Hewlett Packard Enterprise

Technical Documentation

HPE Synergy Image Streamer - Capture RHEL 7.3

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HPE Synergy Image Streamer – Capture RHEL 7.3

This document provides a step-by-step example of how to capture a RHEL 7.3 golden image with HPE Synergy Image Streamer that can be used with the RHEL 7.3 Image Streamer example artifacts.

HPE Synergy Image Streamer – Capture RHEL 7.3

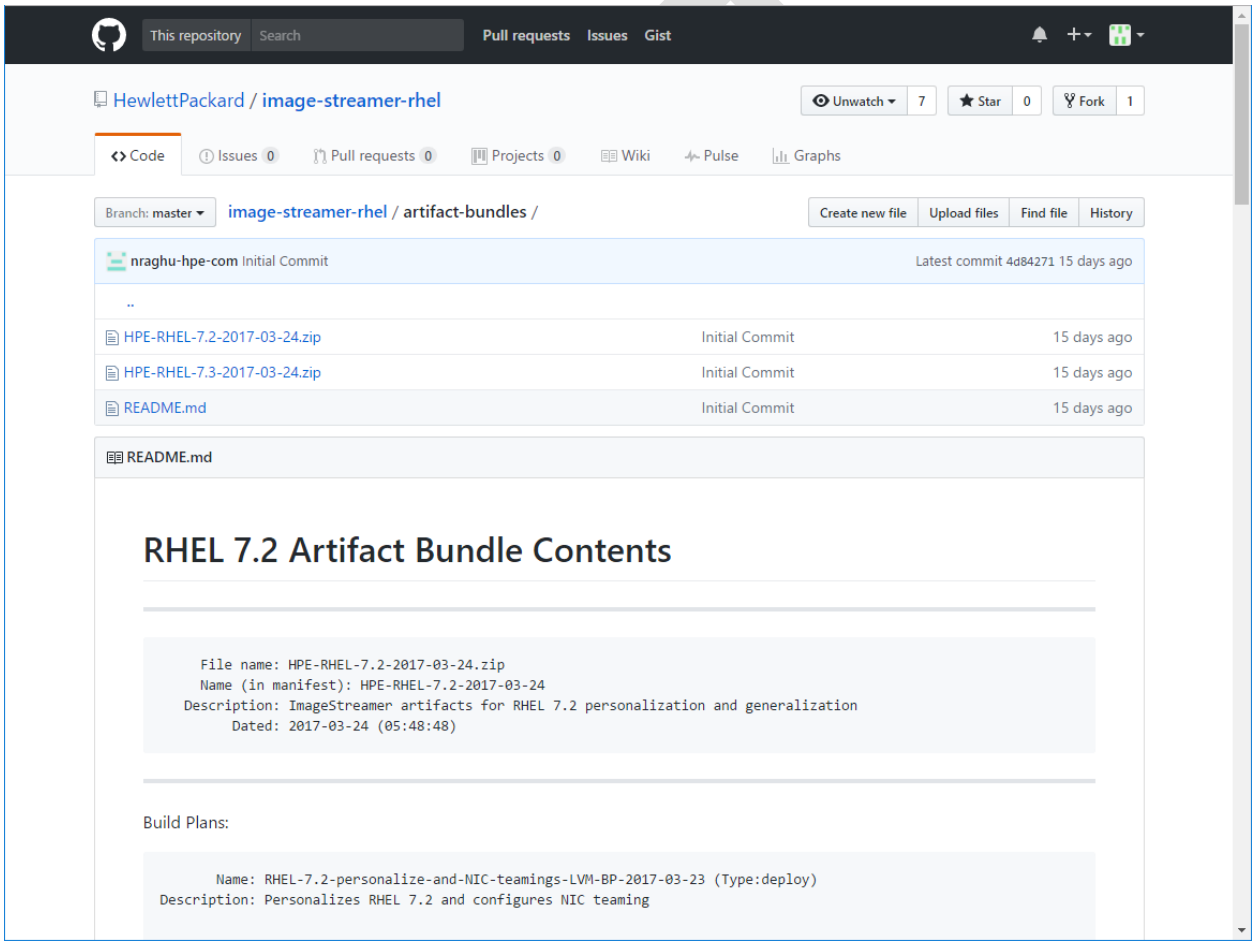
1. Download the RHEL 7.3 .iso image

A. Obtain RHEL 7.3 .iso image.

Download the RHEL 7.3 server install .iso image to the same system where the web browser running HPE OneView on the HPE Synergy Composer is running.

2. Add HPE Image Streamer sample artifacts

A. Download artifacts from the HPE GitHub site.



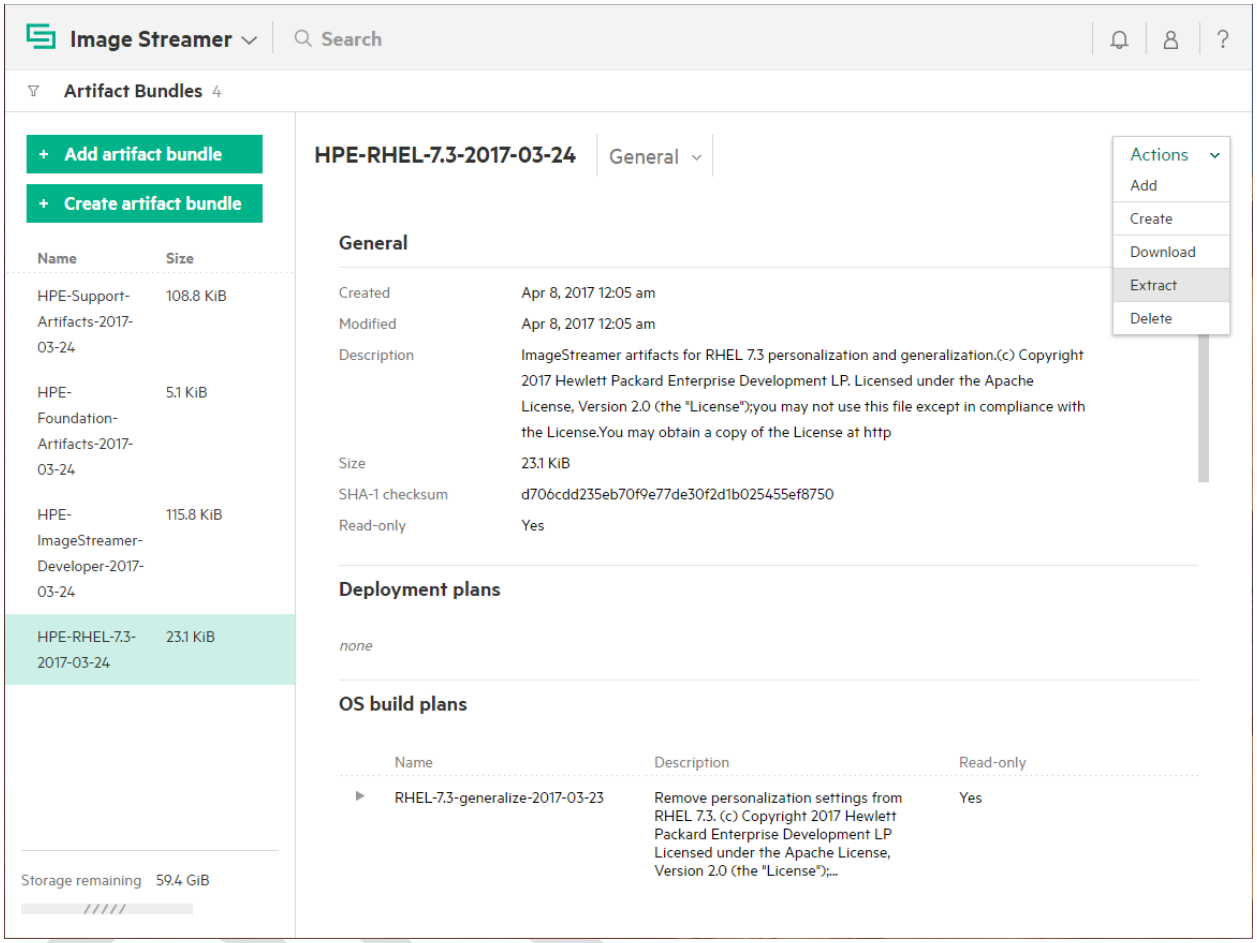
Download the image-streamer-rhel RHEL-7.3 sample artifact bundle:

https://github.com/HewlettPackard/image-streamer-rhel/tree/master/artifact-bundles

Download the image-streamer-tools-foundation sample artifact bundle if it is not already added to HPE Image Streamer:

https://github.com/HewlettPackard/image-streamer-tools/tree/master/foundation/artifact-bundles

B. Add artifact bundles to HPE Image Streamer



Navigate to the HPE Image Streamer Artifact Bundles page.

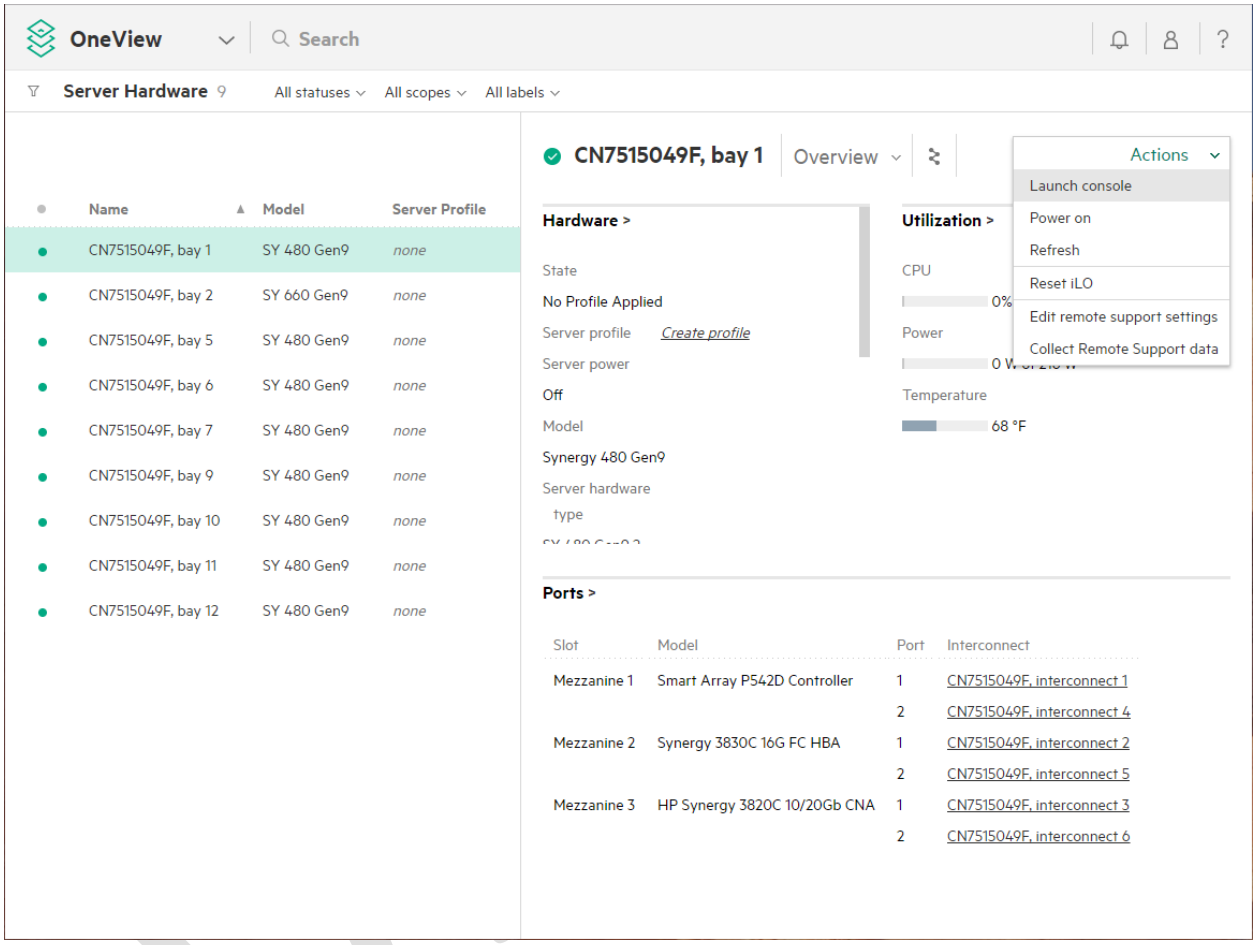
Use Add artifact bundle to load the previously downloaded bundles.

