  
Basic building block for a custom RHEL system.

☐ **Virtualization Host**  
Minimal virtualization host.

Additional software for Selected Environment

☐ **Debugging Tools**  
Tools for debugging misbehaving applications and diagnosing performance problems.

☐ **DNS Name Server**  
This package group allows you to run a DNS name server (BIND) on the system.

☐ **File and Storage Server**  
CIFS, SMB, NFS, iSCSI, iSER, and iSNS network storage server.

☐ **FTP Server**  
These tools allow you to run an FTP server on the system.

☐ **Guest Agents**  
Agents used when running under a hypervisor.

☐ **Infiniband Support**  
Software designed for supporting clustering, grid connectivity, and low-latency, high bandwidth storage using RDMA-based InfiniBand, iWARP, RoCE, and OPA fabrics.

☐ **Mail Server**  
These packages allow you to configure an IMAP or SMTP mail server.

☐ **Network File System Client**

# Installation Destination

INSTALLATION DESTINATION

RED HAT ENTERPRISE LINUX 9.0 INSTALLATION

Done




us

Help!

### Device Selection


Select the device(s) you'd like to install to. They will be left untouched until you click on the main menu's "Begin Installation" button.

#### Local Standard Disks

<div>200 GiB</div> <div></div> <div>VMware Virtual NVMe Disk</div> <div>nvme0n3 / 200 GiB free</div>	<div>100 GiB</div> <div></div> <div>VMware, VMware Virtual S</div> <div>sda / 100 GiB free</div>	<div>100 GiB</div> <div></div> <div>VMware, VMware Virtua</div> <div>sdb / 100 GiB free</div>
---	---	--

*Disks left unselected here will not be touched.*

#### Specialized & Network Disks



Add a disk...

