Quantum Smart NVR

Software Initial Configuration Guide

Part Number: 6-69043-01 Rev A

Quantum

Quantum Smart NVR Software Initial Configuration Guide

Contents

Requirements and Prerequisites

This section describes the requirements and prerequisites required before starting the Smart Network Video Recorder (NVR) server installation.

If you have sized the server using the Quantum sizing tools, or as a pre-sales activity, the following physical configuration requirements are not necessary to review. If, however, the system is to be installed using a software-only method (that is, purchased the Smart-NVR `.iso` from Quantum directly), you should review the Physical Server Requirements.

Physical Server Requirements

The following minimums must be met before installation. Performance can vary depending on the selected hardware components. You should consult your Sales Associate, or Pre-Sales Engineer, for proper sizing.

Component	Quantity
CPU	Minimum of six cores.
RAM	Minimum of 32GB.
Boot Disks	2x mixed use (3DWPD) SSDs or M.2s (minimum of 480GB each) in RAID 1. You can use 2x SAS HDDs, but is not recommended for best performance.
Capacity Disks	Count of 4 or more disks, to meet the retention or other storage requirements.
RAID on Data Disks ***Note:*** After 12 HDDs, counts must be even (that is. 12, 14, 16, 18, and so on…)	• 3 to 5 HDDs, RAID-5 (n+1) • 6 to 16 HDDs, RAID-6 (n+2) • 18+ HDDs, 2 volumes @ 9+ HDDs, RAID-6 (n+2) • 36 HDDs, 3 volumes @ 12 HDDs, RAID-6 (n+2) To Provide additional ingest levels. • 60 HDDs, 5 volumes @ 12 HDDs, RAID-6 (n+2) To Provide additional ingest levels.
NICs	2x or 4x 1Gb; OR 2x or 4x 10Gb

BIOS Settings

Upon first boot, you must confirm that the following items are set in the BIOS. The exact setting name can vary from vendor to vendor, and in some cases from version to version with the same vendor.

- Adjust the BIOS (if not default) to use **Maximum Performance** for CPU. This ensures that the BIOS does not throttle the C States of the processor(s), based on the power saving.
- Validate that **Virtualization Technology** is **Enabled**. This setting, usually under Processor settings guarantees that the virtualization can run.

Network Requirements

- The Smart-NVR software allows for either an open/flat network for flexible configuration, or a network where VLANs already exist. VLAN configurations require up-front knowledge of the switch setup and tags and could require additional switch modification as necessary.
- You must know the Gateway IP, any DNS IPs, and netmasks that will be used during deployment.
- A network range of 5+ IPs are required, and you should consider the following minimums. Obviously, many more IPs for associated cameras and other network-attached devices should be considered but are outside the scope of this guide.

IP Count Need	Usage
1	Server IP. This IP is used as the dedicated IP for the server and allows for navigation to the Louvre Dashboard for user configuration and monitoring tools.
3	OpenStack internal monitoring instances. These are not dedicated and float within the range based on a customer's specified needs.
1+	An IP for every virtual instance that a customer might want (that is separate instances of the following: A recording server, + a management server + a Mobile server would equal 3 IPs).

Other Requirements

The following requirements are necessary to continue to the next steps of the system installation. The term Intelligent Platform Management Interface (IPMI) is meant generically, referencing any vendor's implementation (that is iDRAC (Dell), IMM (Lenovo), IPMI (Supermicro), or iLo (HPE), and so on).

- IPMI mountable media with the Smart NVR ISO:
  - This could be a USB (direct connection to the server), or a remote system connected using IPMI that has the appropriate license to allow for virtual media to be connected to the server.
- Keyboard, monitor and mouse to connect and access the server, during BIOS, installation, and powering activities.

Installing the Smart NVR Software

The Smart NVR software is either pre-installed using a factory process or supplied as licensed `.iso` software, which has the base OS, as well as the software packages necessary for setting up the Smart NVR.

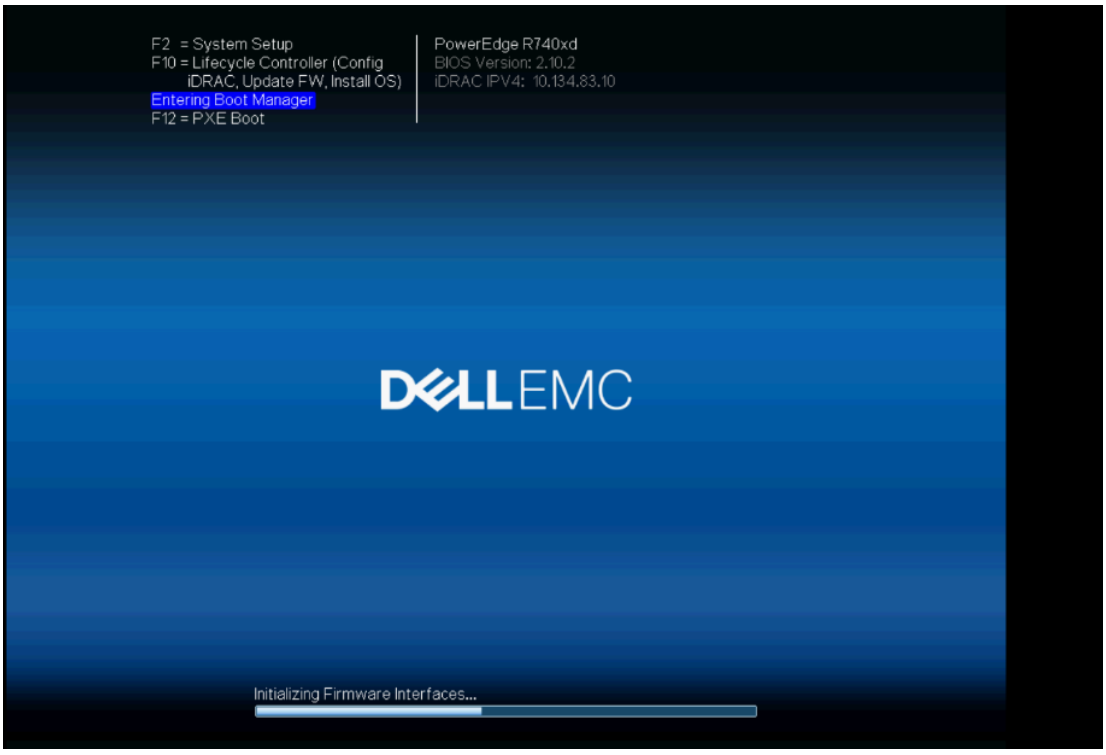
The following steps describe the Smart NVR software installation.

- Step 1: Booting the server (initial steps)
- Step 2: Configuring, installing, and monitoring the ISO deployment
- Step 3: Configuring the network information
- Step 4: Installing the ISO
- Step 5: Monitoring the ISO deployment
- Step 5b: Adding a `.raw` image for faster customer deployment
- Step 6: Configuring the Smart NVR
- Step 7: Deploying the Smart NVR

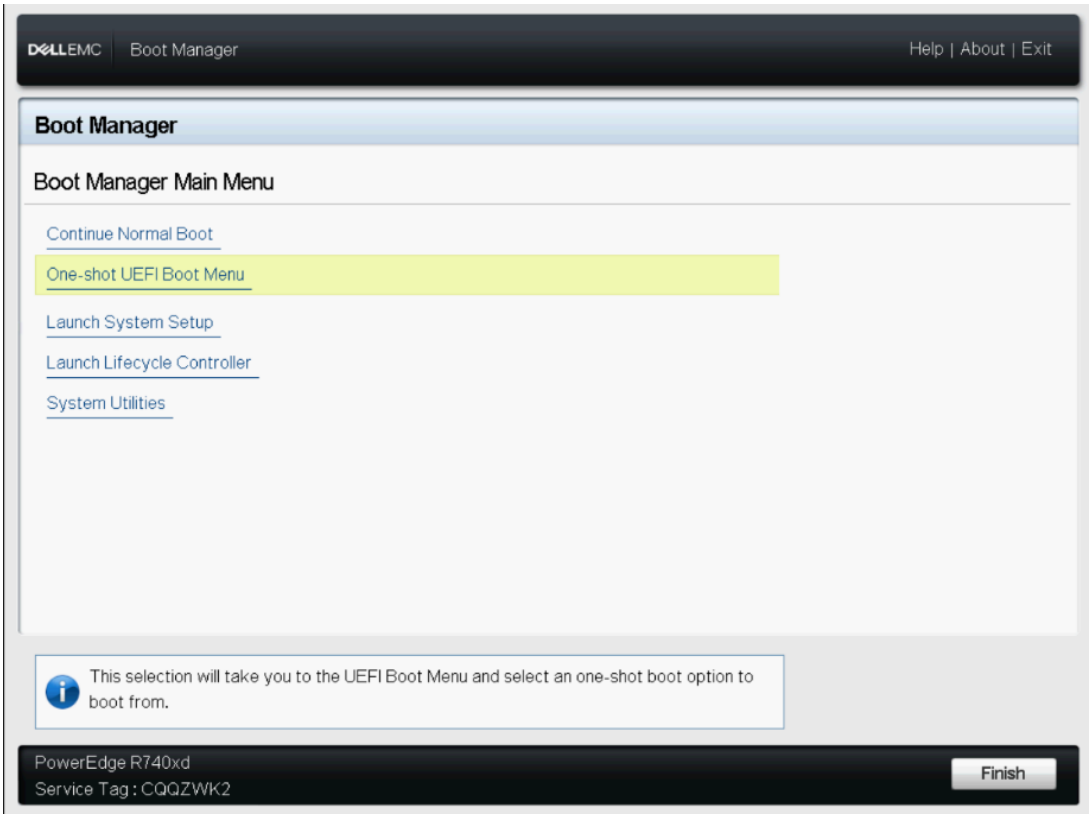
Step 1: Booting the Server (Initial Steps)

Using pre-provided `.iso` software, prepare to boot the server.

1. Attach the mountable media to the server, and connect using remote IPMI, or KVM (keyboard, video, mouse). You can mount the media using USB, or the `.iso` via a virtual mount over the IPMI connection.
2. Boot the server by pressing the power button on the server or using an IPMI command. If you have not already done so, enter and validate the BIOS settings and then update any RAID configurations not present (see table in Physical Server Requirements), and then reboot.
3. During the server boot load, go to the vendor's **BOOT Manager** by pressing the shortcut key given in the options (in below Dell example, F11 is used).

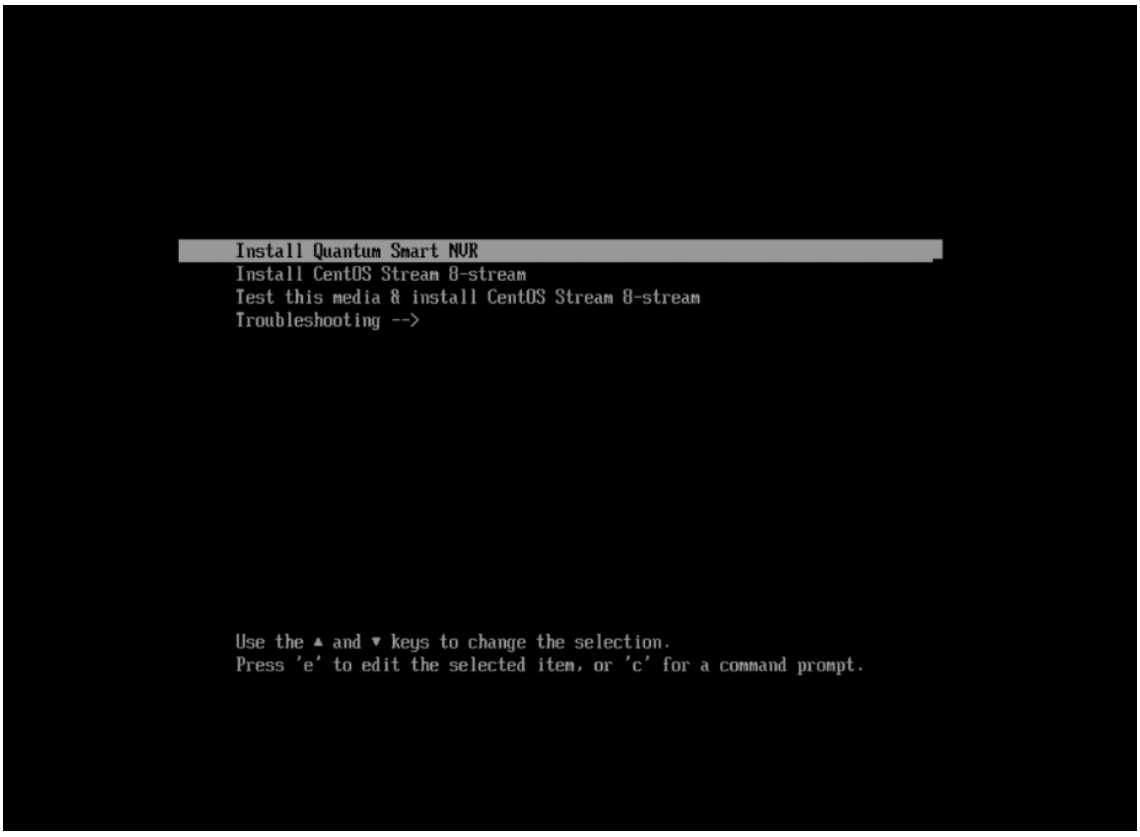


4. Using the boot selector (**One-shot UEFI Boot Menu**, in following screenshot), boot to the appropriate media `.iso`. This Boot Manager / One-Shot option can vary depending on the server vendor.