Use the Extract Action to on each artifact bundle to extract their artifacts.

3. Prepare compute module for RHEL 7.3 installation

There are many viable means to install RHEL 7.3 on to the compute module which will be used to capture the golden image. In this example HPE iLO virtual media will be used to mount the RHEL 7.3 .iso server install image to the compute module.

A. Attach RHEL 7.3 .iso to compute module

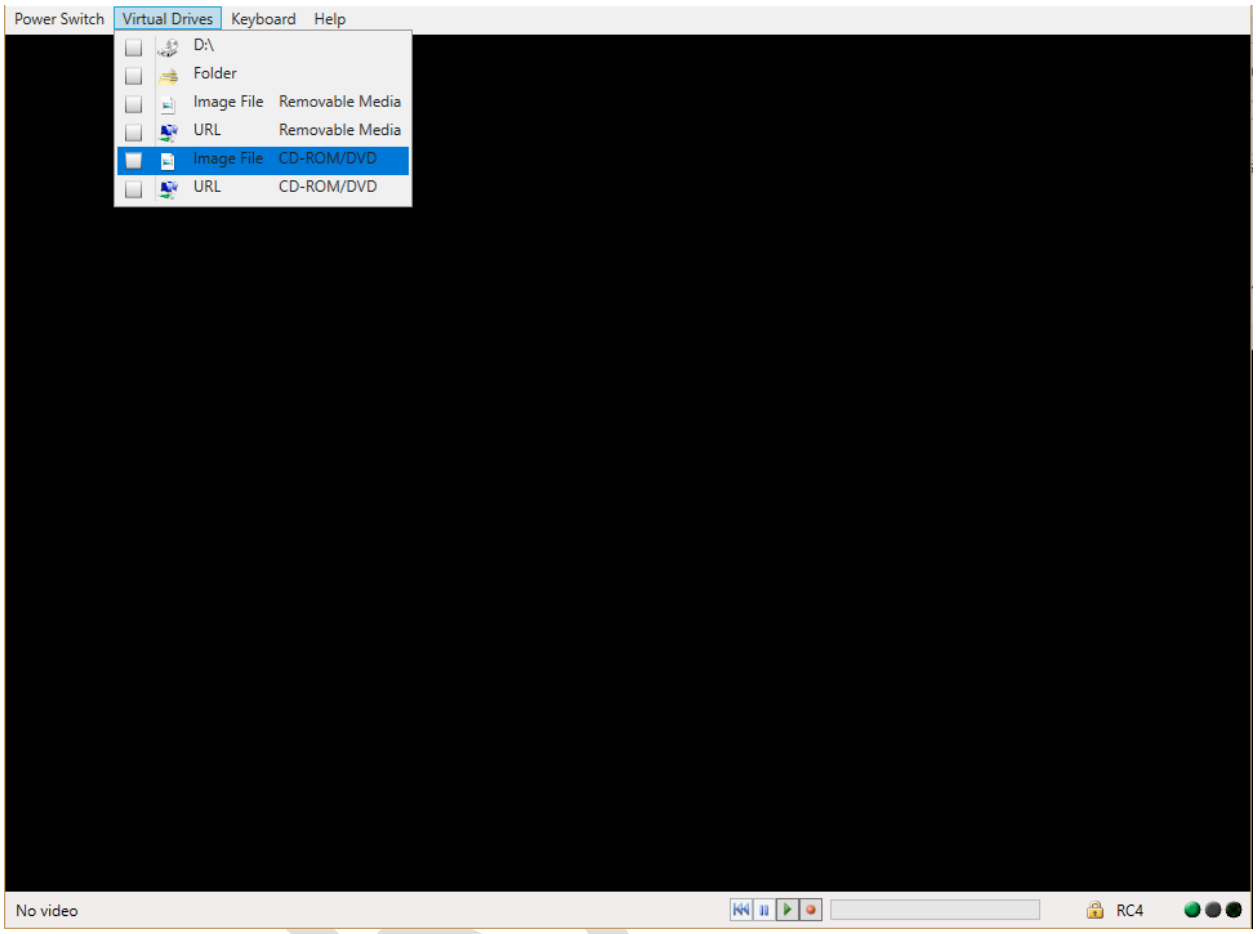


Select the Server Hardware to be used to create the RHEL 7.3 golden image.

Select Launch console from the Actions menu to launch the iLO Remote Console.

Note: It is recommended to not configure any local or remote DAS (Direct Attached Storage via D3940) or SAN (Storage Area Network) storage connected to the compute module prior to capturing a golden image. This storage will generally be configured when compute modules are provisioned using server profiles and deployment plans based on the captured golden image. The deployment plans should include artifacts which configure the storage during the HPE Image Streamer root/boot volume personalization process.

B. Mount the RHEL 7.3 .iso image with iLO Virtual Media

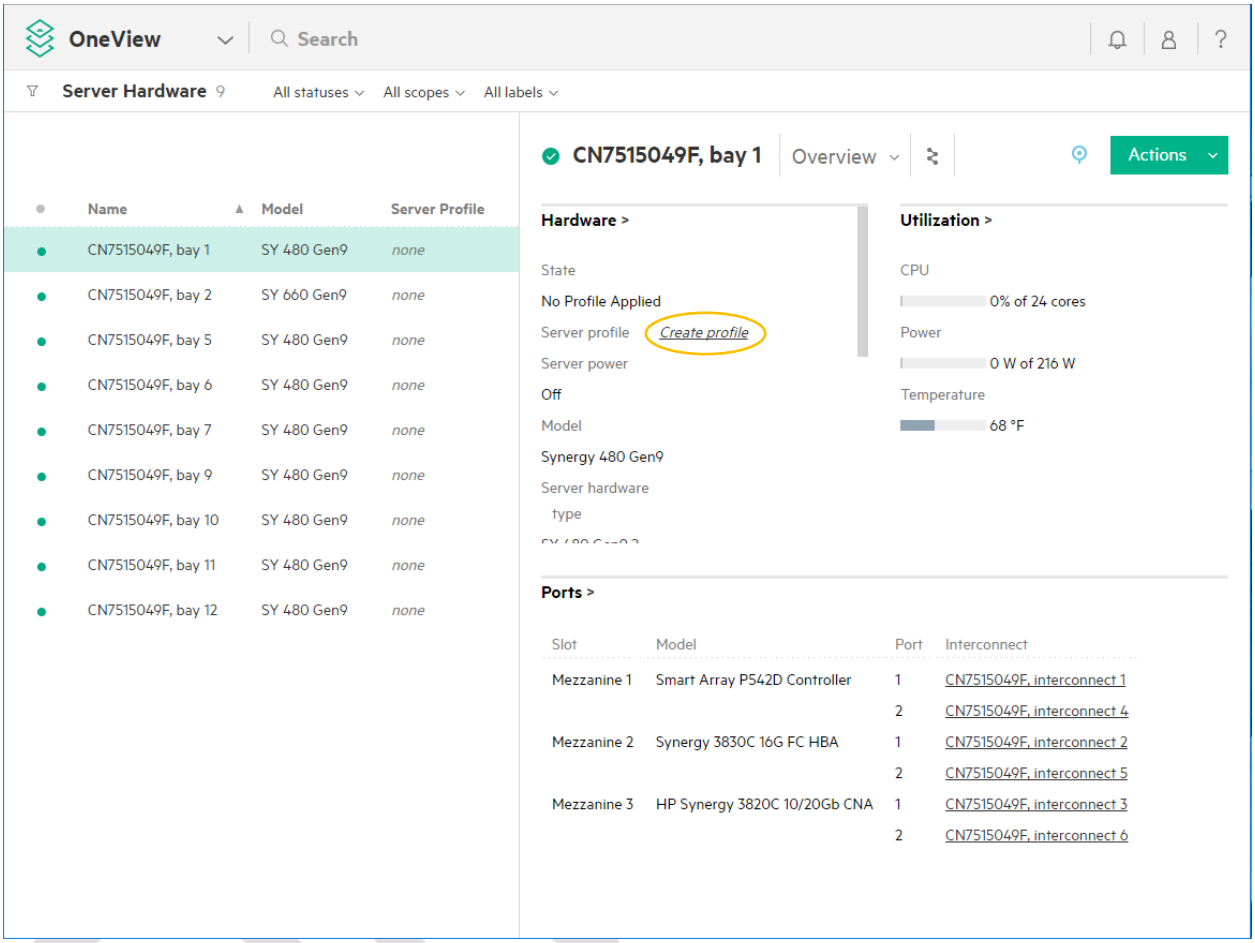


On the iLO Integrated Remote Console menu select Virtual Drives.

Use the “Image File CD-ROM/DVD” option to locate and Open the RHEL-7.3 .iso image previously downloaded.

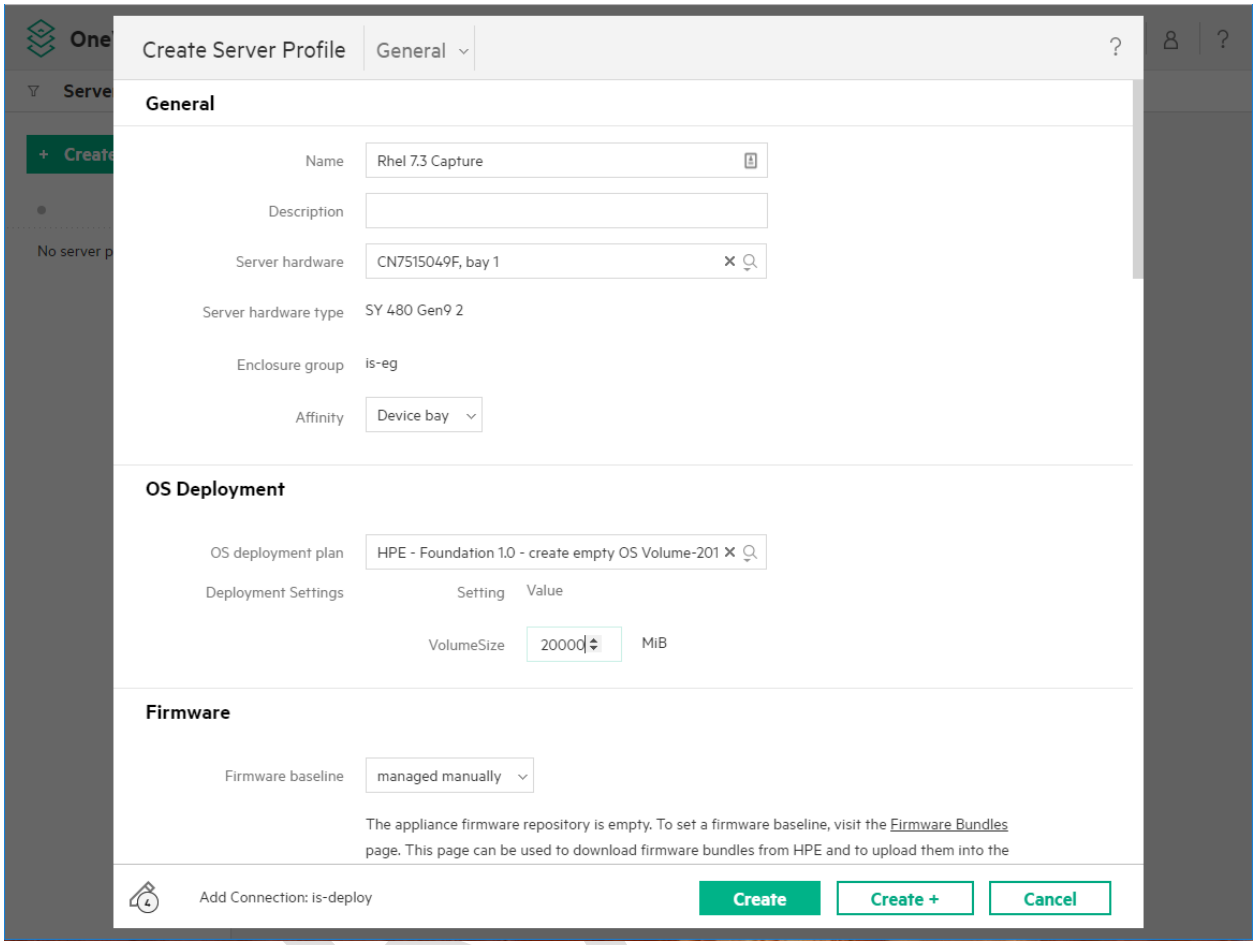
4. Create a Server Profile with an empty OS volume

A. Start creation of a Server Profile



Select Create profile in the Hardware section of the page.