*Disks left unselected here will not be touched.*

### Storage Configuration

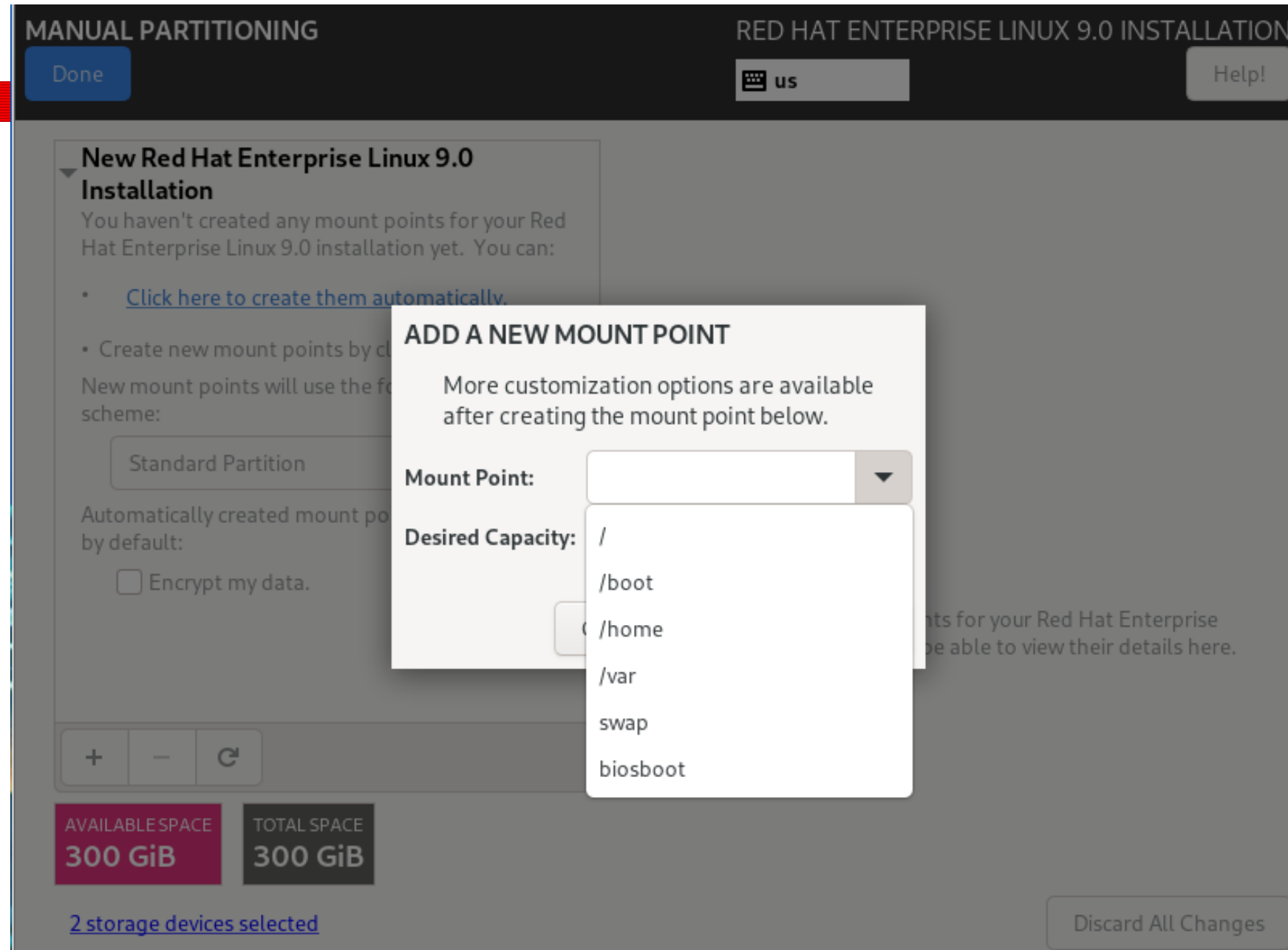
☒ Automatic ☐ Custom

☐ I would like to make additional space available.

[Full disk summary and boot loader...](#)

2 disks selected; 300 GiB capacity; 300 GiB free [Refresh...](#)

# Customize the partition



# Enable Kernel Dump

KDUMP

RED HAT ENTERPRISE LINUX 9.0 INSTALLATION

Done

us

Help!

Kdump is a kernel crash dumping mechanism. In the event of a system crash, kdump will capture information from your system that can be invaluable in determining the cause of the crash. Note that kdump does require reserving a portion of system memory that will be unavailable for other uses.

☒ Enable kdump

Kdump Memory Reservation: ☒ Automatic ☐ Manual

Automatic kdump memory reservation is in use. Kdump will use the default crashkernel value provided by the kexec-tools package. This is a best-effort support and might not fit your use case. It is recommended to verify if the crashkernel value is suitable after installation.



# Configure network and hostname

NETWORK & HOST NAME

RED HAT ENTERPRISE LINUX 9.0 INSTALLATION

Done

us

Help!

Ethernet (ens160)  
VMware VMXNET3 Ethernet Controller

Ethernet (ens192)  
VMware VMXNET3 Ethernet Controller

Ethernet (ens224)  
VMware VMXNET3 Ethernet Controller

+ -

Ethernet (ens160)  
Connected

Hardware Address 00:0C:29:E1:F6:BB

Speed 10000 Mb/s

IPv4 Address 172.16.200.21/16

IPv6 Address 2001:d08:de:8d3e:  
5efd:c596:6ca7:bb86/64

Default Route 172.16.0.2

DNS 8.8.4.4  
8.8.8.8

Configure...

Host Name:

Apply


Current host name: localhost

# Configure Security Profile

SECURITY PROFILE

RED HAT ENTERPRISE LINUX 9.0 INSTALLATION

Done

 us

Help!

Change content

Apply security policy: ☒

Choose profile below:

ANSSI is the French National Information Security Agency, and stands for Agence nationale de la sécurité des systèmes d'information.  
ANSSI-BP-028 is a configuration recommendation for GNU/Linux systems.