If the one-time boot option using Boot Manager, is not available, you can manually select or change the boot order using the **System Setup > BIOS Settings**.

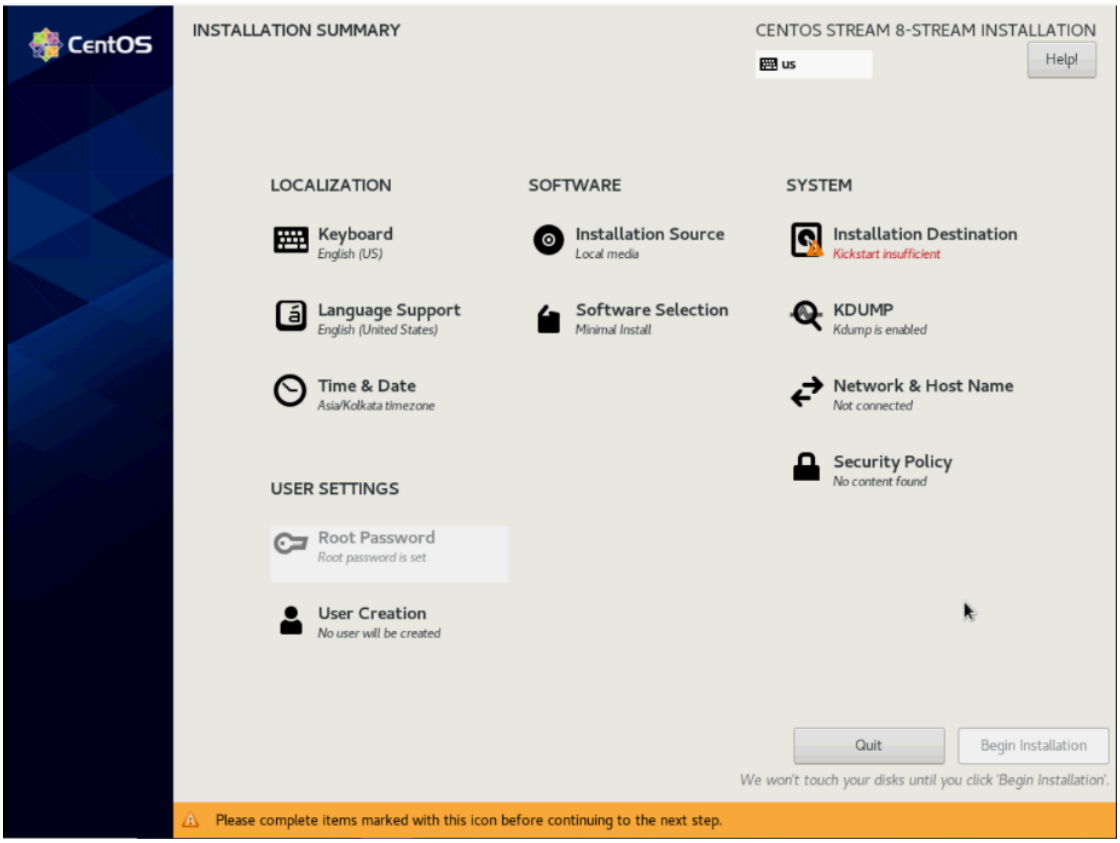
5. Booting the server from the mounted media (USB or virtual) displays the list of options, as seen in the following screenshot. Using the arrow keys on the keyboard, select the **Install Quantum Smart NVR** option and press **Enter**.



Step 2: Configuring, Installing, and Monitoring the ISO Deployment.

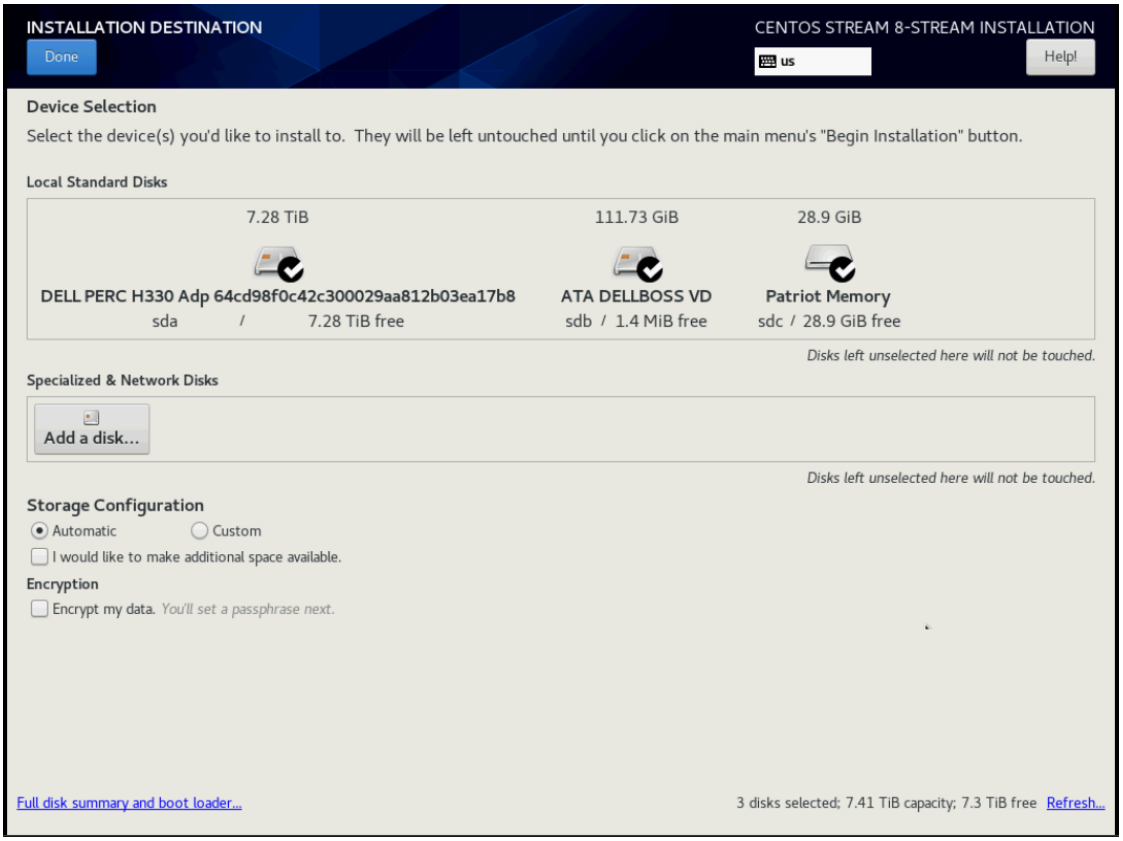
To configure the ISO installation destination and partitions, complete the following steps:

1. On the **Installation Summary** screen, select **Installation Destination** to specify the partitioning structure of the boot media.



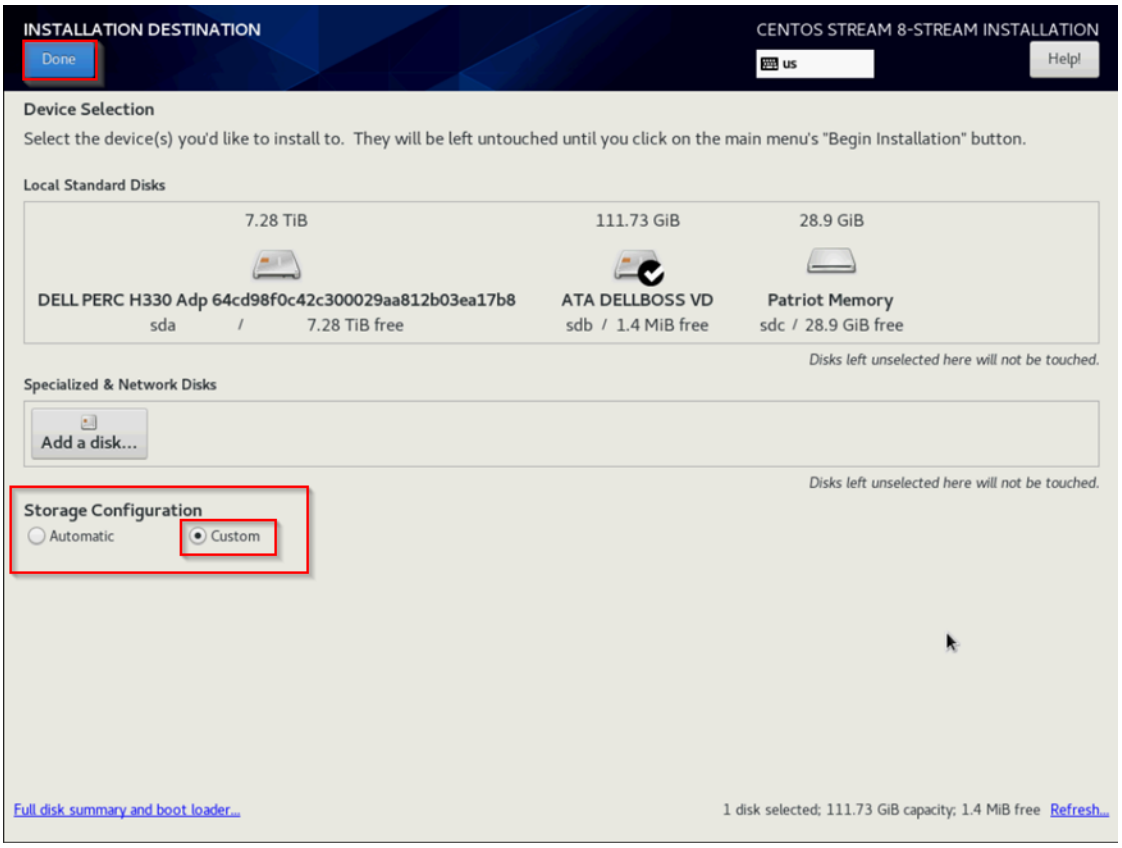
2. In the Device Selection section, select the disk(s) where you want the OS installed (hint: RAID 1/Software RAID of 2x M.2 or SSDs for OS install, should be selected not RAID 5 or RAID 6 HDDs, HDDs used with a software RAID, or any other connected devices).

***NOTE**: All disks are selected by default, deselect any disks where the OS will not be installed.*

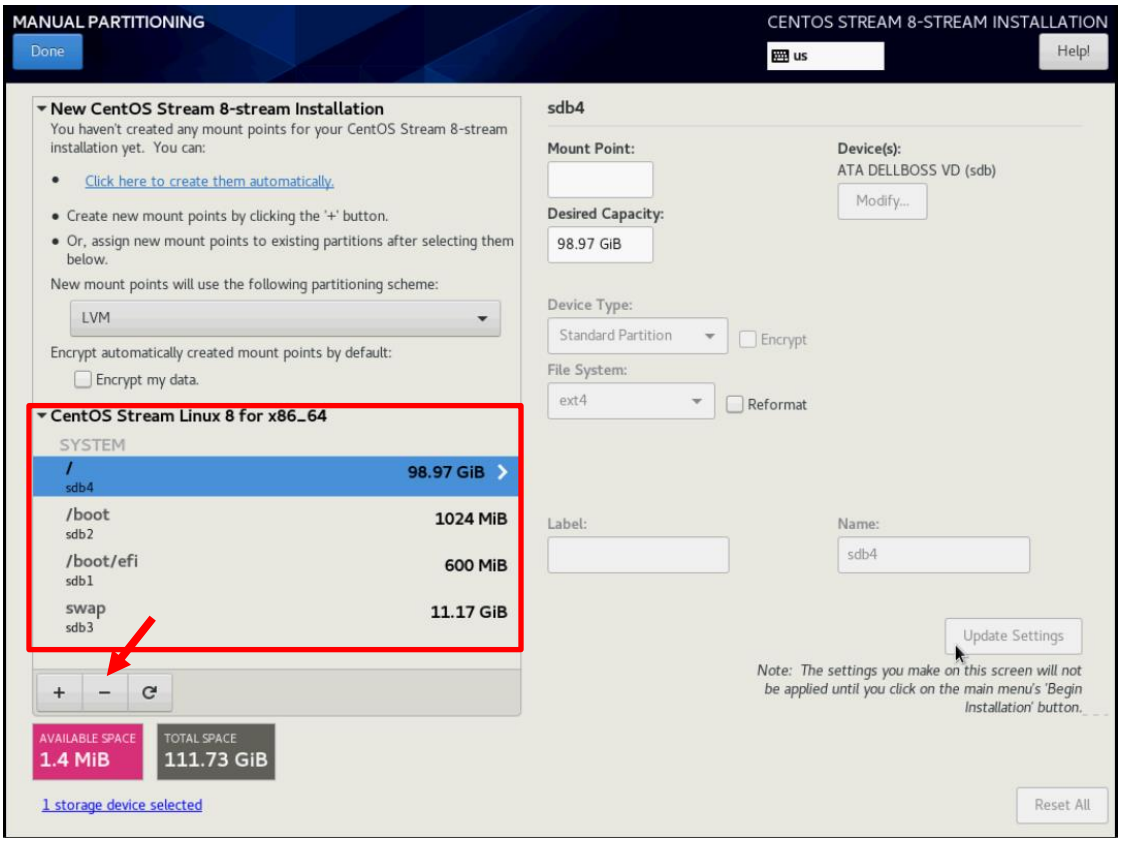


If hardware RAID is configured, select only one disk. If you require software RAID, select the 2x M.2/SSD disks for a software RAID 1 to install the OS.