B. Specify Server Profile settings



a. Give the Server Profile a name

Type a name for the Server Profile in the Name field.

b. Specify an OS Deployment plan

Use the dropdown box to select:

HPE – Foundation – create empty OS volume

The plan name may include version number details not shown here.

c. Modify deployment settings

Enter a volume size for the golden image.

While HPE Image Streamer uses thin provisioning for all storage volumes this will be the maximum size the volumes deployed from this golden image can achieve.

In this example 20000 MiB (20 GiB) is used.

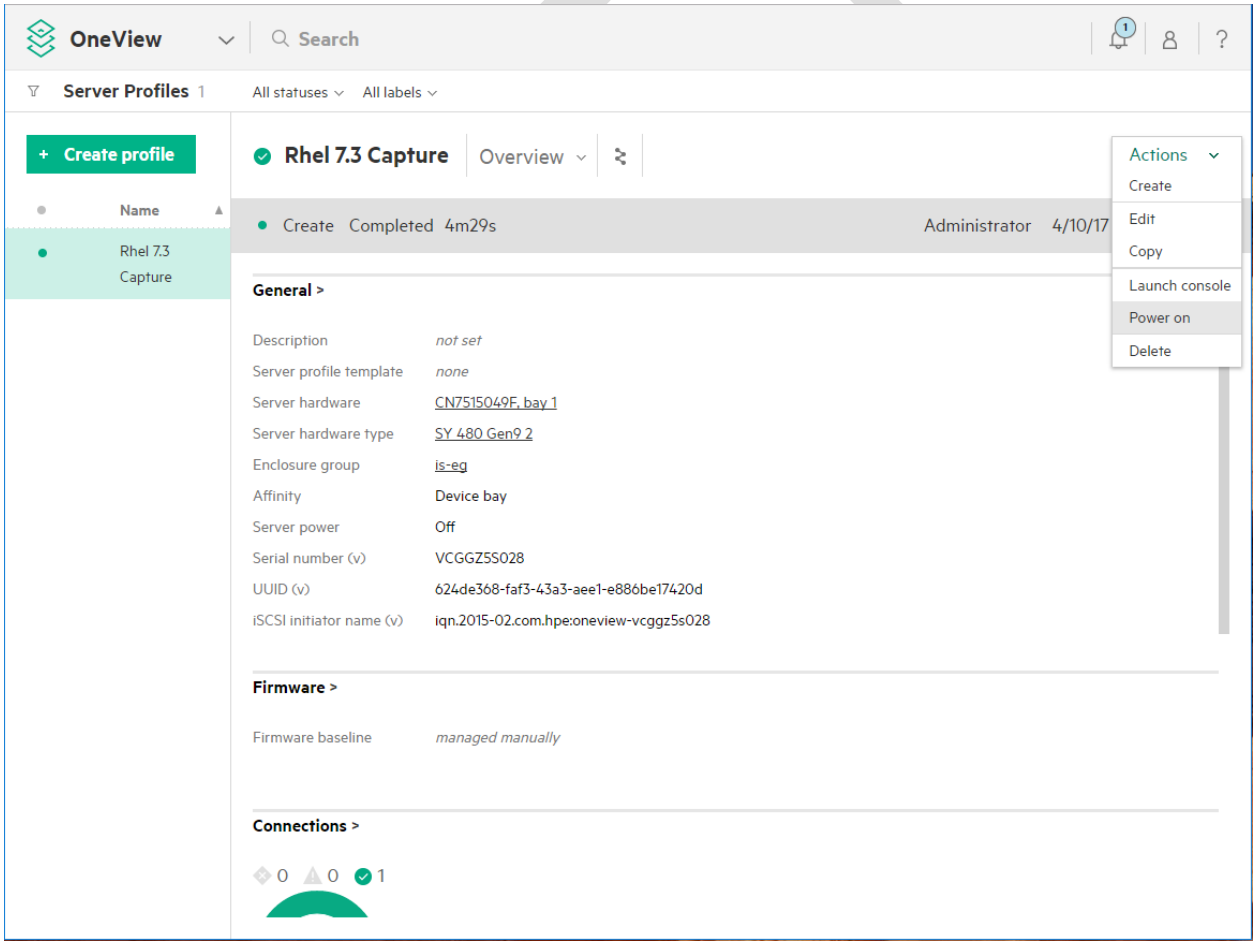
d. Complete Creation of Server Profile

Select Create to complete server profile creation.

Once Create is selected OS Deployment will begin as an early step in the Server Profile create process. OS Deployment will typically be completed in 15 seconds. Additional Server Profile work is needed to complete server provisioning. The Server Profile create process will take a several minutes depending on the configuration work to be done.

5. Install RHEL 7.3 to the empty OS Volume

A. Power on the server



Select Power on from the Actions menu.

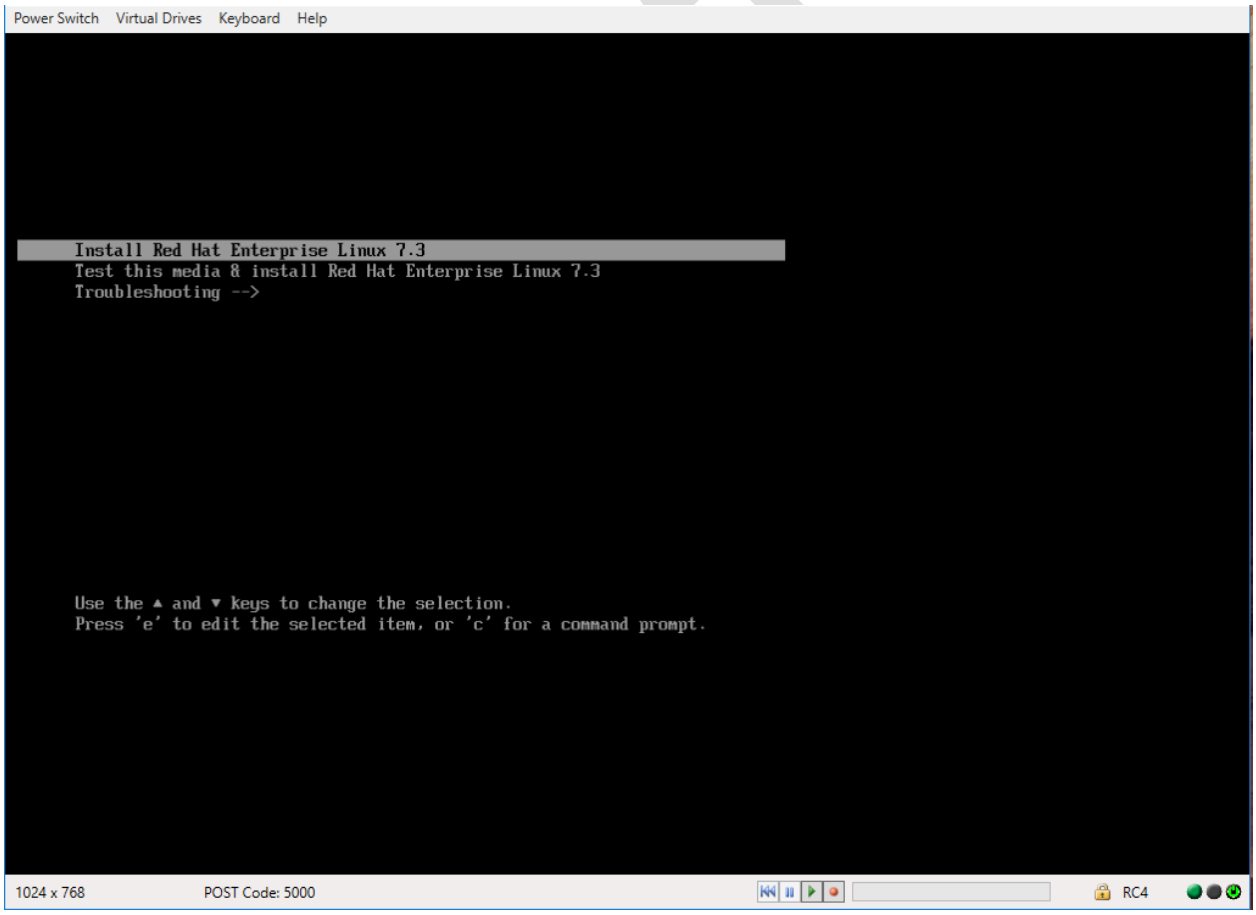
Note: The server will report BIOS configuration changes during boot up for the Image Streamer iSCSI connection and will then reboot.

B. Modify the install kernel parameters

The RHEL 7.3 install kernel will not recognize the HPE Image Streamer iSCSI empty OS volume by default. The kernel parameter “rd.iscsi.ibft=1” needs to be added to tell the kernel to get the OS volume iSCSI configuration parameters from the compute module firmware set by the Server Profile.