A copy of the ANSSI-BP-028 can be found at the ANSSI website:  
<https://www.ssi.gouv.fr/administration/guide/recommandations-de-securite-relatives-a-un-systeme-gnulinux/>

**ANSSI-BP-028 (high)**  
This profile contains configurations that align to ANSSI-BP-028 at the high hardening level.

ANSSI is the French National Information Security Agency, and stands for Agence nationale de la sécurité des systèmes

Select profile

Changes that were done or need to be done:

# Configure Root account

ROOT PASSWORD

RED HAT ENTERPRISE LINUX 9.0 INSTALLATION

Done

us

Help!

The root account is used for administering the system. Enter a password for the root user.


Root Password:

Weak

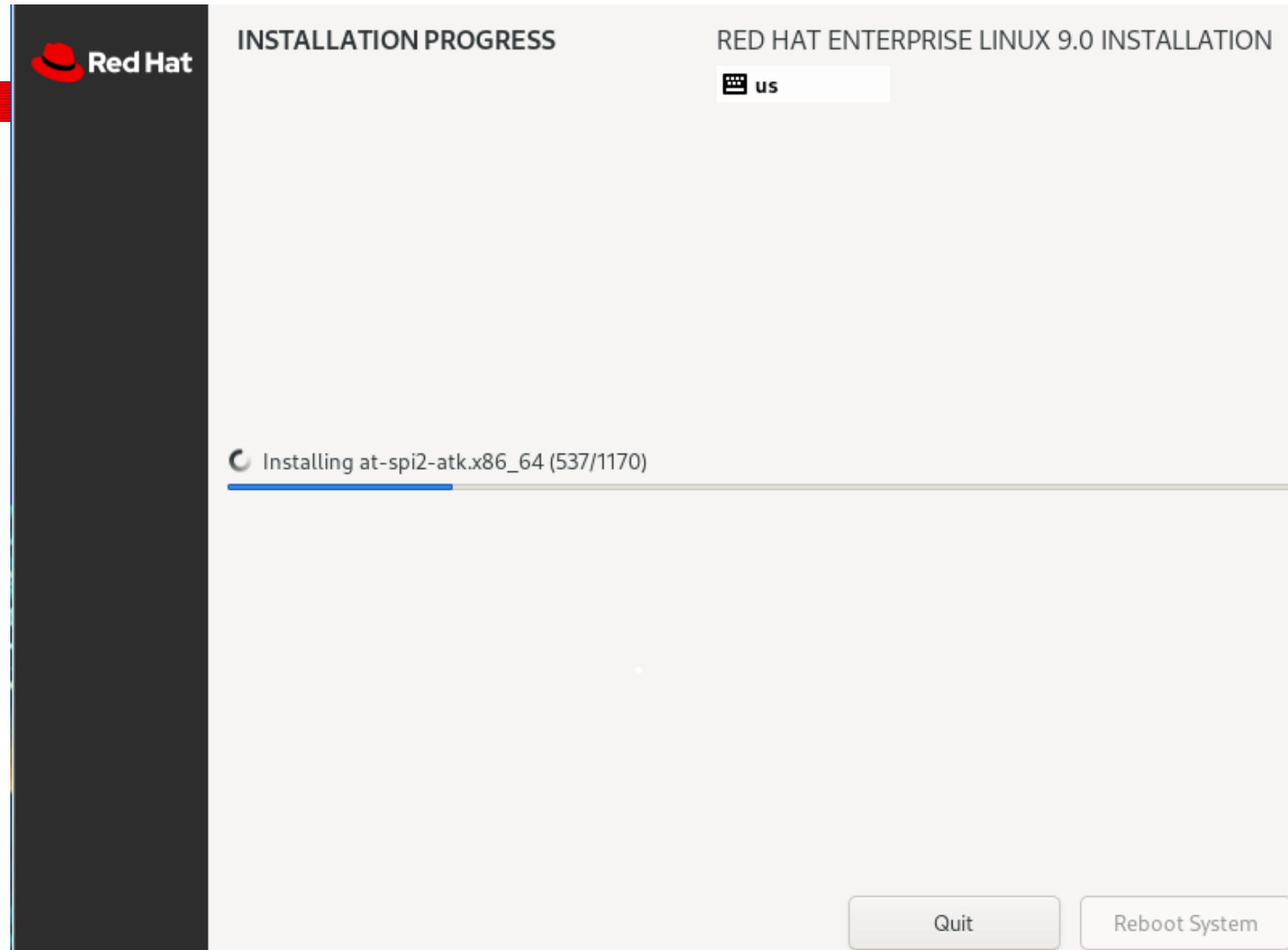
Confirm:

☐ Lock root account

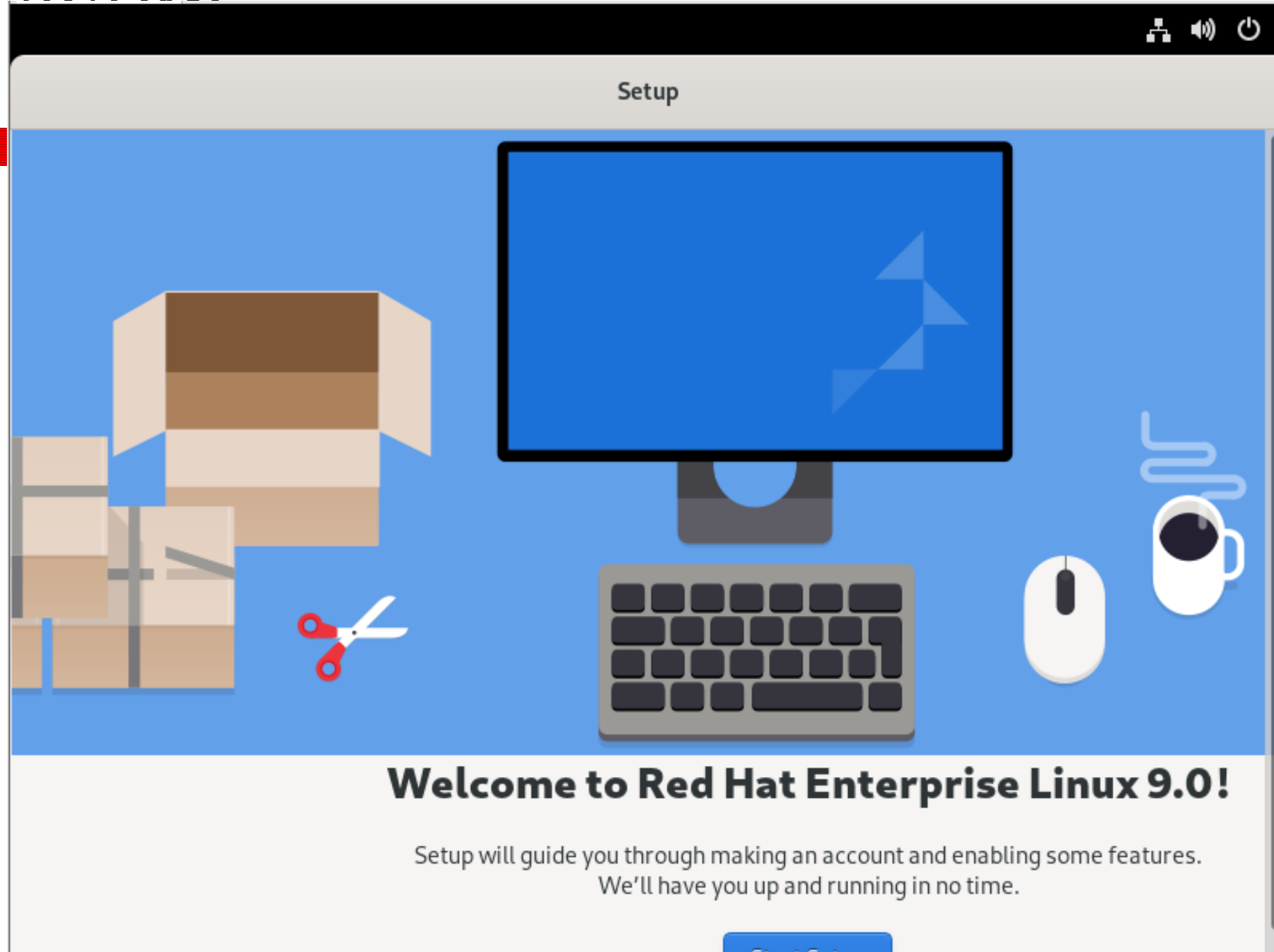
☐ Allow root SSH login with password

 The password fails the dictionary check - it is too simplistic/systematic You will have to press **Done** twice to confirm it.

# The installation progress



# Initial setup



[Previous](#)**About You**[Next](#)

## About You

We need a few details to complete setup.

Full Name  ✓

Username  ✓ ▼

This will be used to name your home folder and can't be changed.

[Enterprise Login](#)

Previous

About You

Next

Previous

Password

Next

## Set a Password

Be careful not to lose your password.

Password



Mix uppercase and lowercase and try to use a number or two.

Confirm

# Post Installations Configuration

---

- Collect system information
- Configure repository
- Install Updates
- Install more packages
- Subscribe to RHN (Optional)



# Collect system information

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- Verify OS release and versions
  - `cat /etc/*release`
- Verify kernel version
  - `uname -a`
- Check hostname
  - `hostname`
- Collect cpu, memory information
  - `cat /proc/meminfo`
  - `cat /proc/cpuinfo`
- Verify File system creation
  - `df -k`
  - `mount`
- Verify processes
  - `ps -ef`
  - `top`

# RHEL Image Builder - Composer

- Build custom system images
- Support variety of format (qcow2)
- Compatible with major cloud providers and virtualization
- Demo : <https://developers.redhat.com/blog/2019/05/08/red-hat-enterprise-linux-8-image-builder-building-custom-system-images#creating a custom image using the web console>

# Subscribe to RHSM (legacy RHN)

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- Create account - [developer.redhat.com](https://developer.redhat.com)
  - by default every subscription last for 1 year
  - by default each subscription entitled to 16 systems / devices.
  - Can remove entitled system from [developer.redhat.com](https://developer.redhat.com)