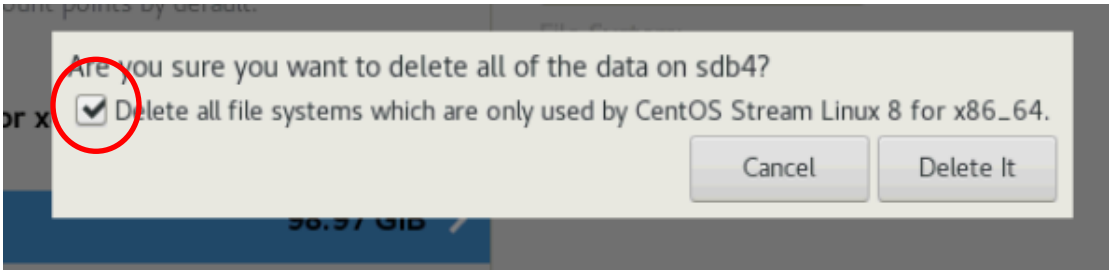
3. Once the correct disk is selected, Click **Custom** under **Storage Configuration**. Then click **Done.**



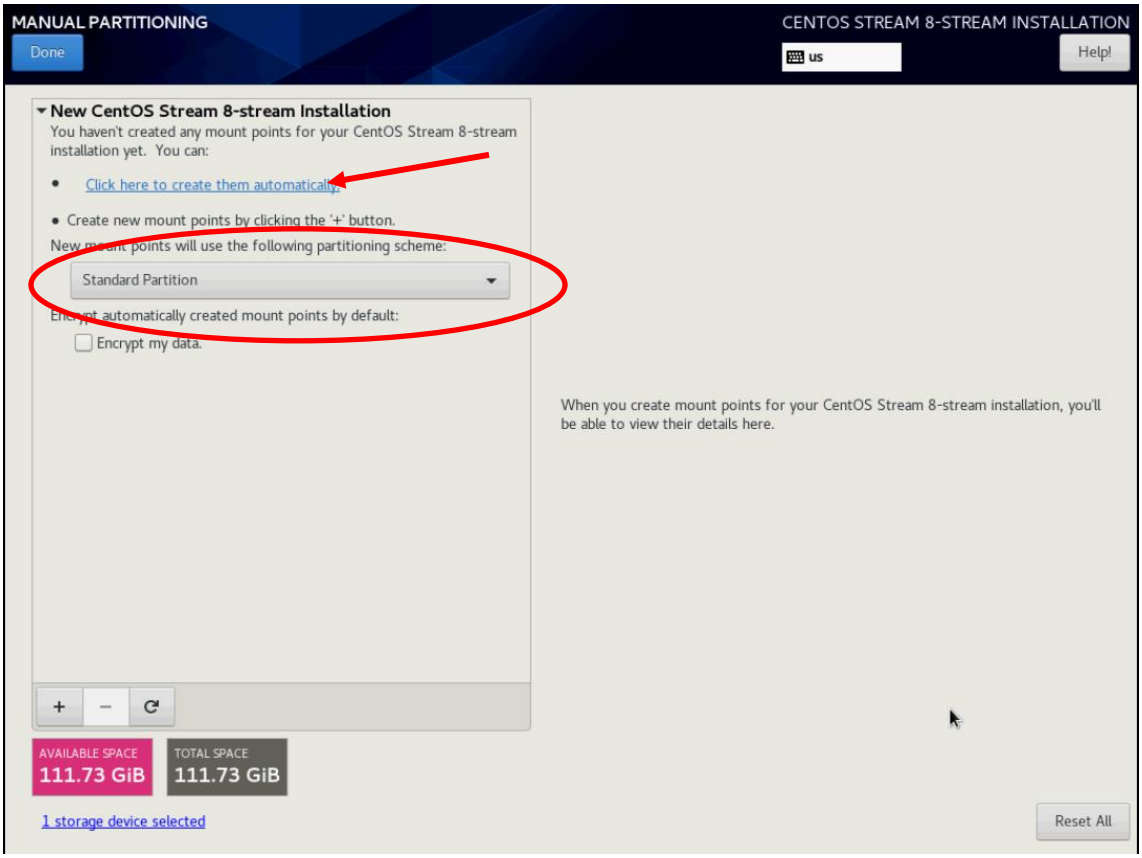
4. In the **MANUAL PARTITIONING** window, remove any partitions **if present** by clicking on the partition and then click the minus (**-**) sign.



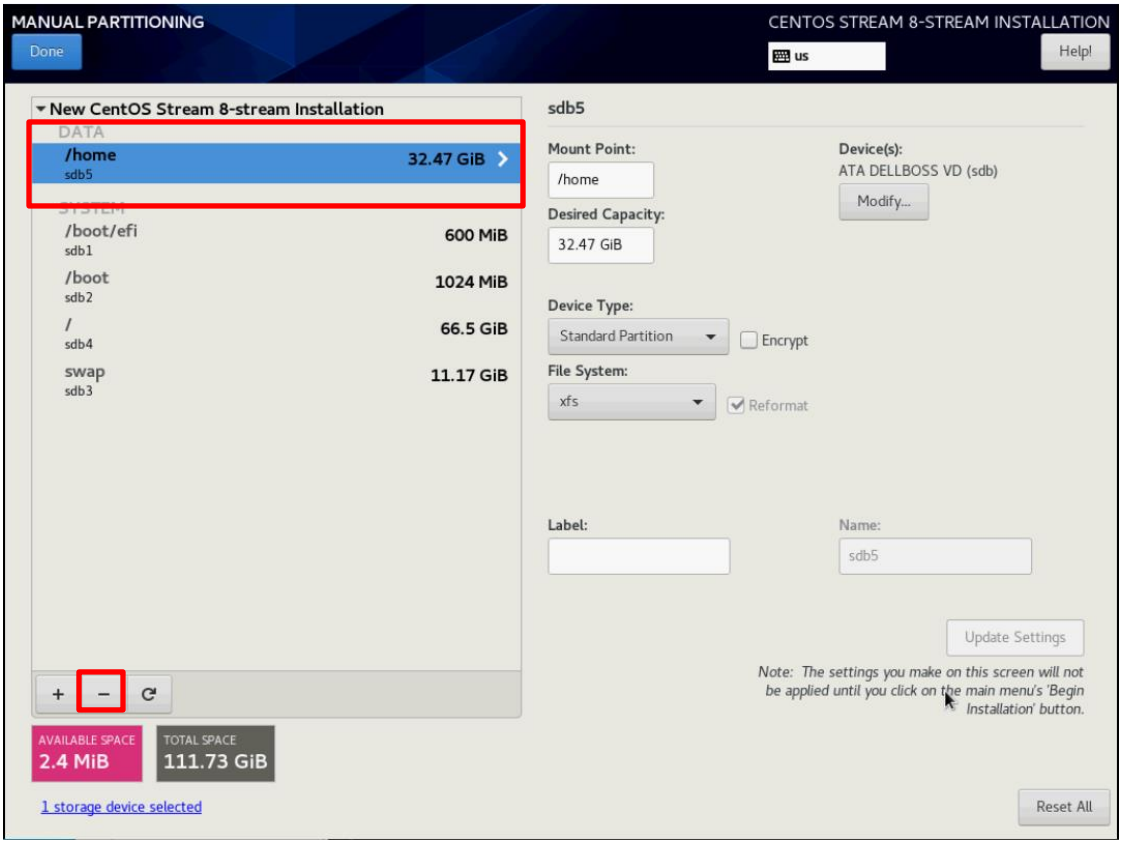
5. Select **Delete all file systems which are only used by CentOS stream Linux 8 for x86_64** and then confirm by clicking **Delete It**.



6. Change the **New mount points will use the following partition scheme** to **Standard Partition** and then select **Click here to create them automatically**. Five partitions are created:
   - /boot
   - /boot
   - /efi
   - /
   - swap
   - /home.



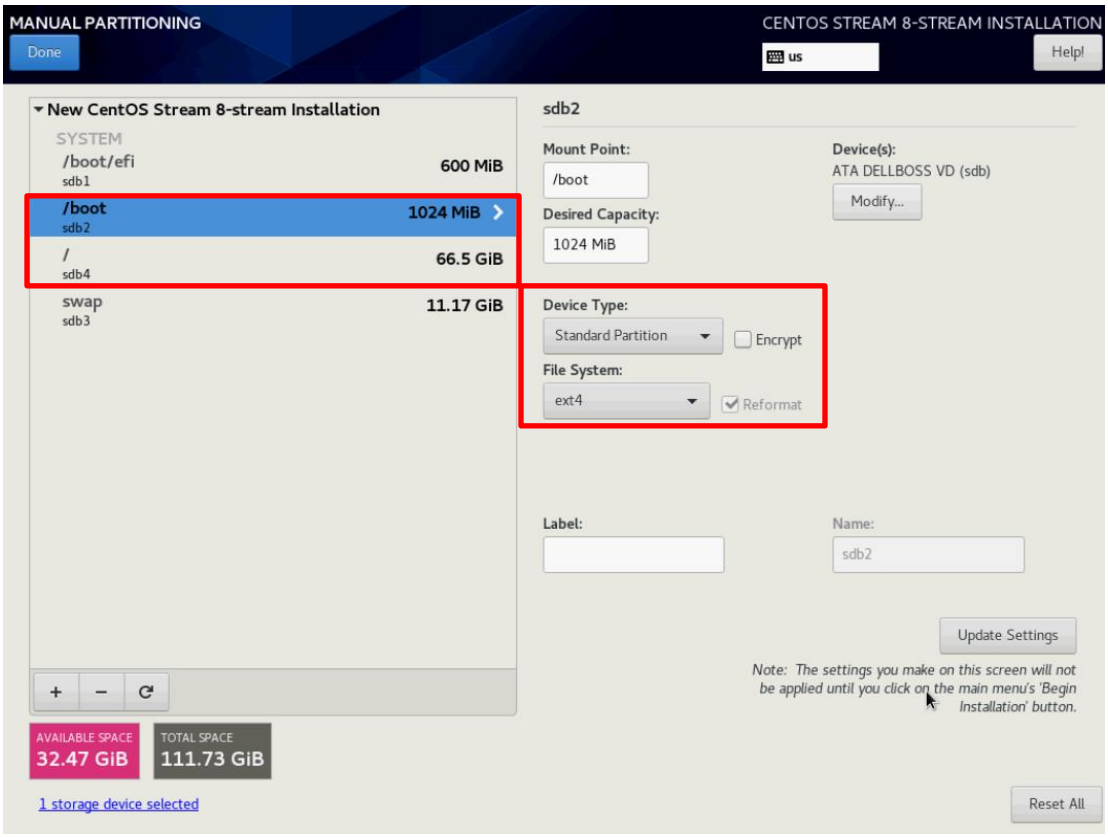
7. Remove the **/home** partition by clicking minus (**–**) sign.



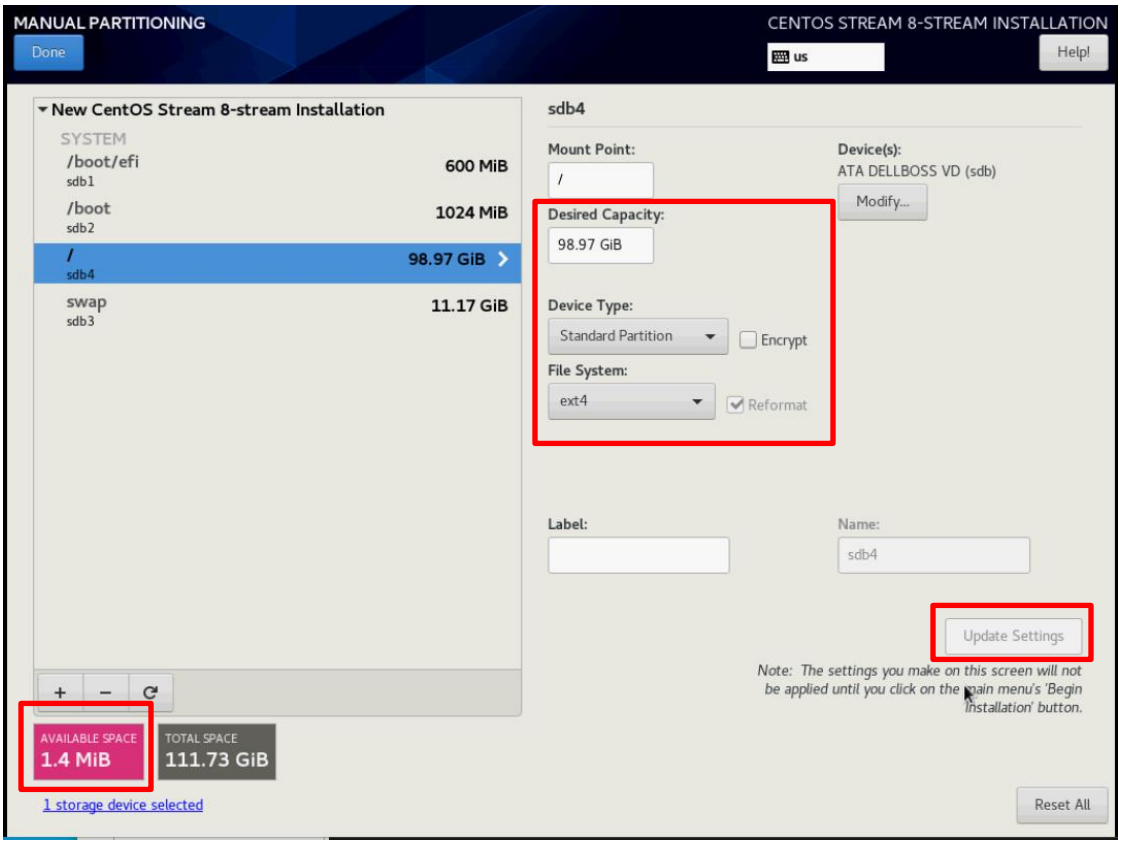
8. Modify the partition configurations as follows:

   a. If you require software RAID, select **RAID** for device type. Otherwise, select **Standard Configuration**, except for ***/boot***, ***/efi***, and ***swap***, which should default to **efi**, and swap types for each.