Using the iLO Remote Console once the RedHat 7.3 boot loader screen appears:

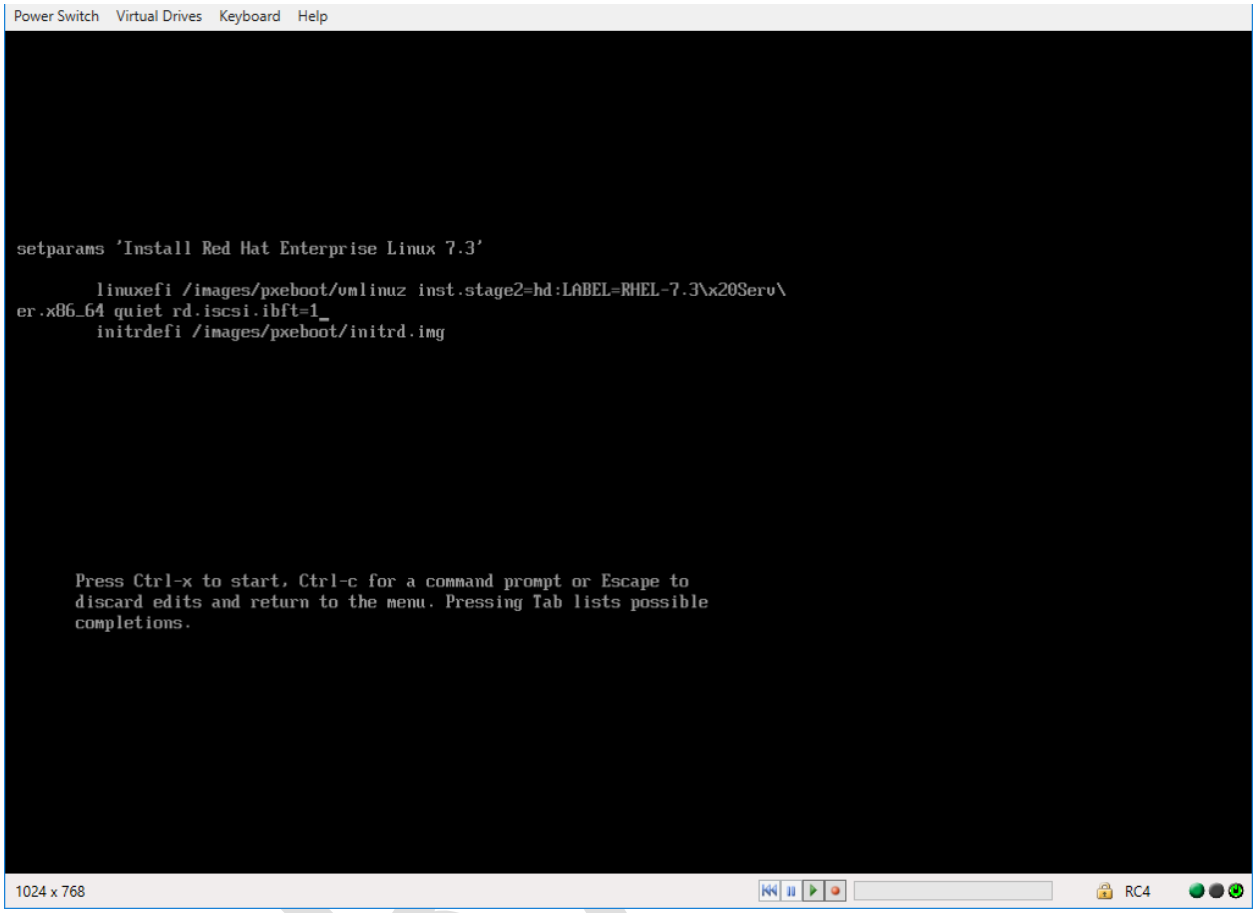
a. Select install boot option to edit



Select desired install option.

Press the “e” key to edit.

b. Add the rd.iscsi.ibft=1 install kernel boot parameter



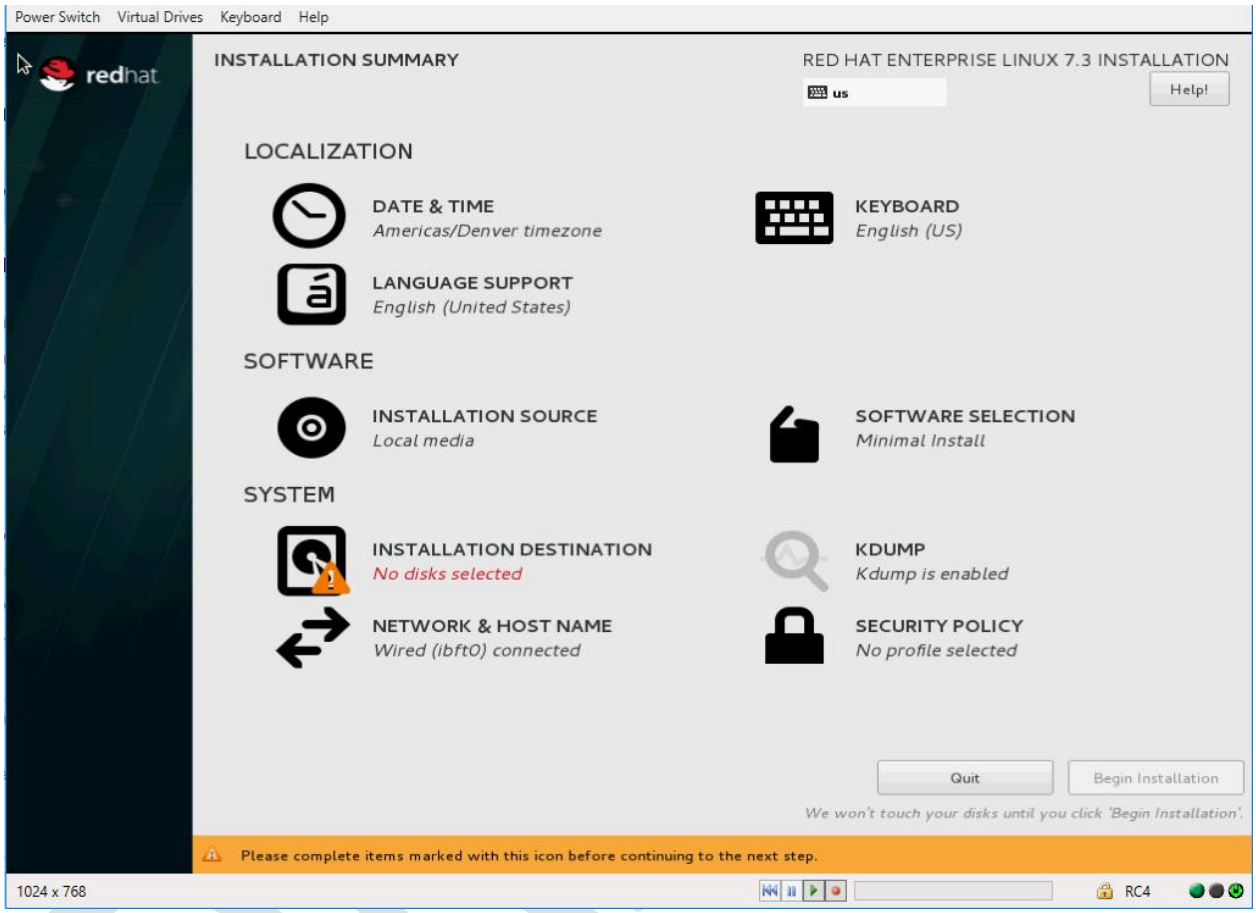
Modify the install kernel vmlinuz line by adding rd.iscsi.ibft=1 at the end.

c. Continue the install kernel boot process

Press Ctrl-x to start.

C. Set the installation configuration parameters

When the installer starts, set the local language and proceed to the Installation Summary page.



Since this installation is going to be used to create a golden image, choices made here will become part of every boot/root volume deployed when using this golden image in the OS Deployment process.

a. For Localization:

Set Date & Time (timezone), Keyboard and Language Support as desired for the golden image.

b. For Software:

When using iLO Virtual Media as in this example leave the setting as Local media.

Add additional Software as desired to be in every boot/run volume deployed from this golden image.

c. For System:

It is recommended to not make changes to Network and Host name settings as these are usually set in the HPE Image Streamer OS Deployment personalization process.

> **Note:** The rd.iscsi.ibft=1 parameter added as an option to the install boot kernel resulted in the iSCSI connection to the deployed empty volume being automatically configured.

Set kdump and Security policy as desired for the golden image.

> **Note:** See section F.c. for additional details regarding kdump configuration.

Click on Installation Destination and proceed to the next step.

Note: Continue using only one of the following two sections:

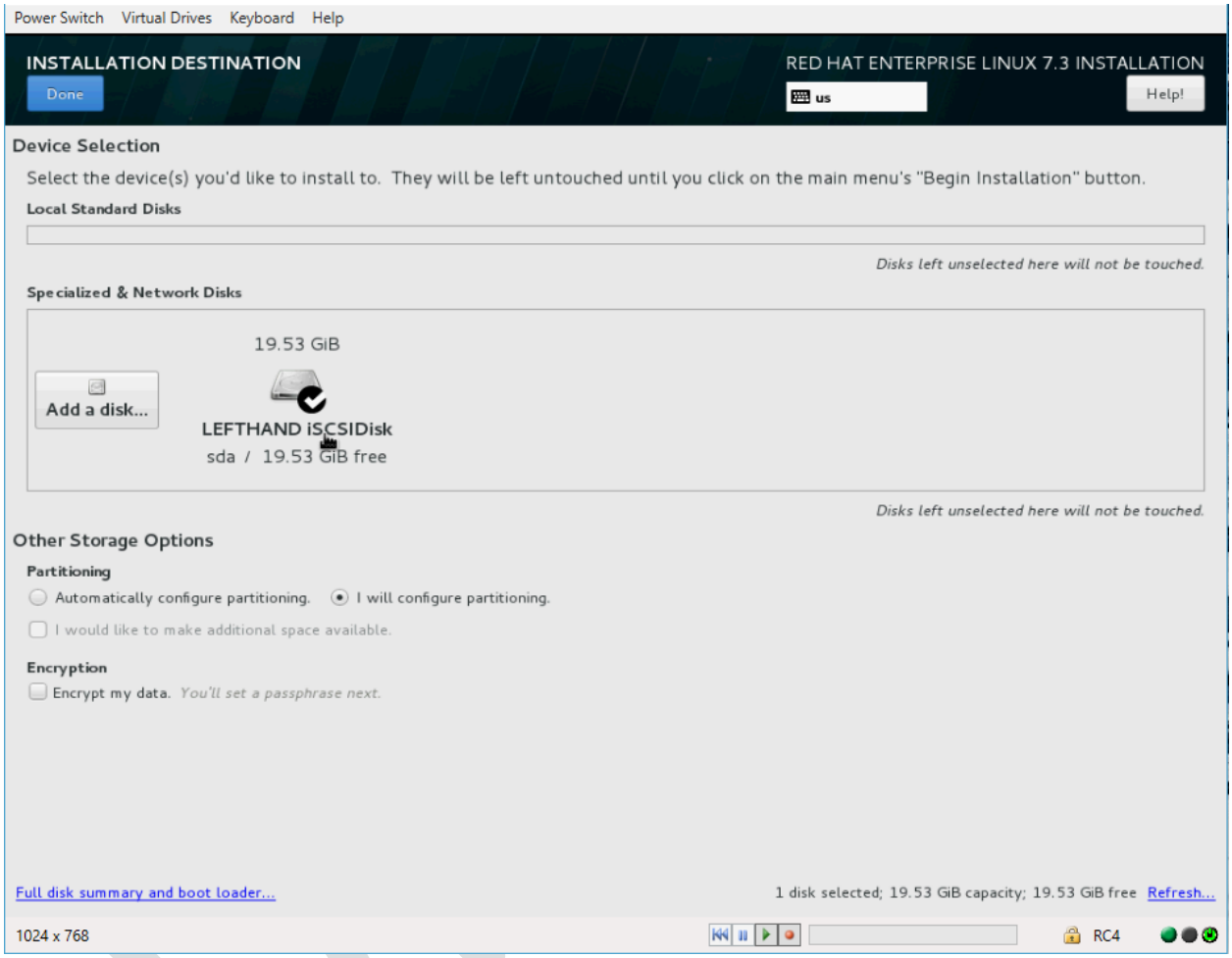
Select installation device – Servers without local or DAS storage

Select installation device – Servers with local or DAS storage

D. Select installation device – Servers without local or DAS storage

The empty OS volume for installation to create the golden image will be in the Specialized & Network Disks as:

LEFTHAND iSCSIDisk



a. Specialized and Network Drives

Select the LEFTHAND iSCSIDisk if not already selected by default.