- Register and attach
  - # subscription-manager register (enter username and password)
  - # subscription-manager attach --auto
  - # dnf list

# Configure repository

---

- Point to RedHat yum repository
- Point to Fedora Core
- Point to local storage (DVD)
- Point to remote storage (NFS / CIFS)

# Point to RedHat yum repository

---

- RedHat installation pre-configured some yum repository
- Install Extra Packages repo from Fedora Core
  - `dnf install -y https://dl.fedoraproject.org/pub/epel/epel-release-latest-8.noarch.rpm`
- All repo configuration in
  - `/etc/yum.repos.d/` sub directory
  - Must ends with `.repo` extension

# Example of RedHat-baseos.repo

---

```
[baseos]
```

```
name="baseos"
```

```
baseurl=http://rhgl.s.domain18.example.com/BaseOS
```

```
enabled=1
```

```
gpgcheck=1
```

```
gpgkey=http://rhgl.s.domain18.example.com/RPM-GPG-KEY-RedHatofficial
```

# Quiz

---

1. What are the methods to install RedHat? (Choose all that applies)
  - a) Floppy drive
  - b) ISO
  - c) Thumb drive
  - d) repository

# Quiz

---

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  - d) repository



# Quiz

---

2. What should you perform after done OS installation?
- a) Configure more networking functionality
  - b) Download and install more packages from the net
  - c) Look for bugs
  - d) Collect system information

# Quiz

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# Quiz

---

True or False : You must configure the root partition during installation

# Quiz

---

True or **False** : You must configure the root partition during installation

# Quiz

---

True or False : You must configure password the root account

# Quiz

---

**True** or False : You must configure password the root account

# Quiz

---

True or False : You must configure a non-root account during installation

# Quiz

---

**True** or False : You must configure a non-root account during installation