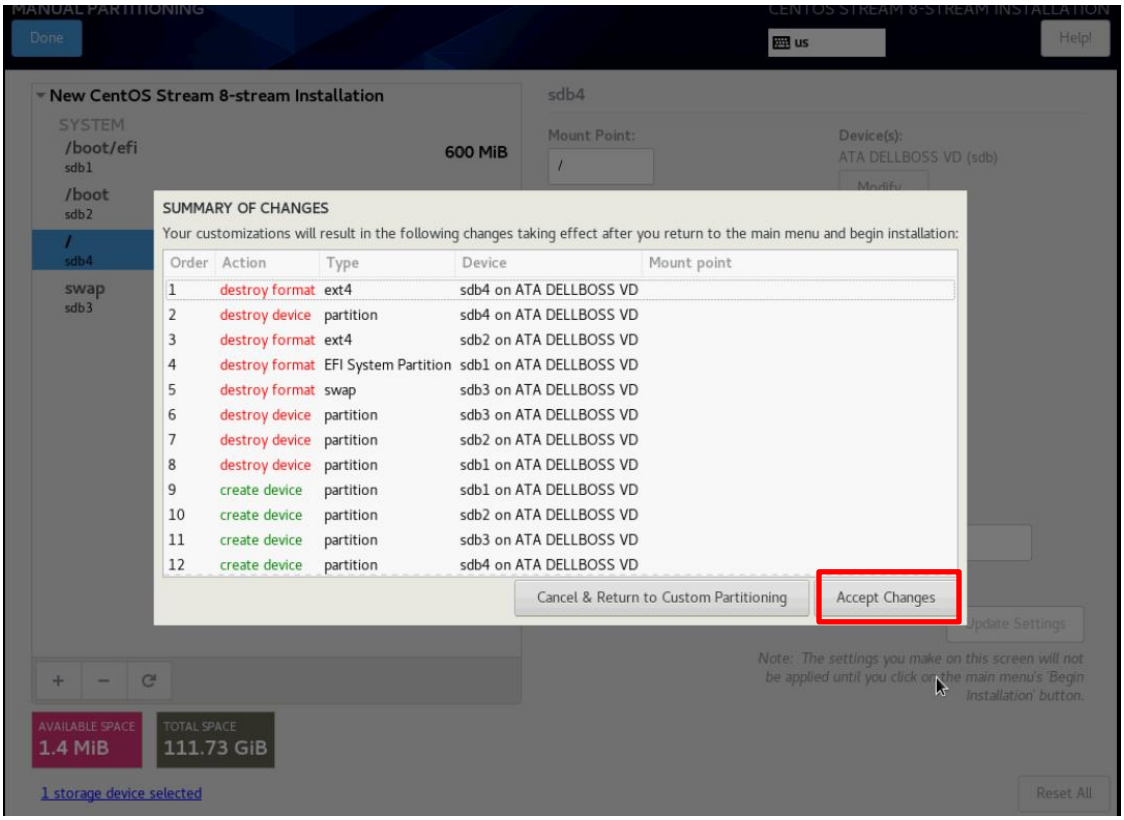
   b. If hardware RAID is configured, specify Device Type: **Standard Partition**. Do the same for the **/boot** and **/** partitions. Change the File System to **ext4**.



c. Change the **Mount Point** value to **/** to use up all available space. Under **Desired Capacity**, select a size larger than what is available, for example, 550 GiB. Click **Update Settings**. The maximum allowed **Desired Capacity** will auto adjust.



d. Select **Done** in the top-left corner and then **Accept Changes** in the pop-up dialog.

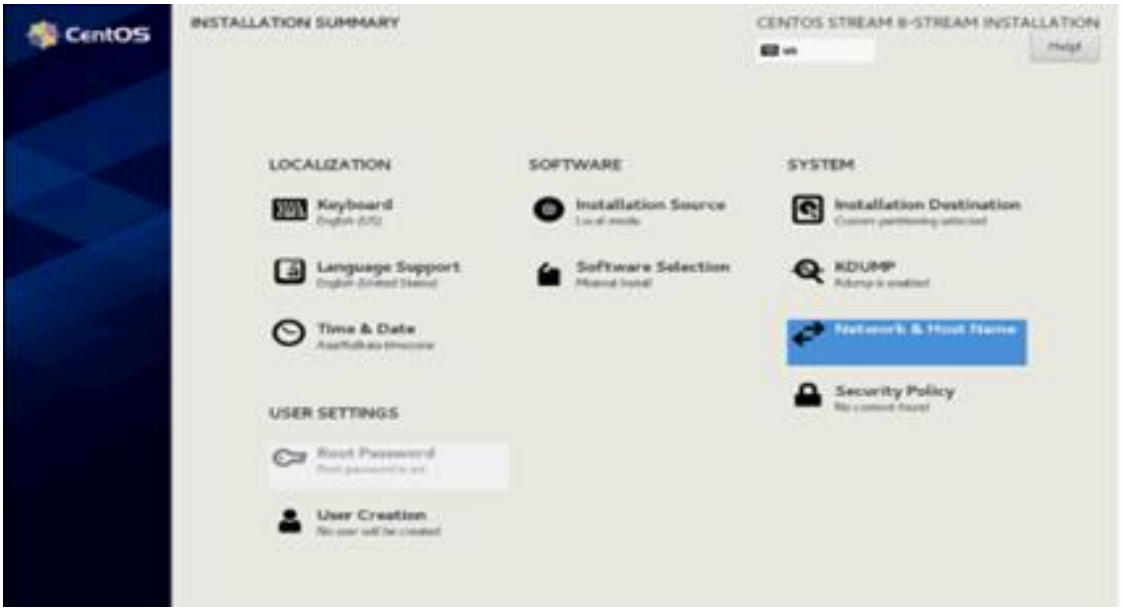


Step 3: Configuring the Network Information

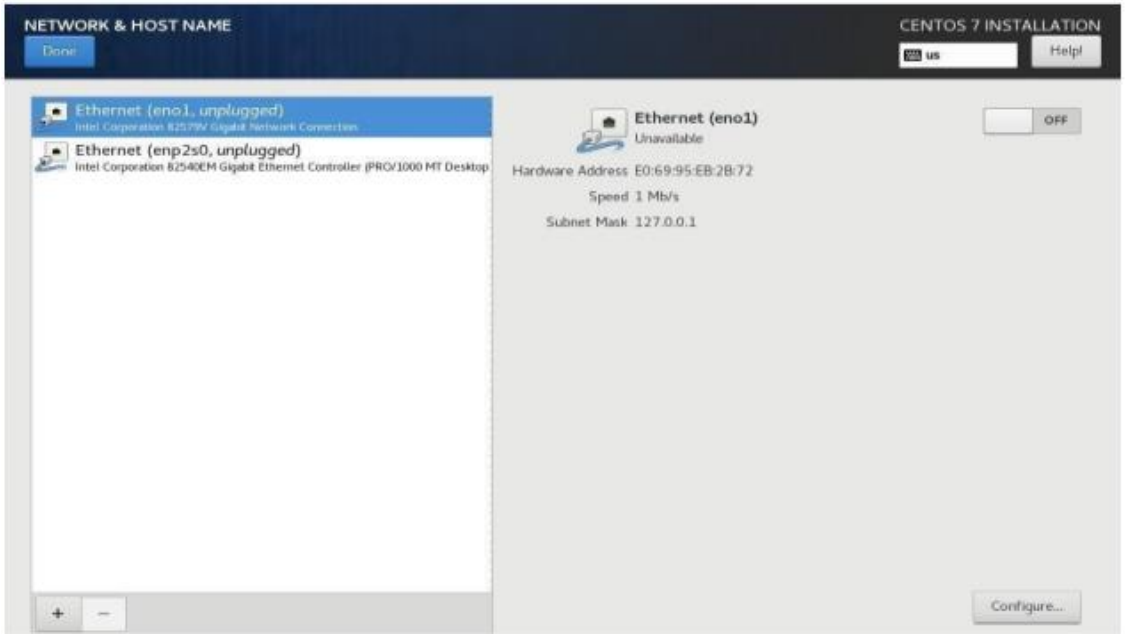
This step is skipped at the factory, because Dynamic Host Configuration Protocol (DHCP) is needed to do a secure copy (scp) of the VM `.raw` images before the Smart NVR deployment, and a static Automatic Private IP Addressing (APIPA) IP is set in that step.

To configure the network information, complete the following steps:

1. Select **Network & Host Name** to set the server IP.



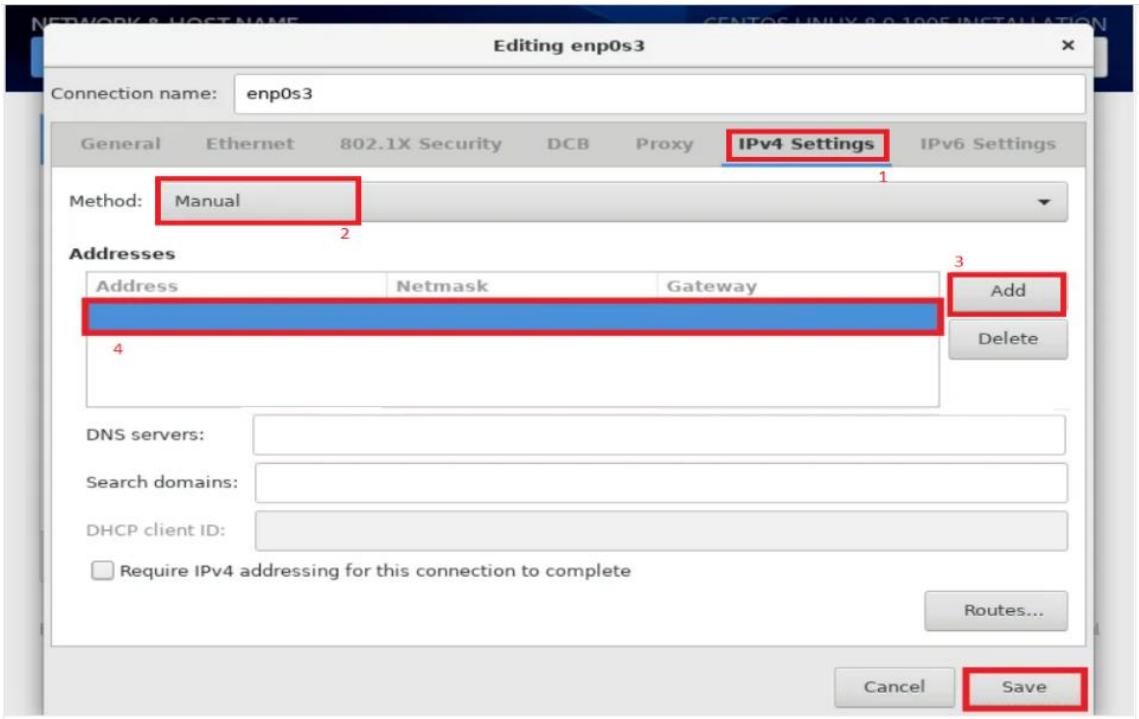
2. Select **the first interface** to assign an IP to the server. Click **Configure**.



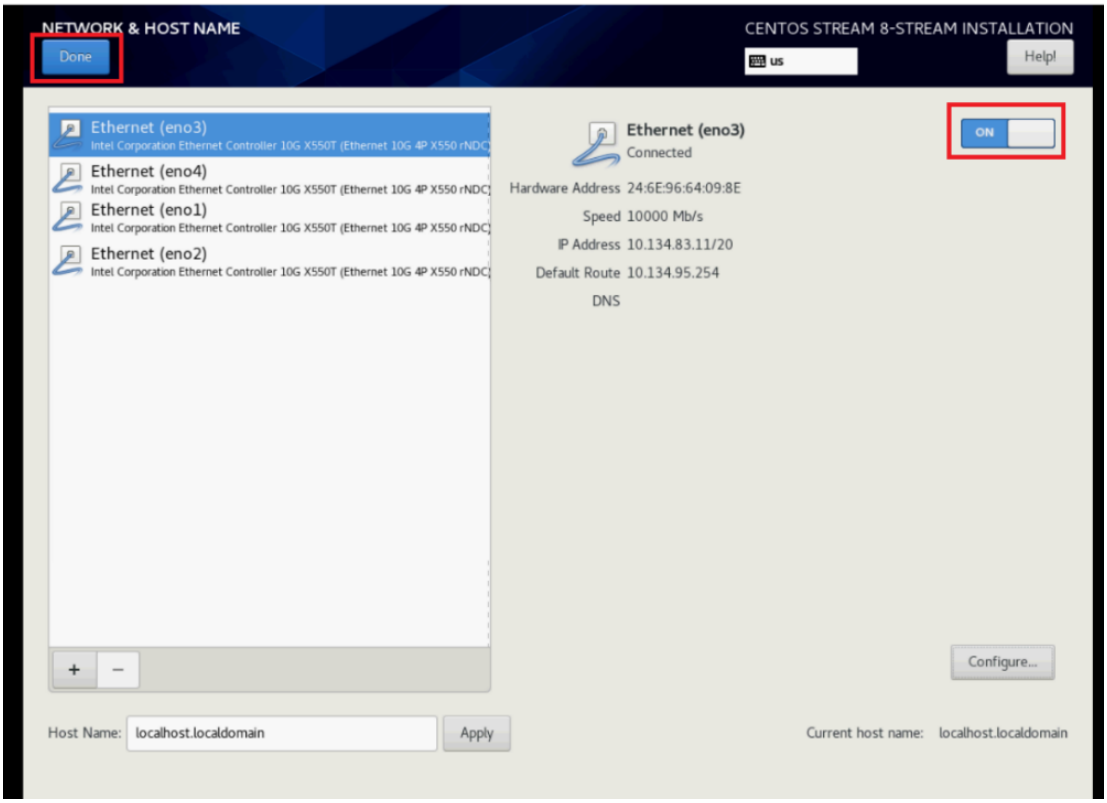
a. From the popup window, select **IPv4 Settings** > **Method** > **Manual**.

b. Click **Add** and enter the **IP Address**, **Netmask**, and **Gateway IP**.

c. Click **Save**.