b. Partitioning

Select the “I will configure partitioning option”

c. Encryption

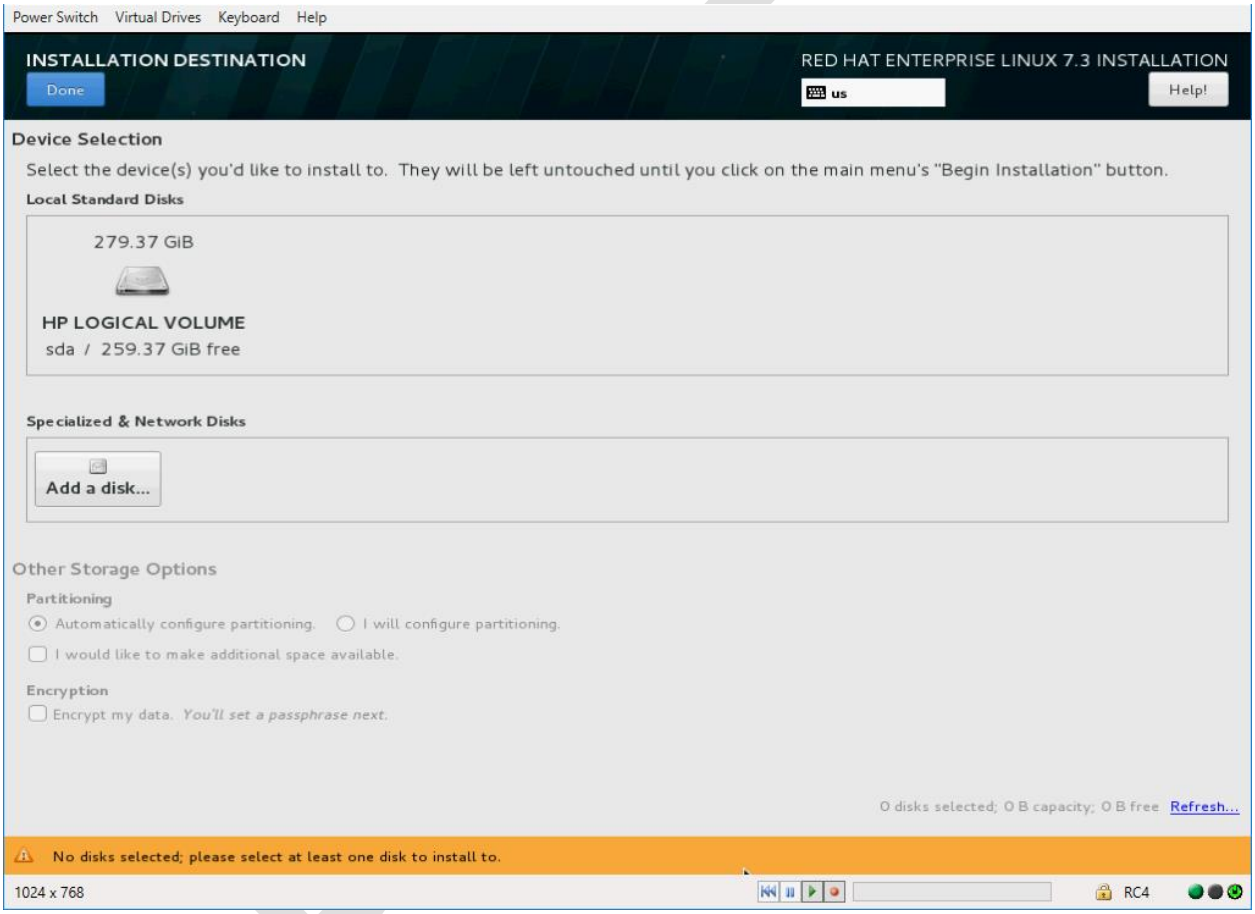
Do not select Encrypt my data.

d. Proceed to:

Configure partitions for the HPE Image Streamer empty volume

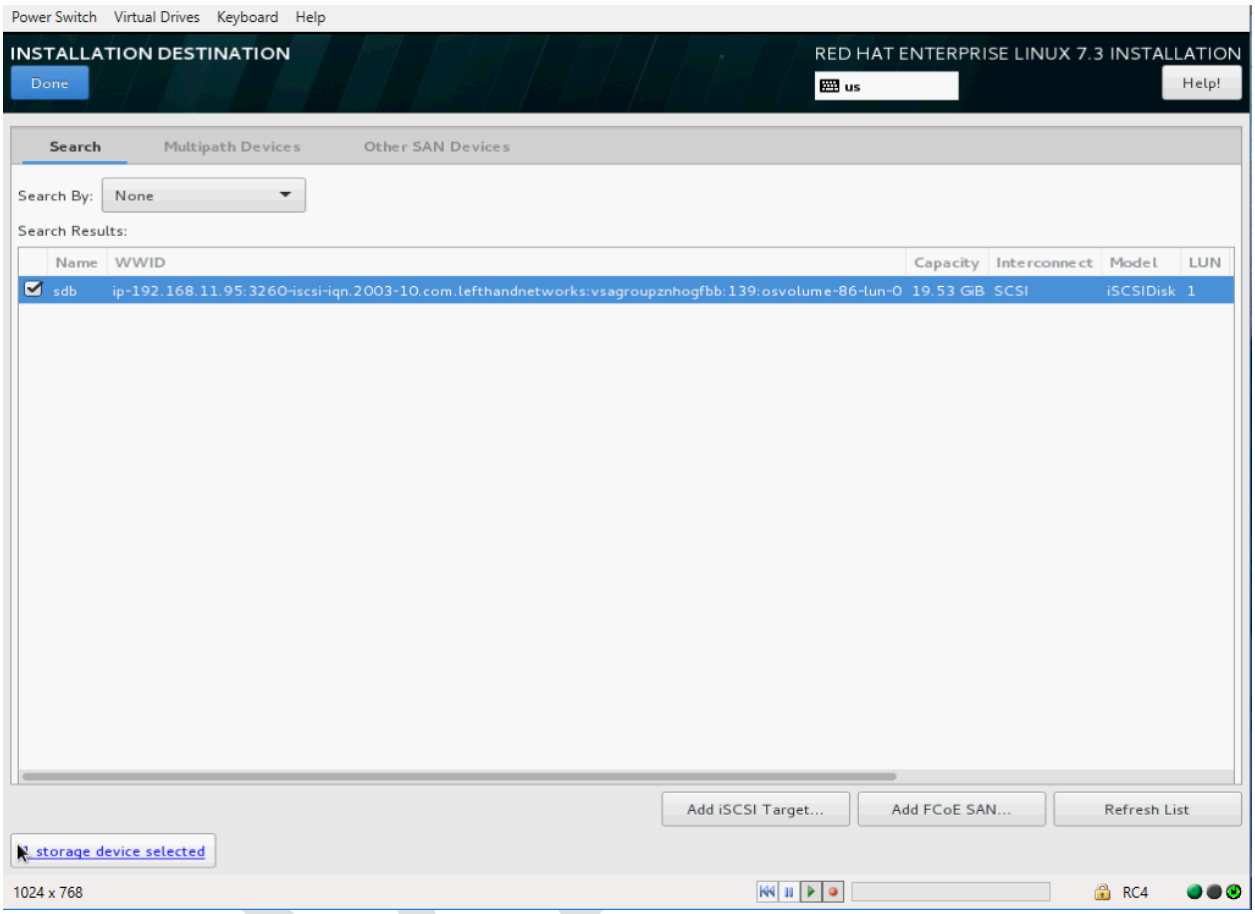
E. Select installation device – Servers with local or DAS storage

When local attached or DAS (Direct Attached Storage via D3950) is present the Installation Destination will generally list it by default and the iSCSI OS Volume deployed by HPE Image Streamer will need to be added as a Specialized & Networked Disk.



a. Specialized and Network Drives

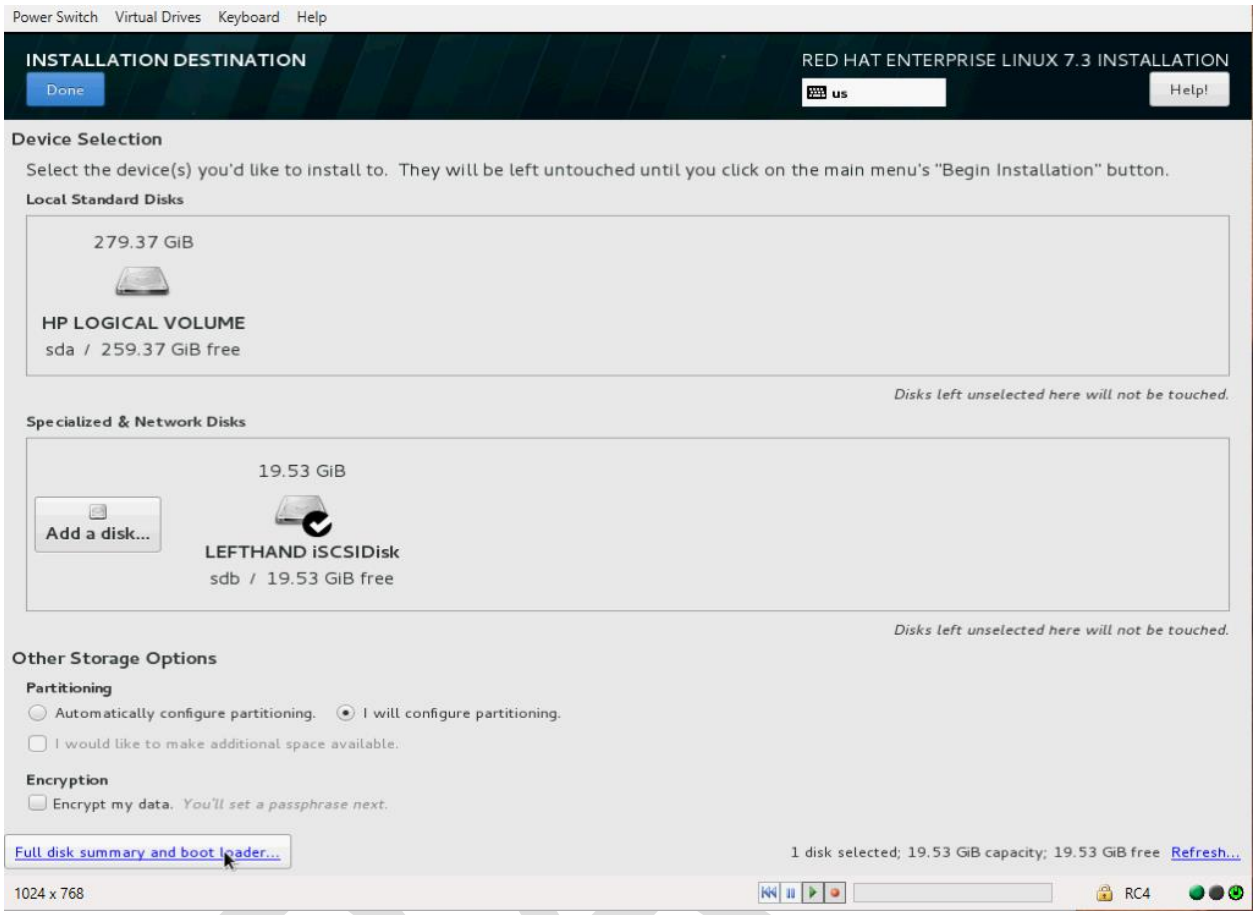
Select Add a disk…



b. Select the empty OS volume

Check the box with the lefthandnetworks WWID.

Select Done.



c. Specialized and Network Drives

Select the LEFTHAND iSCSIDisk if not already selected by default.

d. Partitioning

Select the “I will configure partitioning option”.

e. Encryption

Do not select Encrypt my data.

Select Done.