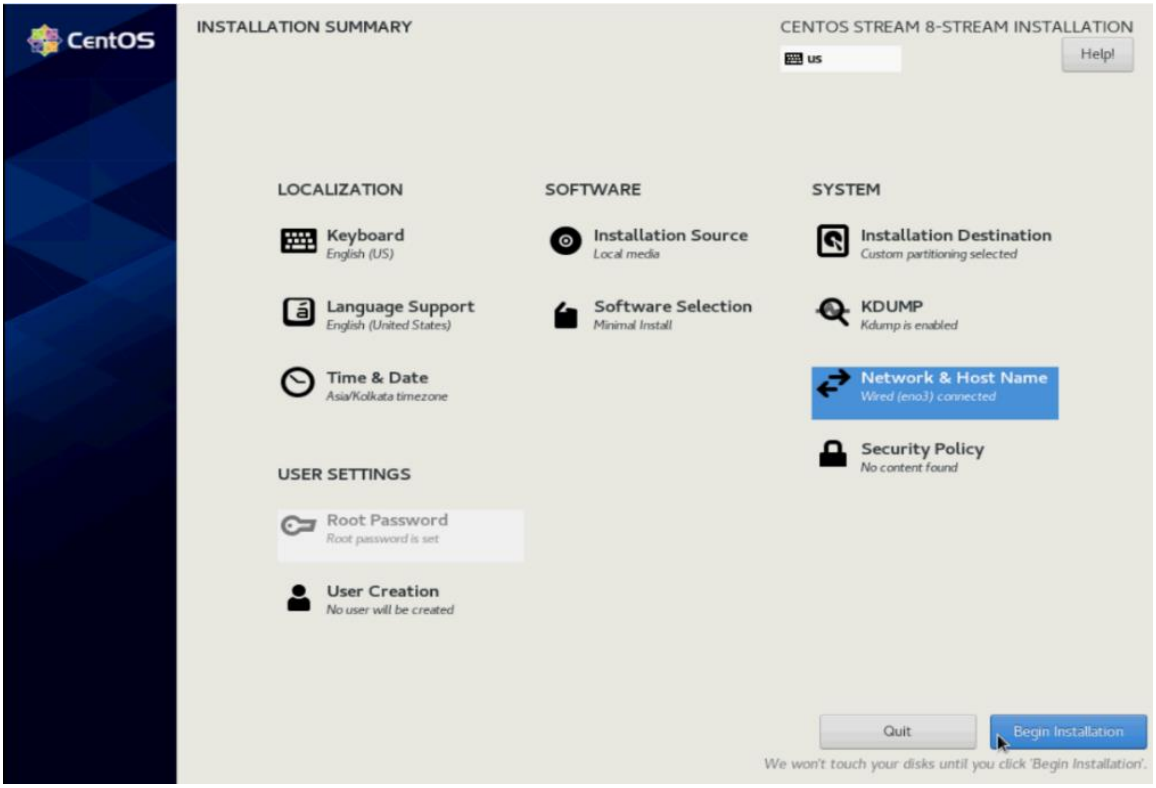
d. Click on the **slider** to connect the interface. The information is displayed once the interface is connected. Click **Done**.



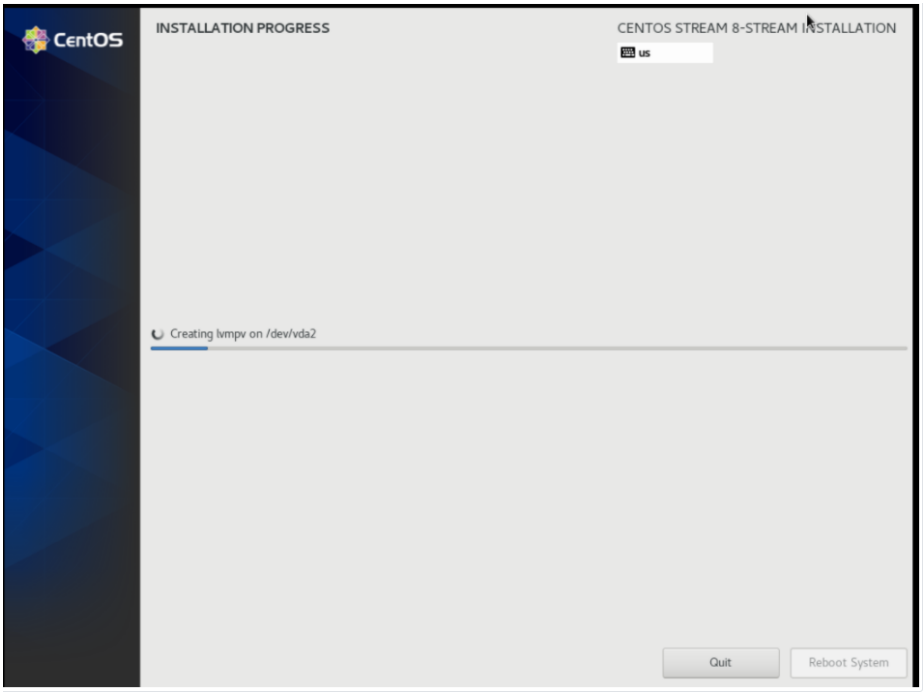
Step 4: Installing the ISO

To install the ISO, complete the following steps:

1. On the Installation Summary page, click **Begin Installation** to start the installation process.



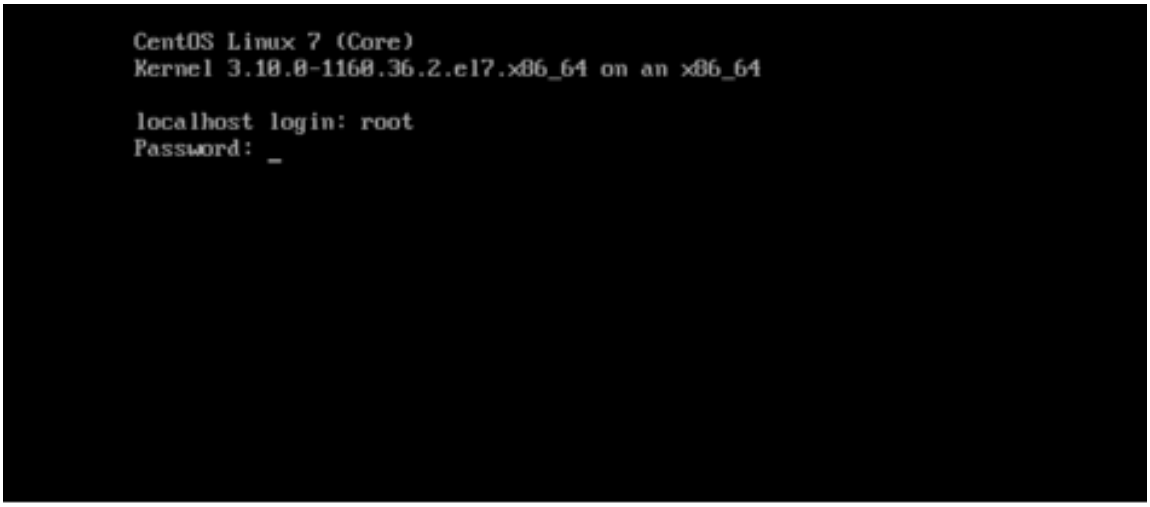
The installation progress will start and take some time to complete landing the necessary files.



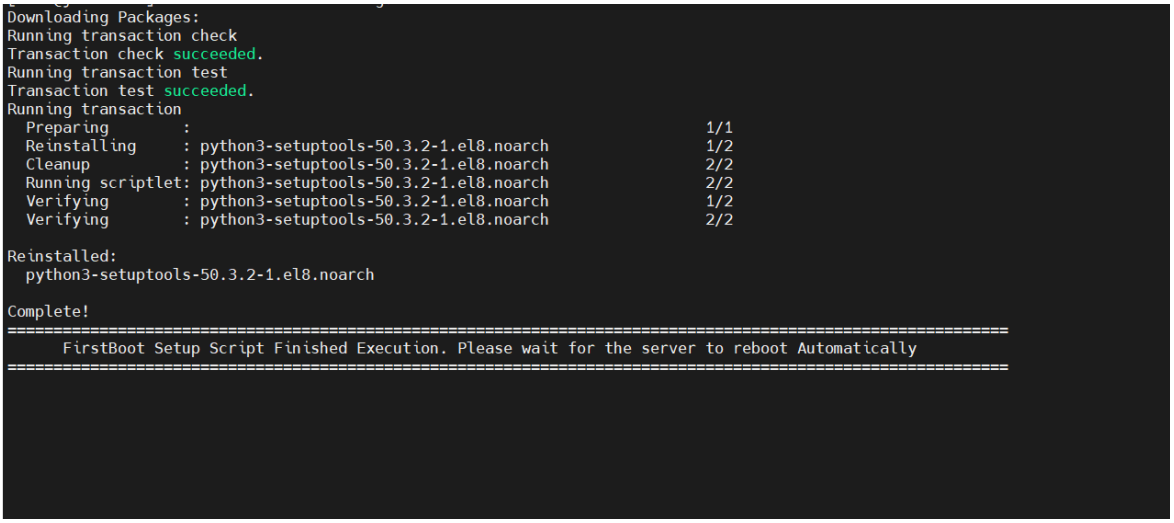
Step 5: Monitoring the ISO Deployment

1. Once the installation has completed successfully, click **Reboot System**, and monitor the system reboot.

2. Once the system boots, log in with the username **root** and password **server1011q2w**.



3. The remaining scripts are executed automatically on reboot. Once logged in, the terminal displays the status of the first boot scripts and installation activities. This progresses until the output shown on the following image is displayed indicating that the scripts and other activities are complete. After the execution is completed**, the server will reboot automatically** which is a second reboot (First one is the manual reboot done at the end of Step 1, the second one is this automatic reboot.)



Step 5b: Adding a `.raw` Image for Faster Customer Deployment

***NOTE**: This step is only performed at the factory, to provide for faster customer deployments.*

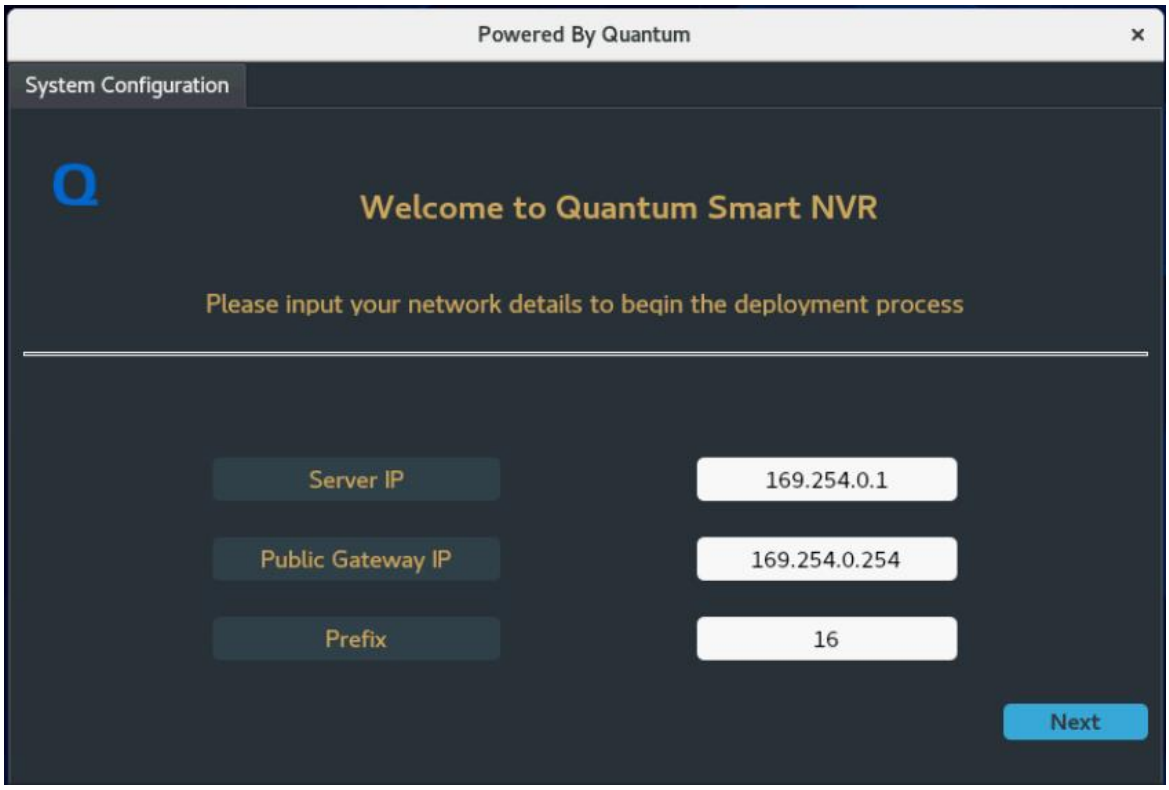
A special updated `.iso` is converted to a `.raw` image, and is made available for customers using a Windows Server 2019, that has many of our Video Surveillance best practice settings already configured. This acts as an available template that the customer can license (if used), for a quick deployment.