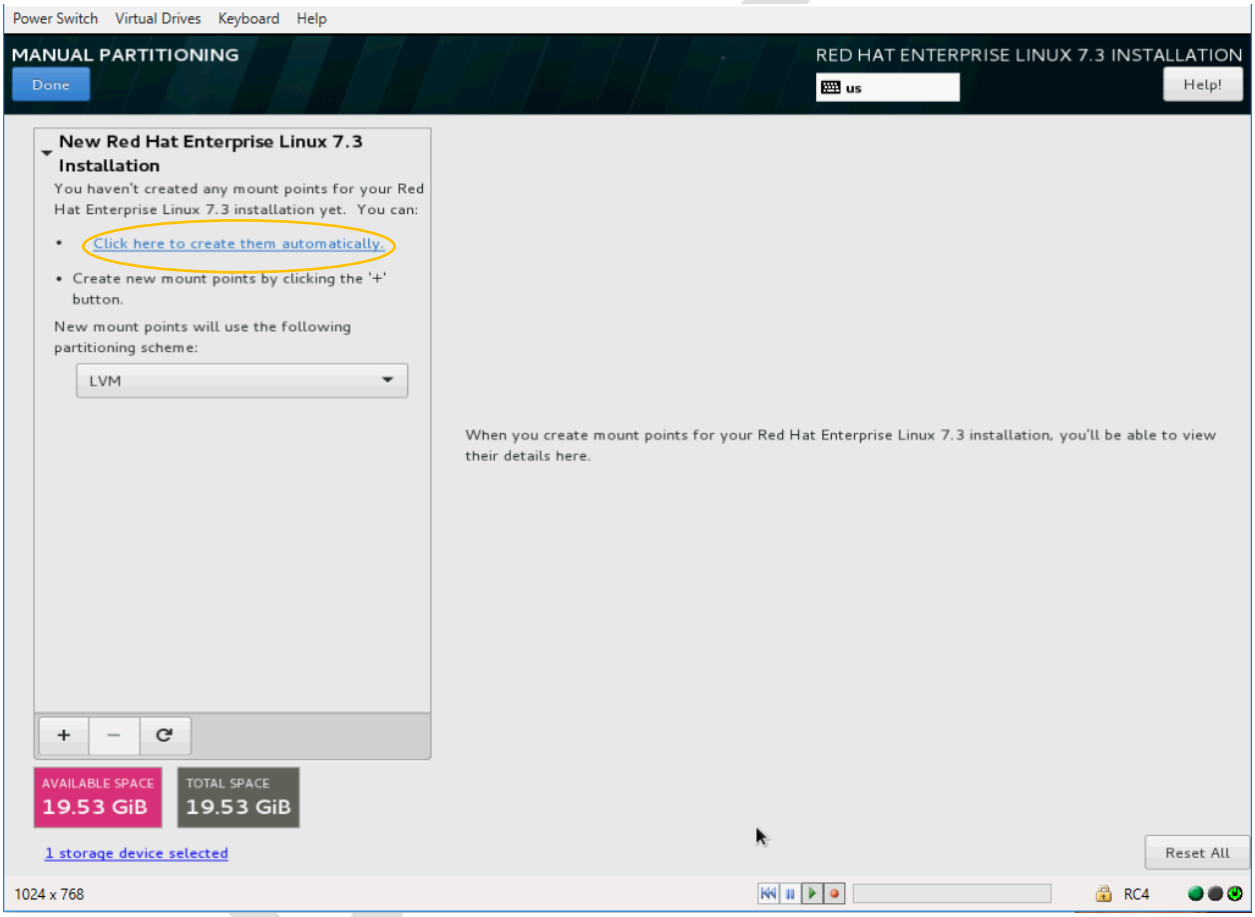
f. Proceed to:

Configure partitions for the HPE Image Streamer empty volume

F. Configure partitions for the HPE Image Streamer empty volume

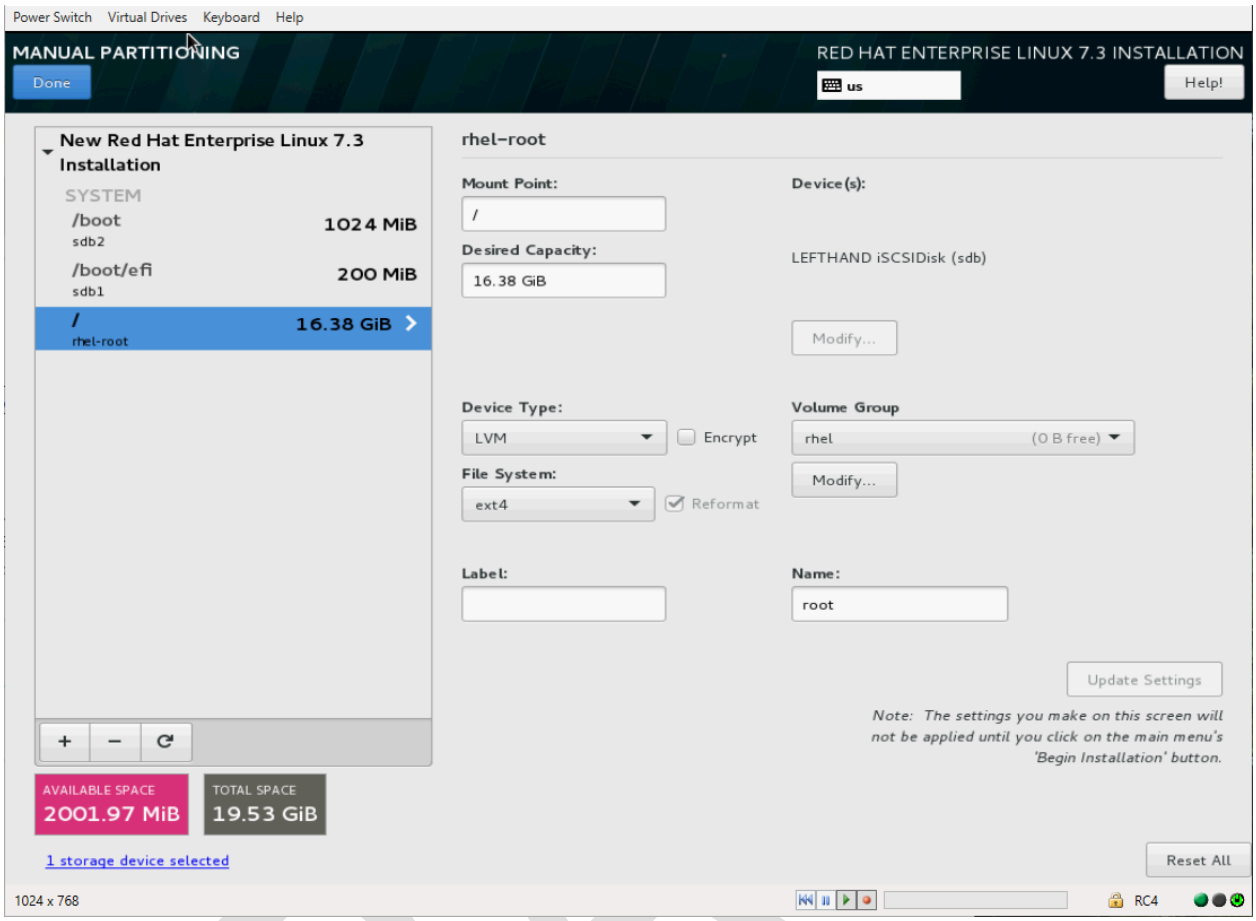
Create partitions as desired for the empty boot/run volume. Using LVM on one or a small number of partitions could provide flexibility to configure volumes for various applications later when creating the OS-application images that will ultimately be deployed and updated using HPE Image Streamer enabled lifecycle processes.

Note: At this time only ext3 and ext4 files systems can be used during the HPE Image Streamer boot/run personalization process of Linux OSs. RHEL 7.3 defaults partitions to use the xfs file system so be sure to change added partitions to ext3 or ext4 (this does not apply to the /boot/efi or swap partitions).



a. Create partitions:

In this example “Click here to create them automatically” was selected.



b. Change the / and /boot partition file systems

In this example the automatically created / and /boot partitions are changed to ext4 per the Note above. If additional partitions were created which will need to be personalized by HPE Image Streamer plan scripts, they too will need their file systems set to ext3 or ext4.

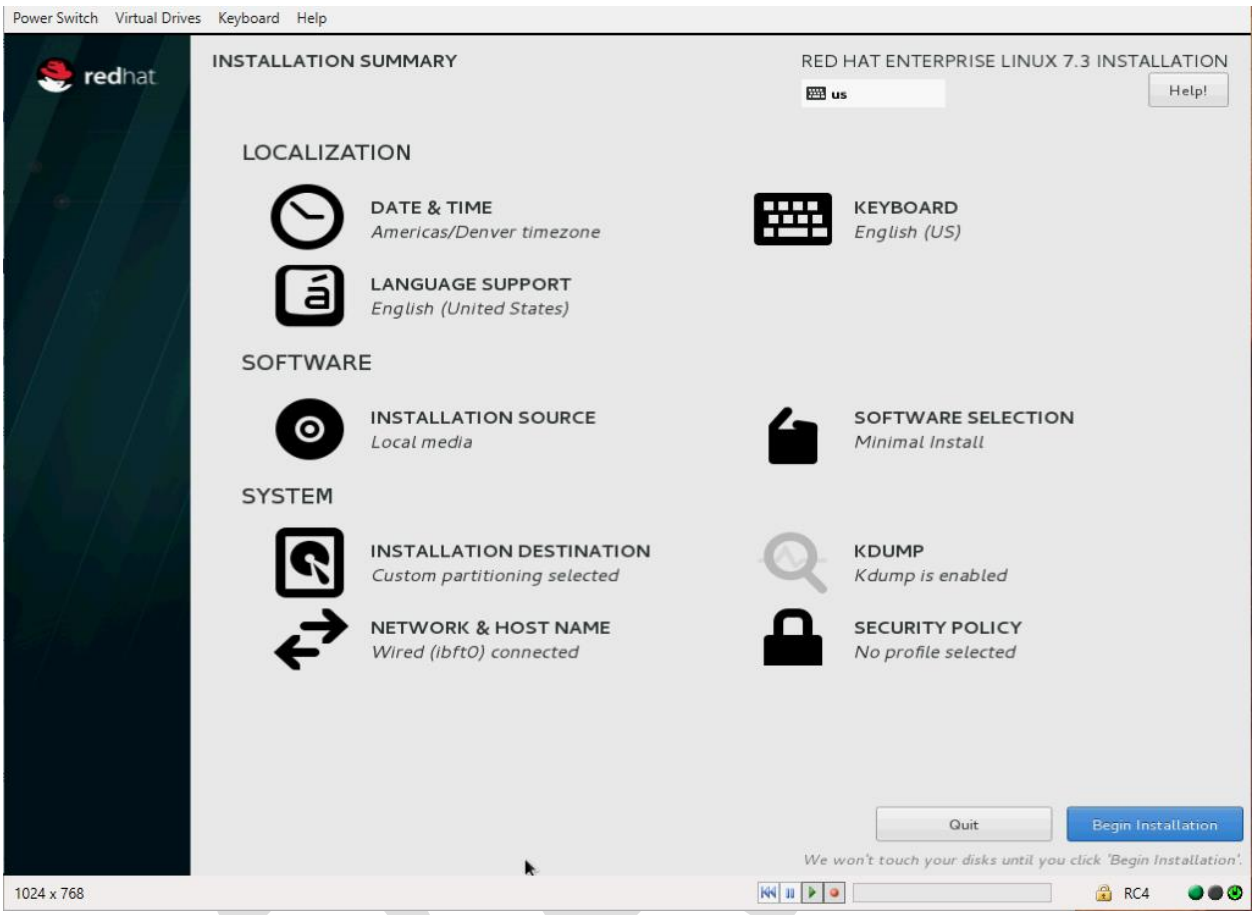
c. Swap partition configuration

Including a swap partition in HPE Image Streamer boot/run volumes can consume a large amount of its boot/run volume space, especially when used with many servers. With large memory severs the swap partition becomes a very small extension to physical memory and an evolving best practice is to not use it.

Consider the following swap partition options when using HPE Image Streamer:

- Delete the swap partition with kdump turned off.
- Configure a small, multi-MiB swap partition with kdump turned off.
- Delete the swap partition and configure a swap/kdump partition on a local disk drive in the deployment plan.

In this example the swap partition is deleted.



d. When partitioning is complete:

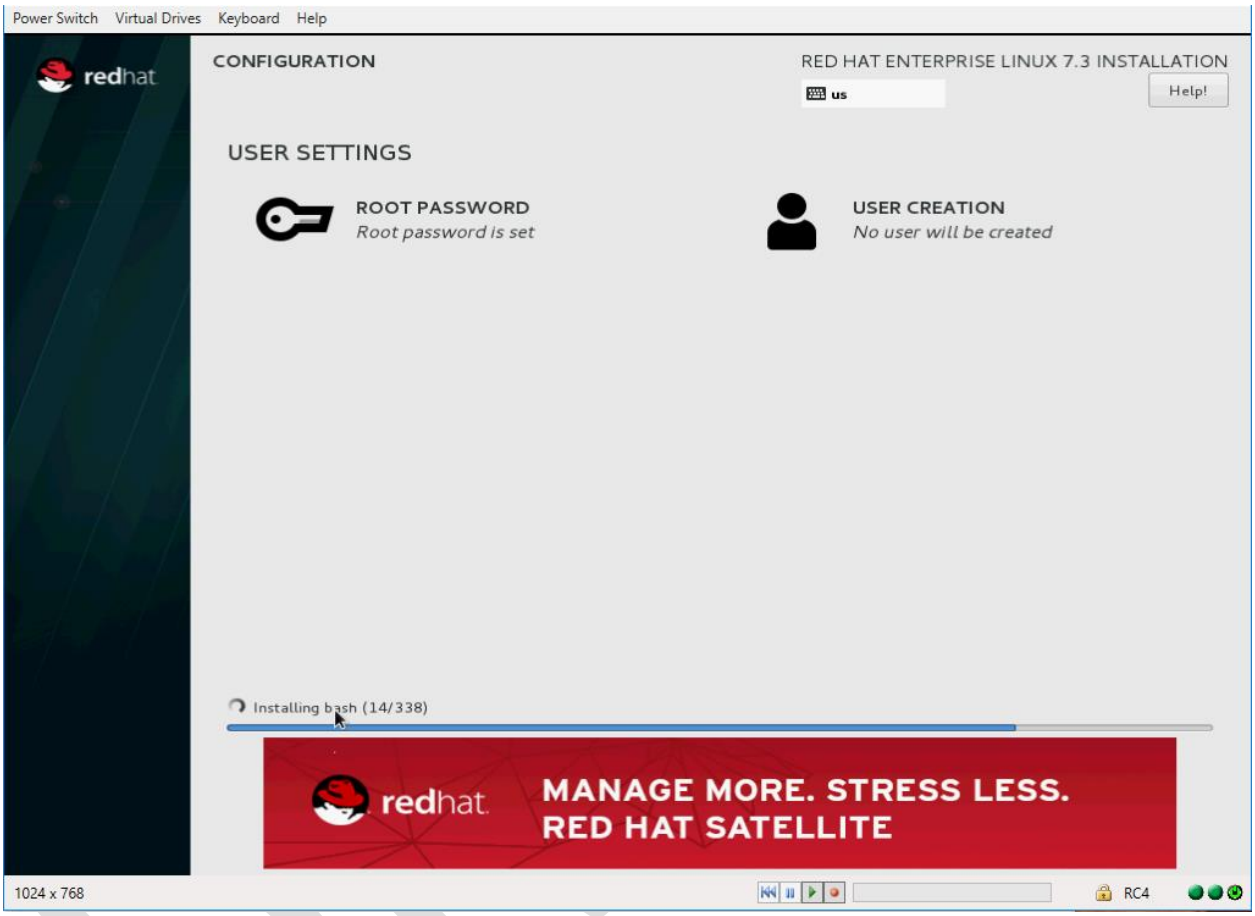
Select Done.

e. Continue with installation:

Select Begin Installation.

G. Configure User Settings and complete installation

Generally the personalization process for individual boot/run volumes will include setting the root password and adding users. However, to validate this base golden image is captured as intended a temporary root password should be set.



a. Set the root password

Select the Root Password option.

b. Finish configuration once installation is complete:

Select Reboot.

c. Validate installation

Once the server has rebooted login as root and validate that all installation options have been completed as desired.

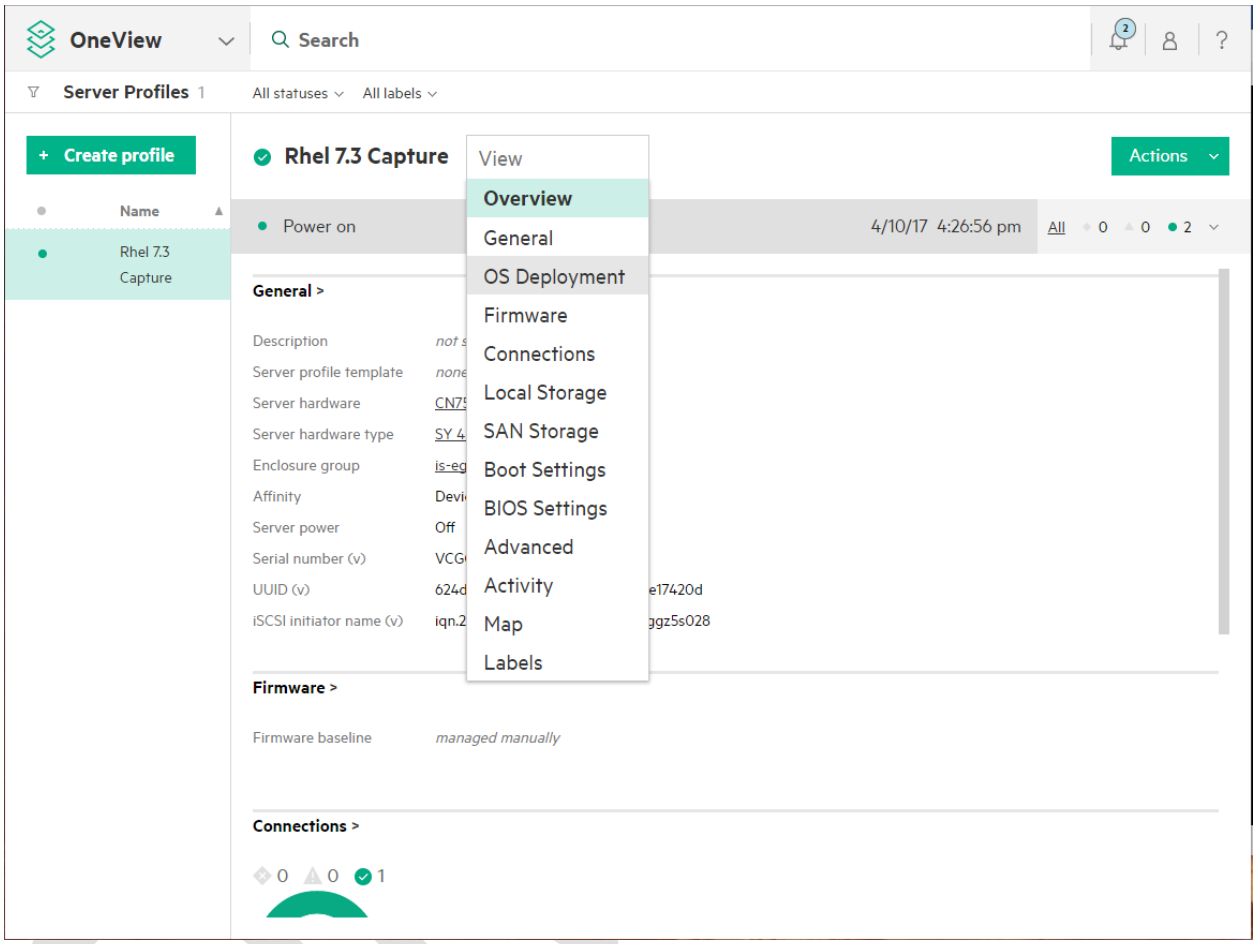
d. Shut down and power off the server

Once validation is complete shutdown and power off the server:

```
#shutdown –h 0
```

6. Capture the Golden Image from the Installed Volume

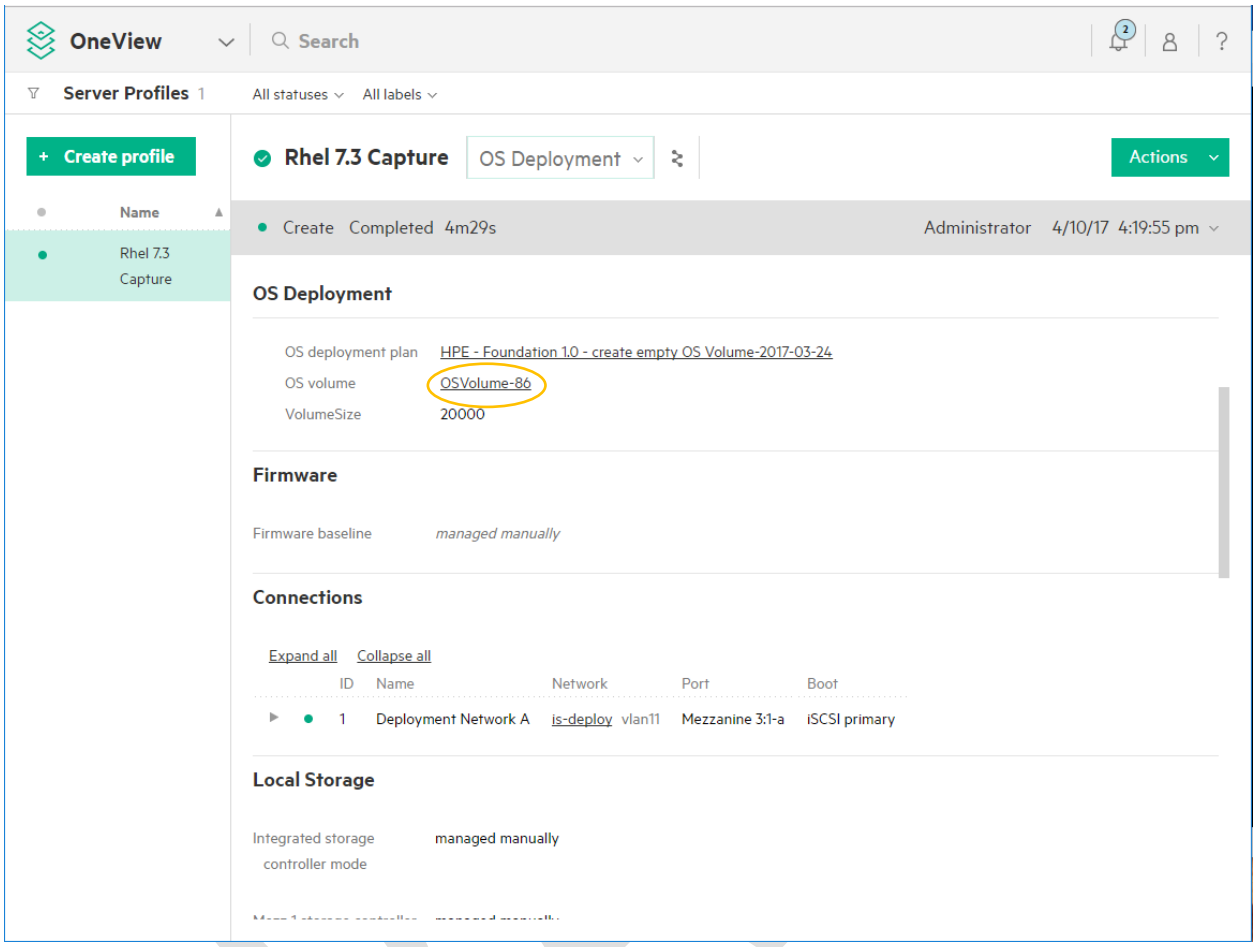
A. Determine the OS volume name for the installed volume



a. Return to Server Profile page for the provisioned server

In this example the RHEL 7.3 Capture Server Profile created earlier.

Navigate to the OS Deployment section of the Server Profile.