1. Using an scp tool (for example, WinSCP), with the aforementioned credentials (***root*** and ***server1011q2w***) connect to the server IP (a terminal session with command **`[#ip a ]`** may be needed to get this) and then copy the image (provided) under the **`~/enclouden/images`** subdirectory.

Step 6: Configuring the Smart NVR

To configure the Smart NVR, complete the following steps:

1. When the host returns from the automatic reboot, a GUI login with X running is presented. Log in again with the username **root** and password **server1011q2w**. The Smart NVR UI is displayed.
   a. For factory Smart NVR appliance setup, update the Server IP to **169.254.0.1**, Public Gateway to **169.254.0.254** and Prefix to **16**.
   b. For a Smart NVR software only install, select the desired IP for deployment.
2. Click **Next**.

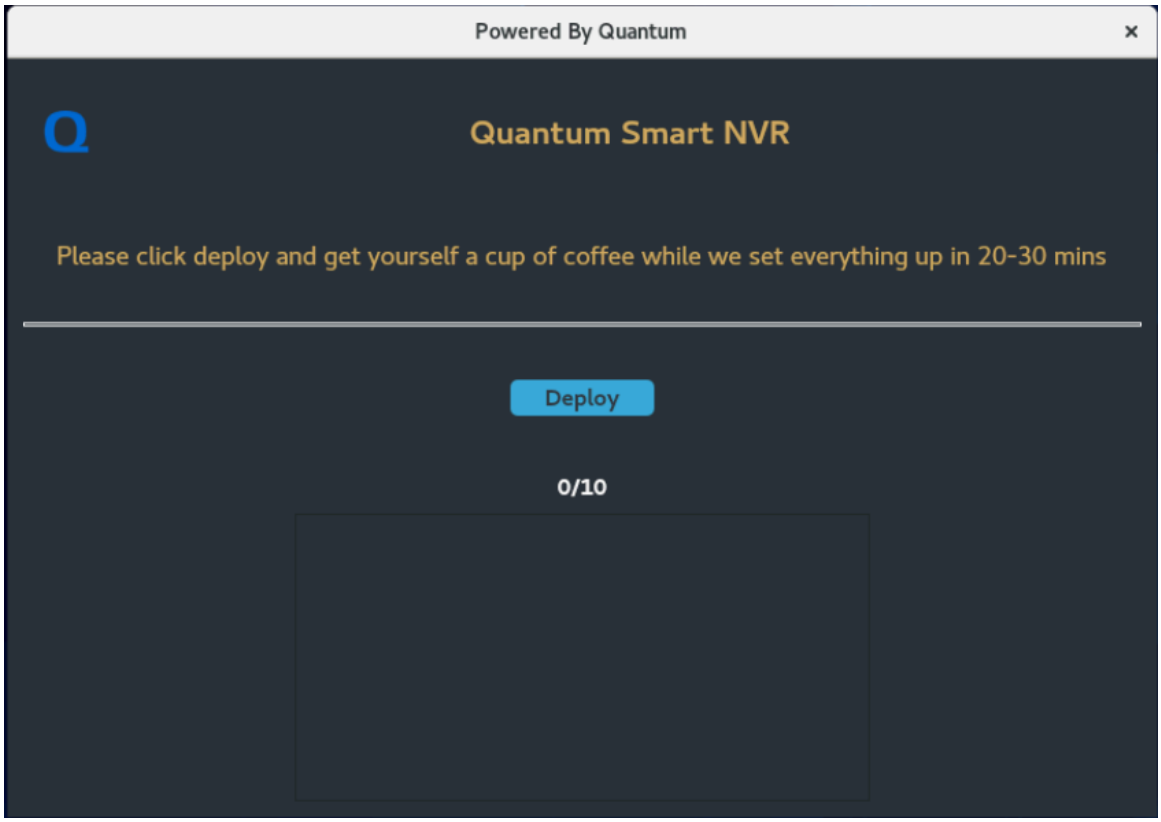


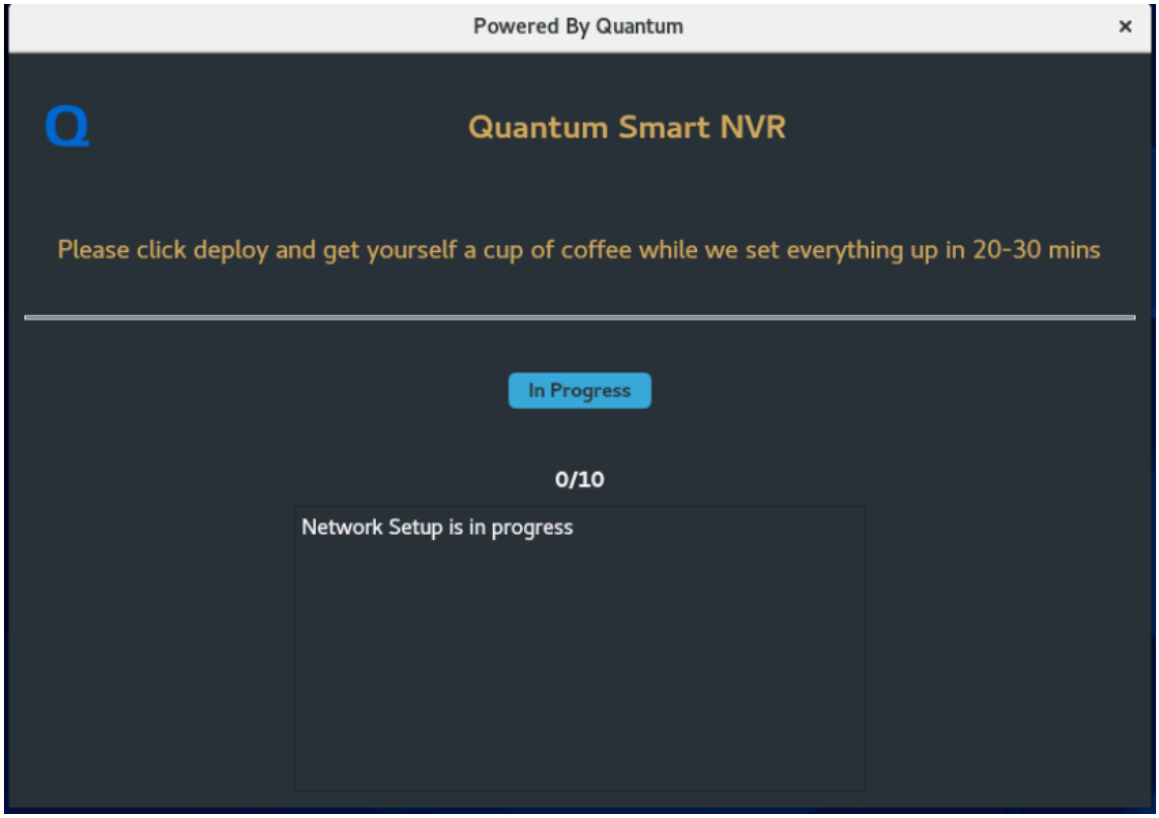
Step 7: Deploying the Smart NVR

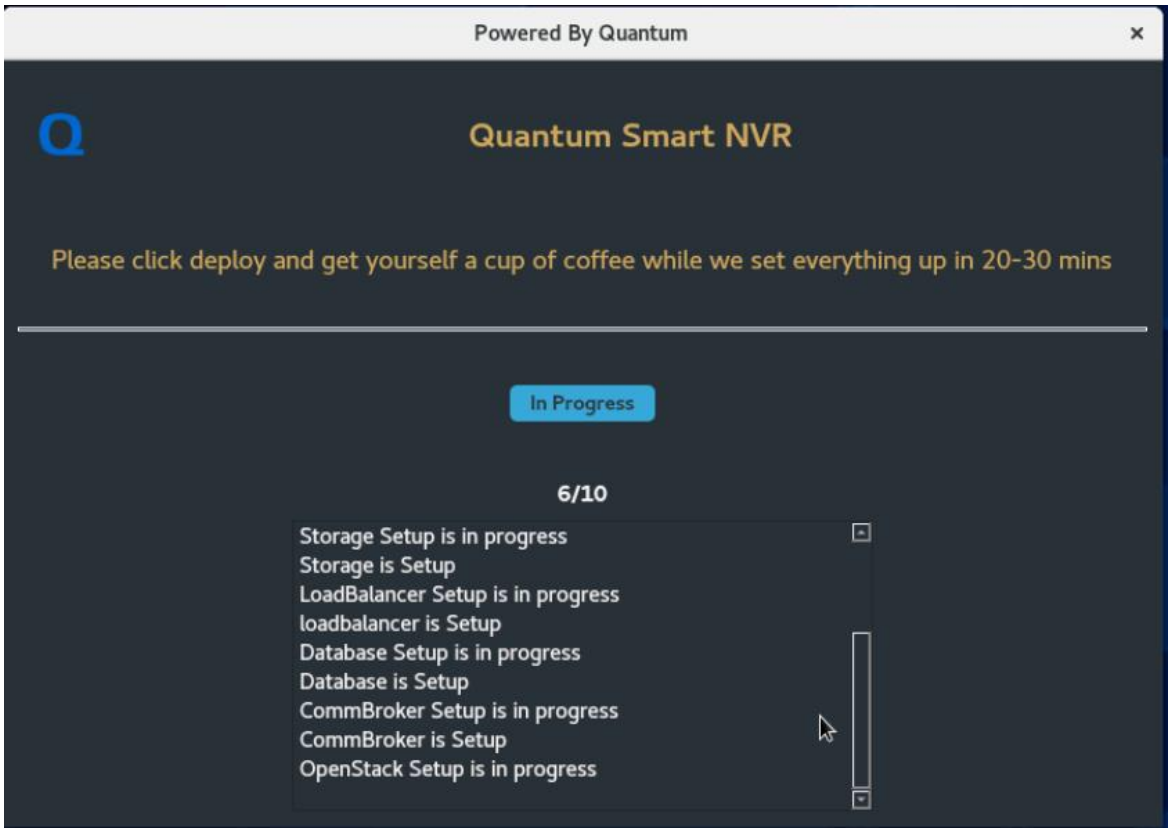
To deploy the Smart NVR, complete the following steps:

1. For factory setup, remove all network cables from the host.
2. Click **Deploy**.

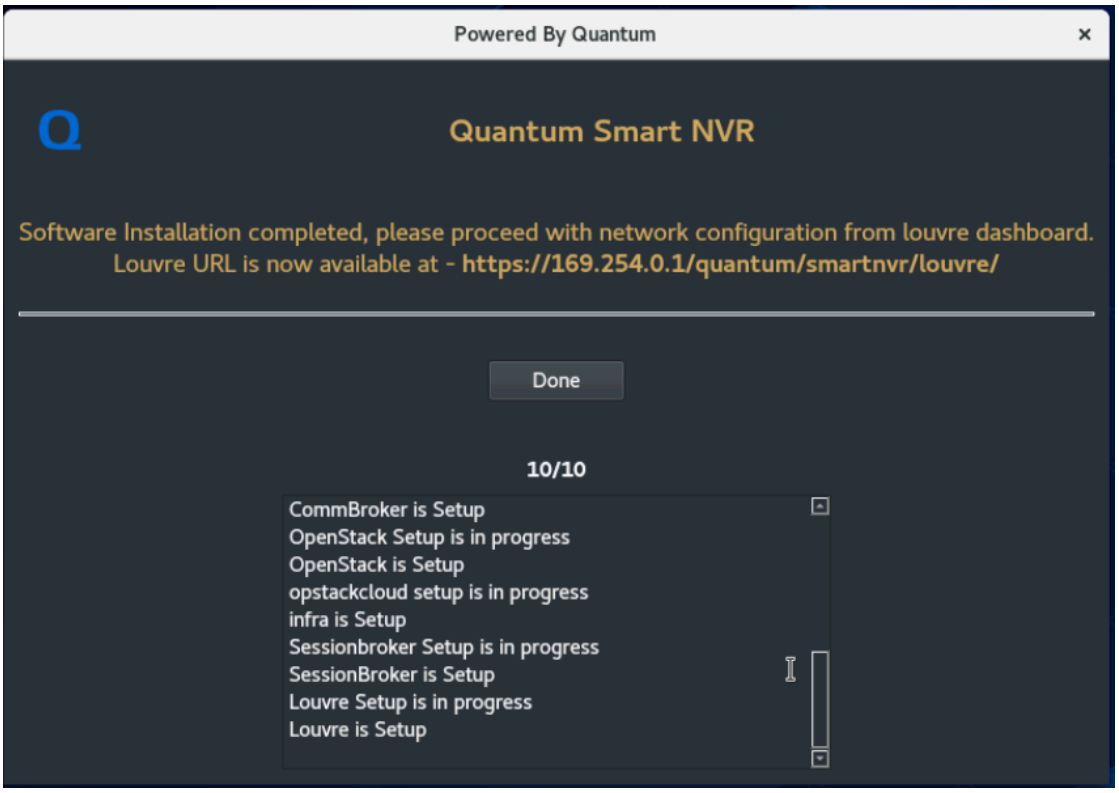
NOTE*: There will be a network reset during the first step. Until 1/10 is completed, do not touch the GUI after clicking Deploy. If the GUI is moved before the network is setup, it will lose connection and you must restart the Smart NVR utility and click **Deploy** again to continue from where it left off.*




Powered By Quantum
Quantum Smart NVR
Please click deploy and get yourself a cup of coffee while we set everything up in 20-30 mins
In Progress
0/10
Network Setup is in progress


Powered By Quantum
Quantum Smart NVR
Please click deploy and get yourself a cup of coffee while we set everything up in 20-30 mins
In Progress
6/10
Storage Setup is in progress
Storage is Setup
LoadBalancer Setup is in progress
loadbalancer is Setup
Database Setup is in progress
Database is Setup
CommBroker Setup is in progress
CommBroker is Setup
OpenStack Setup is in progress

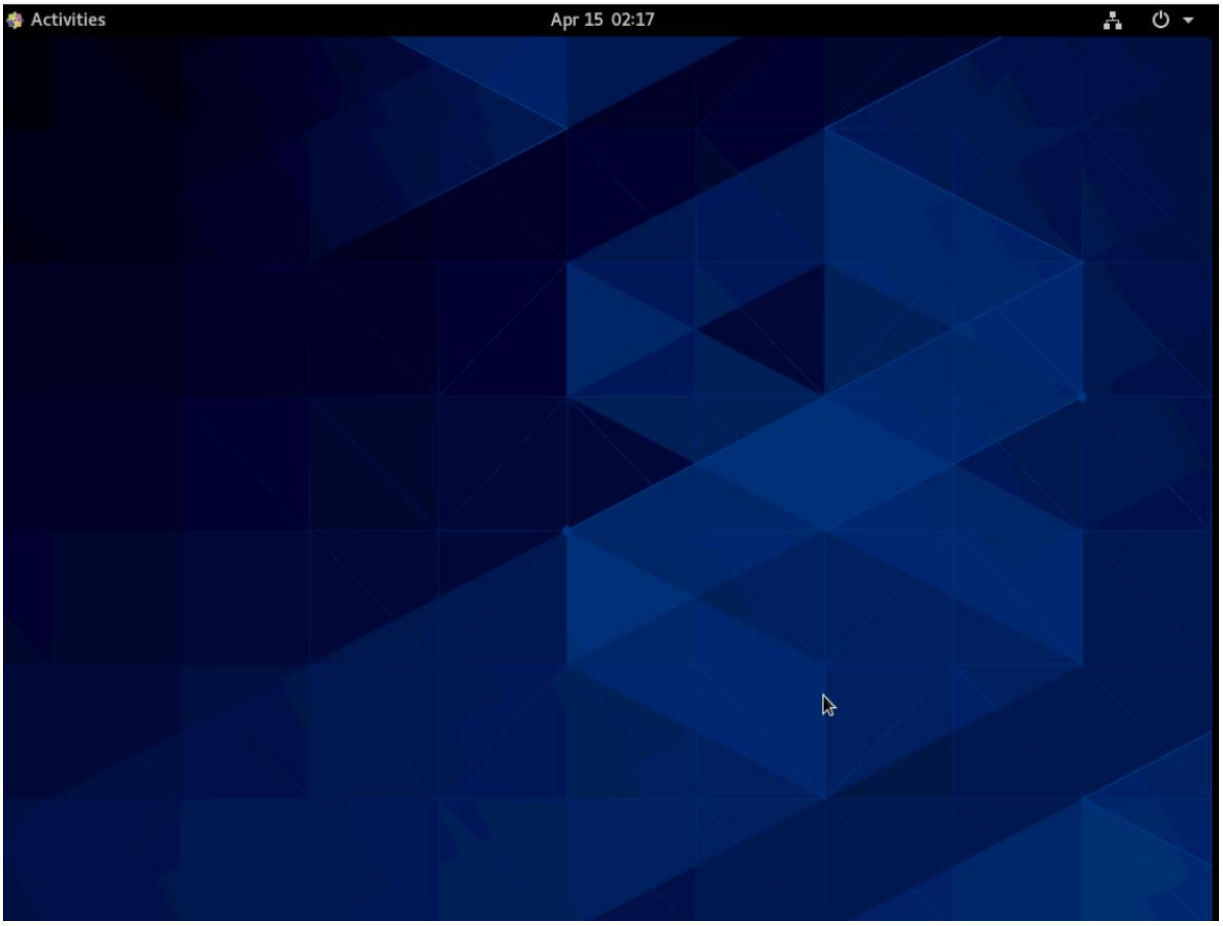
3. When the following screen is displayed, click **Done.**



Factory Setup Complete

The setup is now complete. The link to the Louvre Dashboard is displayed on the final screen of the Smart NVR, which can be opened in any browser

***NOTE**: If the system came from the factory, the URL will be:*
https://169.254.0.1/quantum/smartnvr/louvre



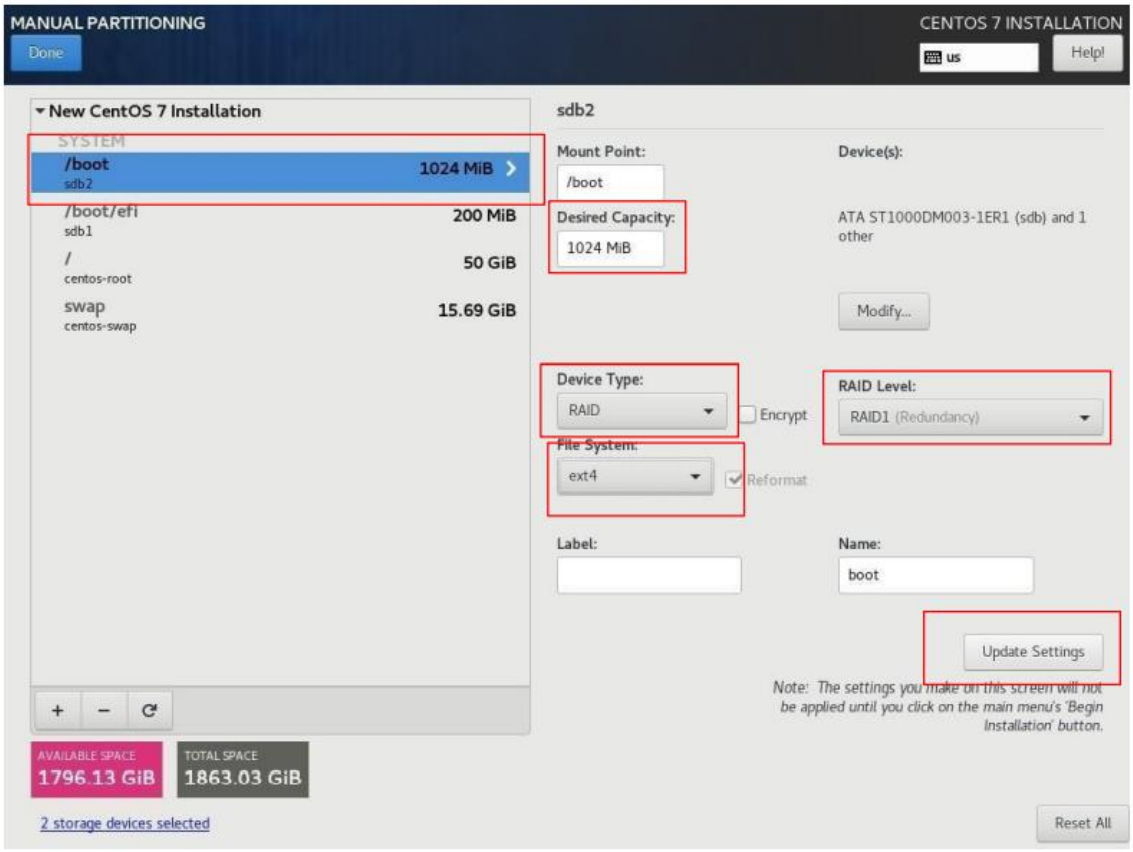
Additional Steps Post-Factory Installation

1. When the setup is complete, using the power option in the top-right corner, power down the server, and place the server back into the original manufacturing shipping materials.
    a. Insert a card that shows the URL for the Louvre Dashboard for the customer: https://169.254.0.1/quantum/smartnvr/louvre

Appendix A: Software RAID Manual Installation

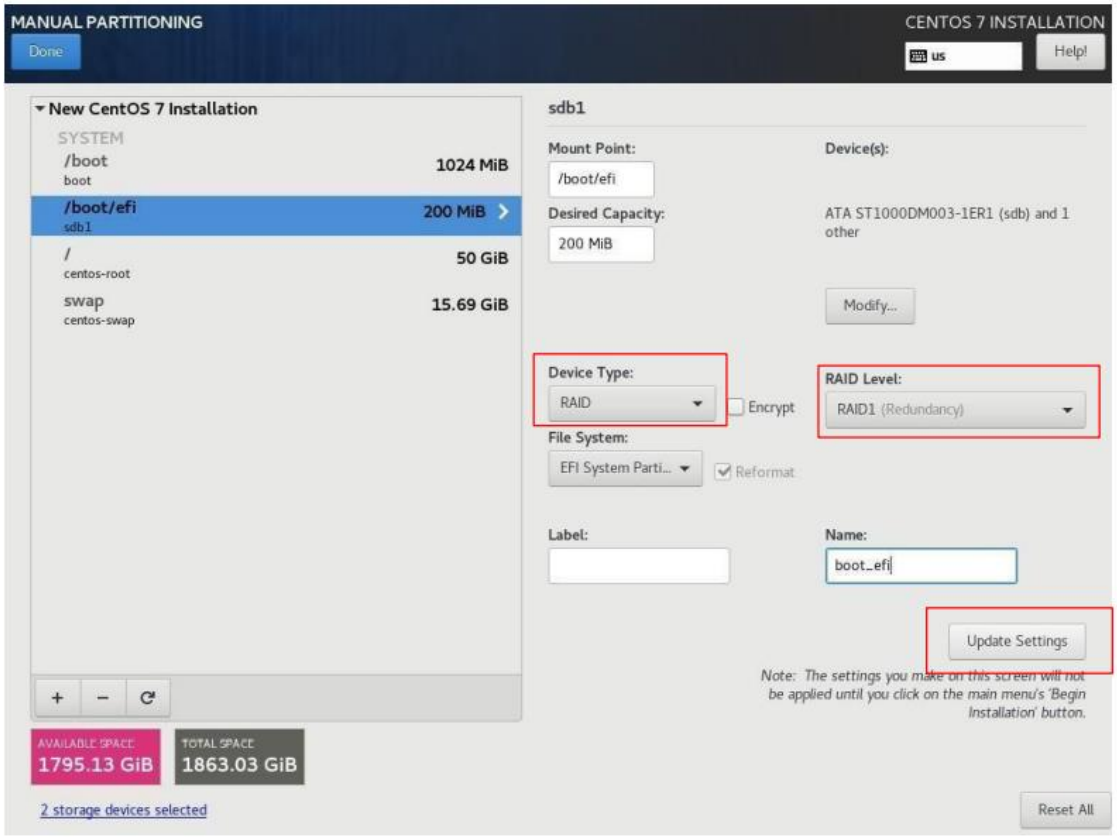
This appendix describes the manual installation procedure for software RAID based installation media in Section 2, Step 2, Configuring, Installing, and Monitoring the ISO Deployment.

1. Complete the following:
    a. Select **/boot**
    b. Desired Capacity: **1024 MB**
    c. Device Type: **RAID**
    d. RAID Level: **RAID1 (Redundancy)**
    e. File System: **ext4**
2. Click **Update Settings**.



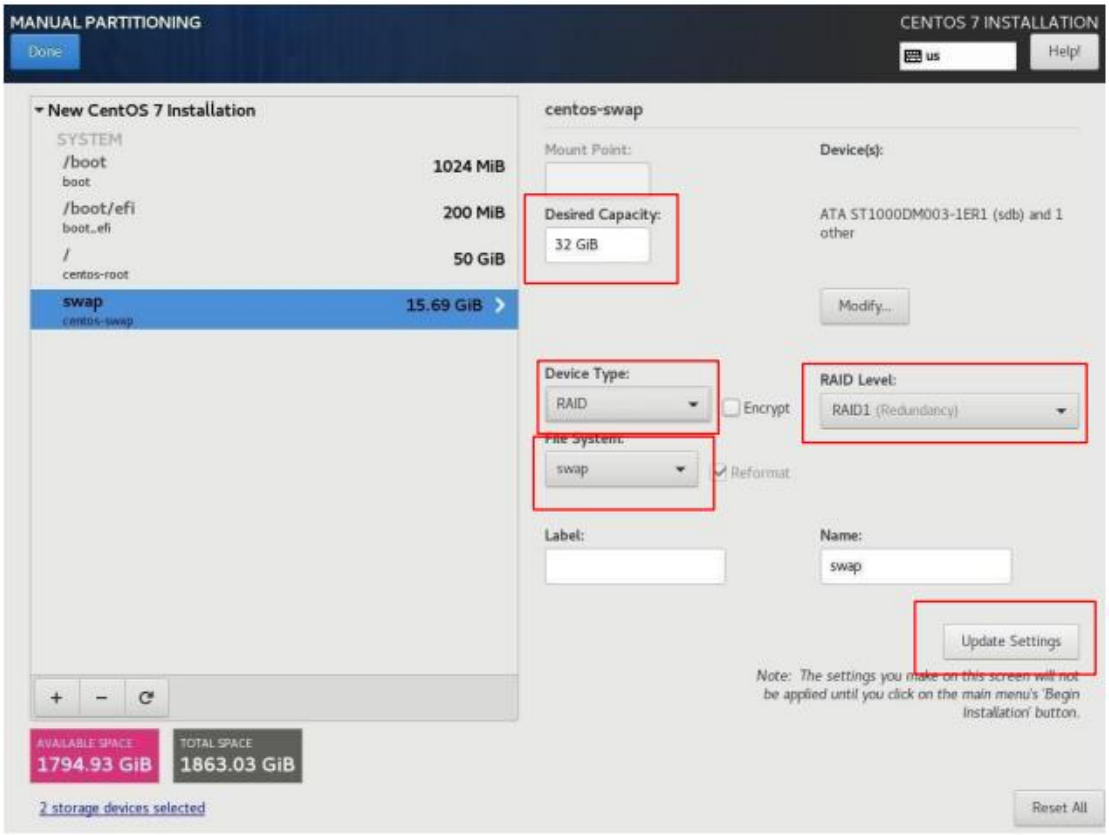
3. Complete the following:
   a. Select **/boot/efi**
   b. Device Type: **RAID**
   c. RAID Level: **RAID1 (Redundancy)**
4. Click **Update Settings**.