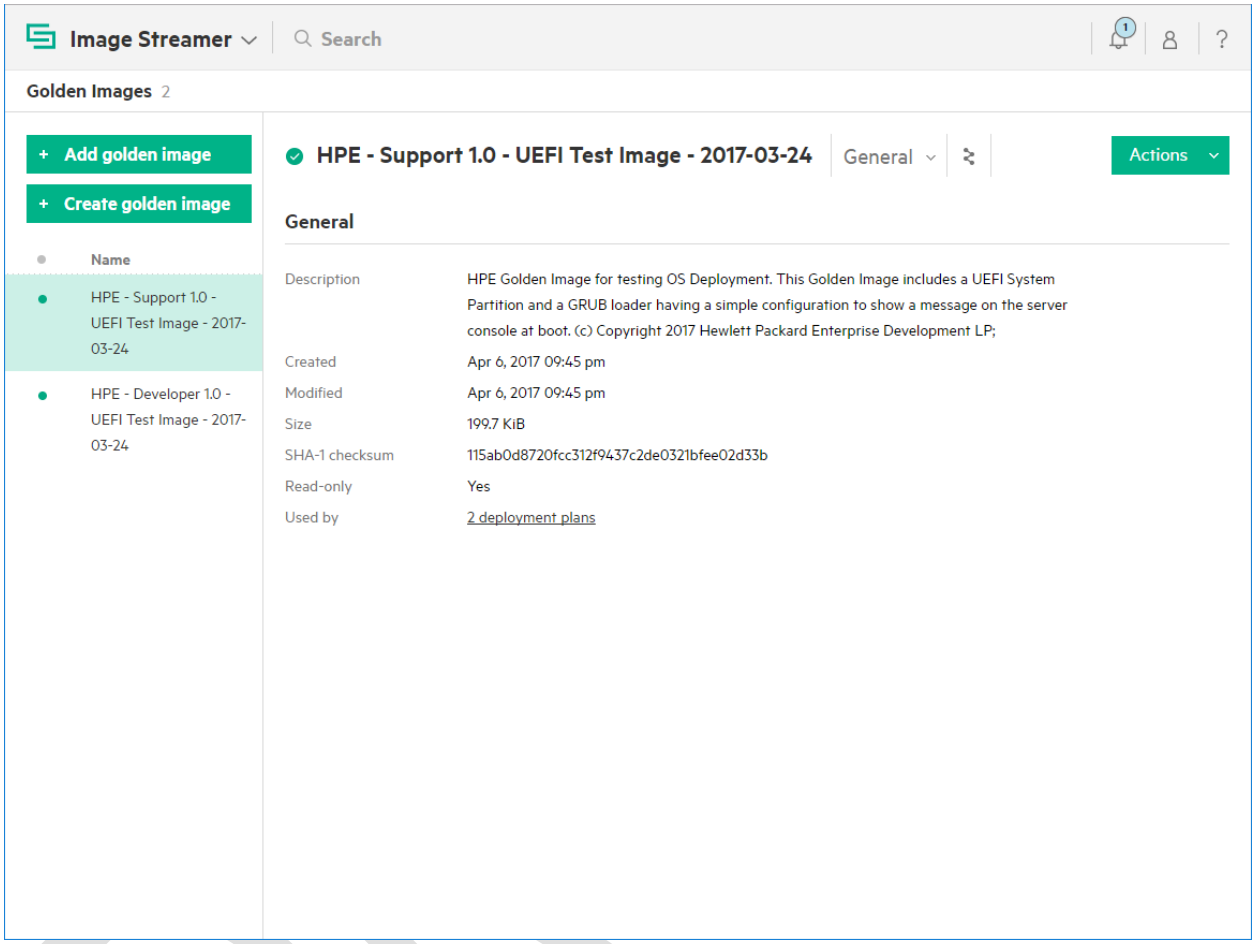


b. Note the OS Volume name which was deployed

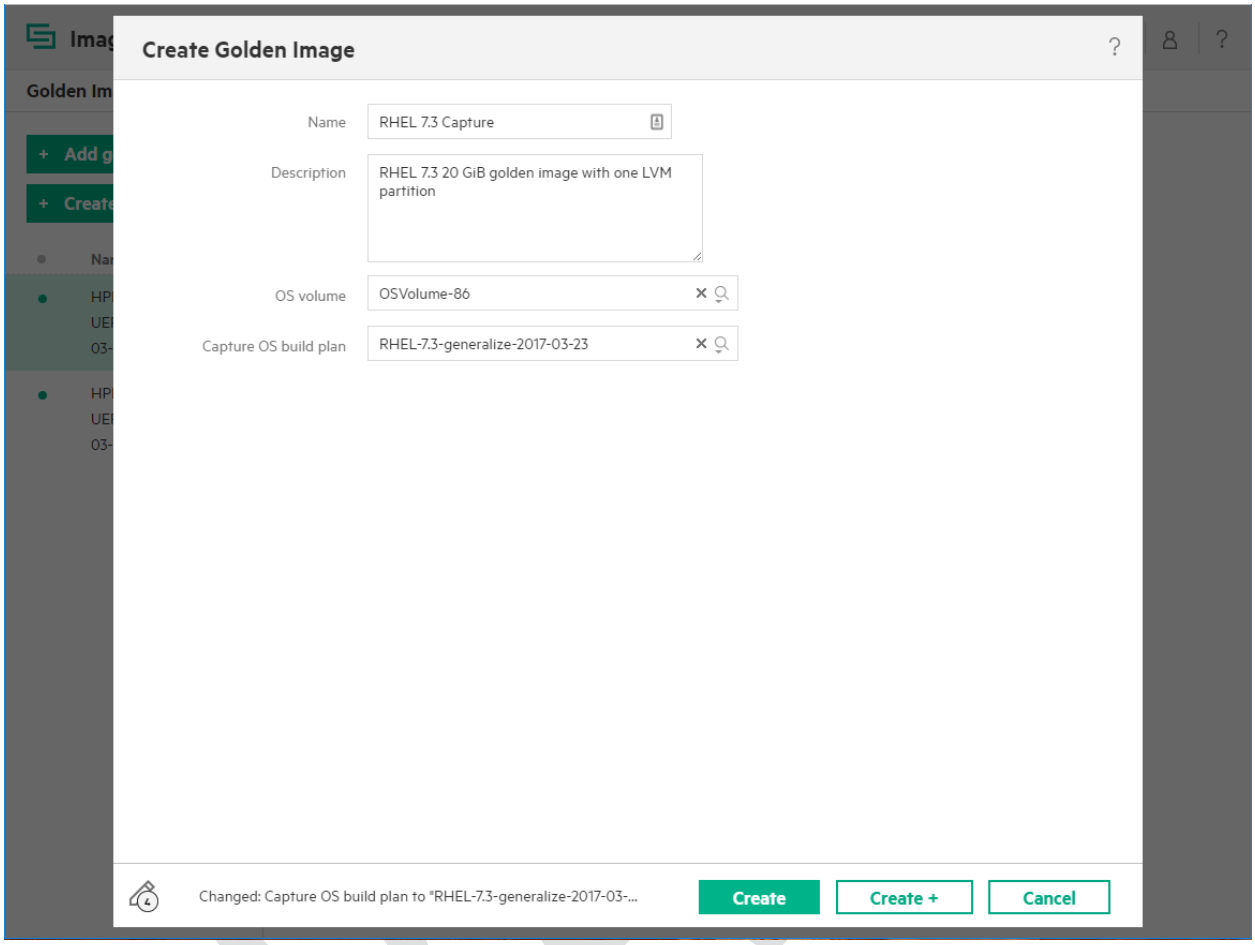
In this example OS Volume-86.

B. Capture the OS Volume

Navigate to the HPE Image Streamer Golden Images page.



a. Select Create golden image



b. Specify Name and Description

Enter a Name and Description as desired.

c. Specify the OS volume

Use the dropdown box to find the OS volume previously noted.

In this example OSVolume-86

d. Specify the Capture OS build plan

Use the dropdown box to select:

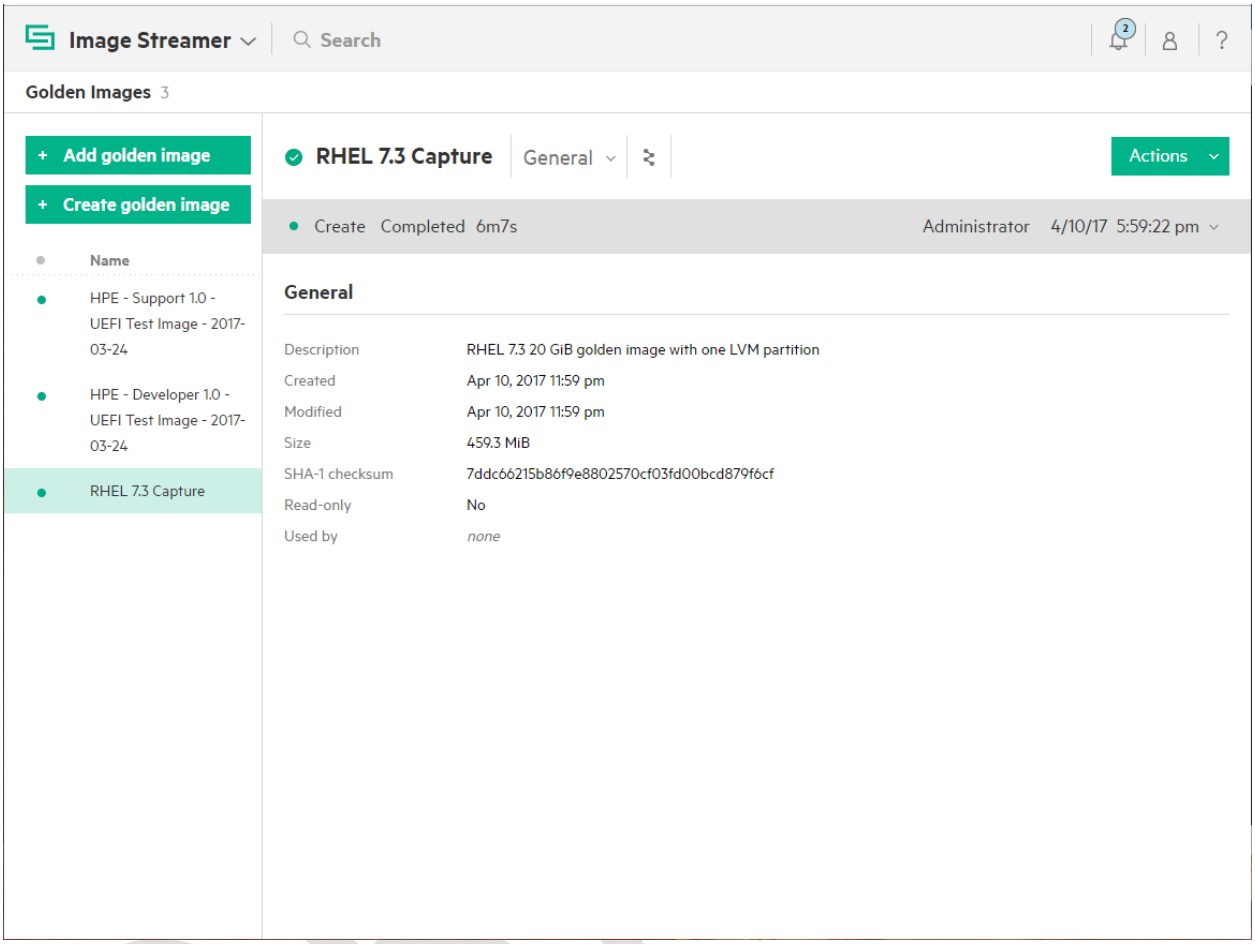
RHEL-7.3-generalize

The plan name may include version number details not shown here.

e. Start the capture process

Select Create.

7. Congratulations!



The golden image is now available for use in deployment plans based on RHEL 7.3.

If desired the server profile used to create the golden image can be deleted from the server hardware so the server hardware can be used for other purposes.