   If there is hardware RAID configured, you do not need to specify Device Type: RAID. Instead, it should be Device Type: Standard Partition. Follow this for all partitions.



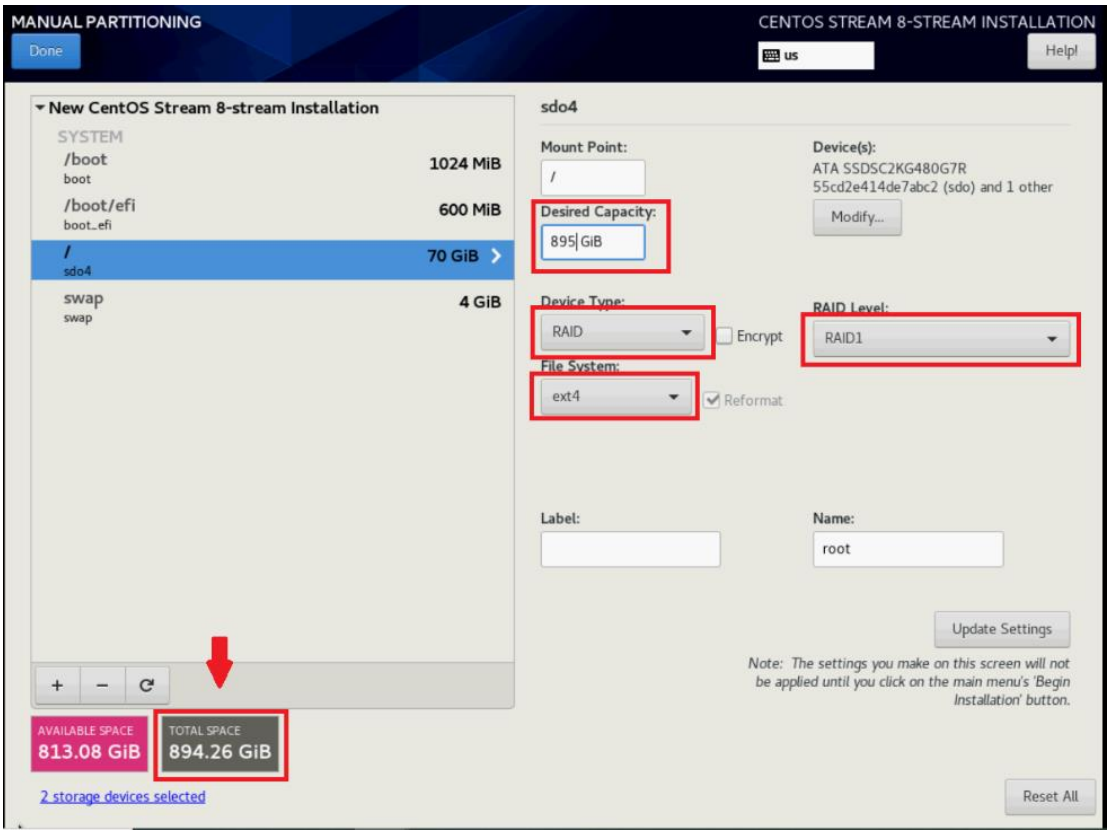
5. Complete the following:
   a. Select **swap**
   b. Desired Capacity: **32 GiB**
   c. Device Type: **RAID**
   d. RAID Level: **RAID1 (Redundancy)**
   e. File System: **swap**
6. Click **Update Settings**.

   If there is hardware RAID configured, you do not need to specify Device Type: RAID. Instead, it should be Device Type: Standard Partition. Follow this for all partitions.

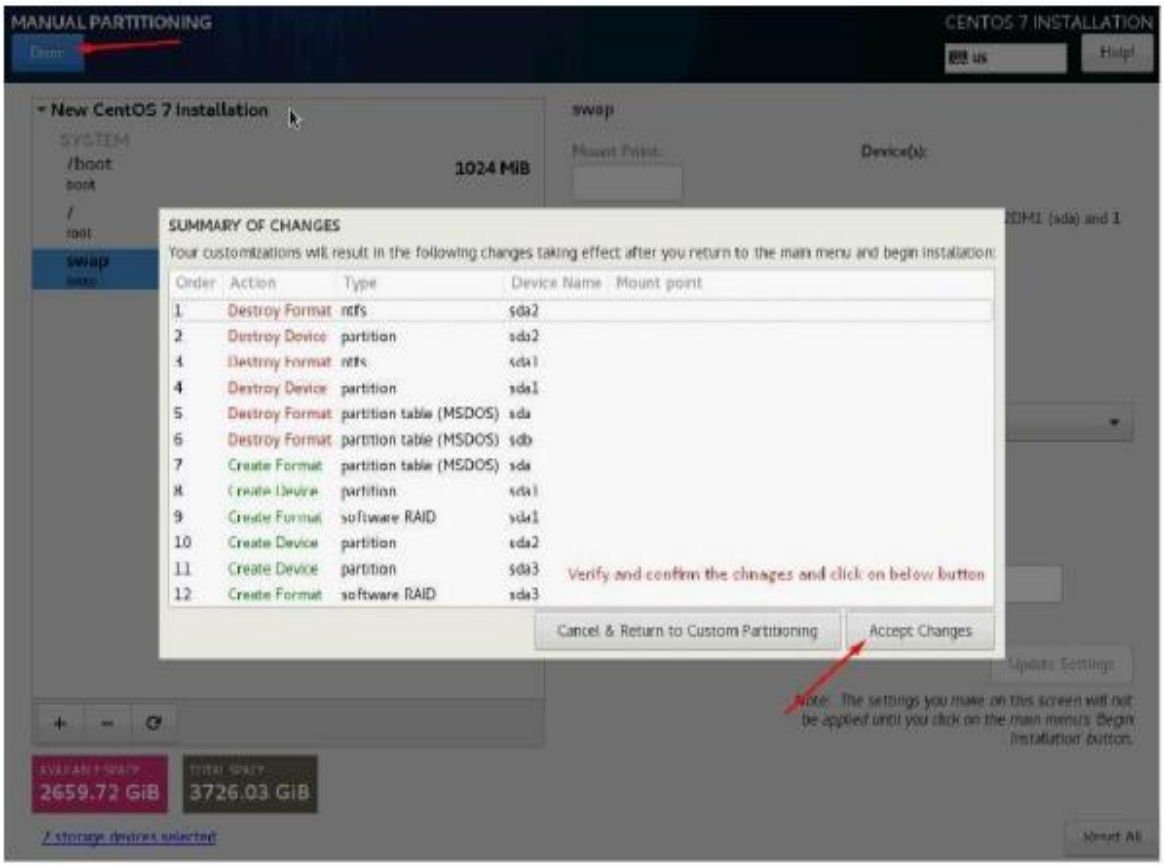


7. Complete the following:
   a. Select **/**
   b. Desired Capacity: Copy the TOTAL SPACE value (ISO automatically adjusts the value)
   c. Device Type: **RAID**
   d. RAID Level: **RAID1**
   e. File System: **ext4**
8. Click **Update Settings**.

   If there is hardware RAID configured, you do not need to specify Device Type: RAID. Instead, it should be Device Type: Standard Partition. Follow this for all partitions.



9. Click **Done** in the top left corner and click **Accept Changes** in the popup.



Appendix B: BIOS and RAID Controller Configuration for USP

This appendix describes how to use the vendor's tool for replicating BIOS and RAID controller settings from a reference host. This appendix focuses on the settings that are appropriate to Quantum USP software. Consult the vendor's tool documentation for other supported BIOS settings.

There are two distributions of Quantum USP software:

- USP Standalone for single node
- USP HCI for multi-nodes

There are three offerings:

- Smart NVR Appliance with USP Standalone
- USP Standalone as Software-only
- USP HCI as Software-only

This appendix focuses on the following vendors:

- Dell
- Lenovo
- Supermicro

USP Offerings

Smart NVR Appliance with USP Standalone

This is an appliance NVR preloaded with USP Standalone for single node deployment. The Smart NVR is available from MBX.

BIOS and RAID controller settings:

- Factory default BIOS settings with the following adjustments:
  - CPU Maximum Performance
- USP is installed on 2x M.2 setup as RAID-1
- RAID Controller shall support RAID-5 (n+1) and RAID-6 (n+2) for data storage
  - 3 to 5 HDDs, RAID-5 (n+1)
  - 6 to 17 HDDs, RAID-6 (n+2)
  - 18 HDDs, 2 volumes @ 9 HDDs, RAID-6 (n+2)
  - Beyond 18 HDDs, options are either 36 HDDs or 60 HDDs
    - 36 HDDs, 3 volumes @ 12 HDDs, RAID-6 (n+2)
    - 60 HDDs, 5 volumes @ 12 HDDs, RAID-6 (n+2)

USP Standalone as Software-Only

USP Standalone is offered as software-only for single node deployment. Deployment is hardware agnostic.

Quantum recommends the following BIOS and RAID Controller settings:

- Factory default BIOS settings with the following adjustments:
  - CPU Maximum Performance
- USP installation:
  - Independent hardware-RAID volume, e.g. 2x M.2 setup as RAID-1
  - Separate hardware-RAID volume from data storage disks set
  - Software-RAID option is available but not optimal
- Software-RAID option for data storage is available but not optimal
  - 3 to 5 HDDs, RAID-5 (n+1)
  - 6 to 12 HDDs, RAID-6 (n+2)
  - 12+ HDDs shall be evenly distributed between 2+ volumes
    - RAID setup of each volume shall be as above
- RAID Controller shall support RAID-5 (n+1) and RAID-6 (n+2) for data storage
  - 3 to 5 HDDs, RAID-5 (n+1)
  - 6 to 17 HDDs, RAID-6 (n+2)
  - 18 HDDs, 2 volumes @ 9 HDDs, RAID-6 (n+2)
  - Beyond 18 HDDs, options are either 36 HDDs or 60 HDDs
    - 36 HDDs, 3 volumes @ 12 HDDs, RAID-6 (n+2)
    - 60 HDDs, 5 volumes @ 12 HDDs, RAID-6 (n+2)

USP HCI as Software-Only

USP HCI is offered as software-only for multi-nodes deployment. Deployment is hardware agnostic.

Quantum recommends the following BIOS and RAID Controller settings:

- Factory default BIOS settings with the following adjustments:
  - CPU Maximum Performance
- USP installation:
  - Independent Hardware-RAID volume, e.g. 2x M.2 setup as RAID-1
  - Independent disks using Software-RAID
  - 2 or more disks from the data storage disks set using Software-RAID
- Data storage disks set using Software-RAID

- HBA disk controller
- RAID controller setup with HBA mode (if available)
- RAID controller setup with disks pass-through
- Recommended RAID setup
  - 3 to 5 HDDs, RAID-5 (n+1)
  - 6 to 12 HDDs, RAID-6 (n+2)
  - 12+ HDDs shall be evenly distributed between 2+ volumes:
    - RAID setup of each volume shall be as above

BIOS and RAID Controller Configuration

Dell PowerEdge Windows Powershell cmdlets for Redfish

Dell provides several tools for managing BIOS and firmware configuration. Current platforms support the Redfish API, providing an industry standard protocol for server management. The "Dell PowerEdge Windows PowerShell cmdlets for Redfish" provides an agnostic tool for managing Dell servers.

To get started, first install the MS Windows PowerShell cmdlets following the procedures documented in "Automating Dell EMC PowerEdge Server Management by using iDRAC REST API with DMTF Redfish and Microsoft PowerShell".

Additional information about Dell's Redfish API with Dell iDRAC is available at https://www.dell.com/support/kbdoc/en-us/000178045/redfish-api-with-dell-integrated-remote-access-controller.

The steps are:

1. Selects a reference host
2. Reset BIOS to factory default for all hosts
3. Adjust BIOS to "CPU Maximum Performance"
4. Configure the disk controller
5. Export the System Configuration Profile (SCP) using "Clone Export"
6. Import the SCP to other hosts, replicating the settings from the reference host

Reset BIOS to Factory Default

Use the following PowerShell cmdlets for Redfish:

```
PS C:\>Set-BiosDefaultSettingsREDFISH -idrac_ip <ip> -idrac_username
<usr> -idrac_password <passwd> -reboot_server y
```

Set CPU Performance

Use the following PowerShell cmdlets for Redfish to check the "CPU Maximum Performance":

```
PS C:\>Set-OneBIOSAttributeREDFISH -idrac_ip <ip> -idrac_username
<usr> -idrac_password <passwd> -get_one_attribute ProcPwrPerf -
reboot_server n
```

Use the following PowerShell cmdlets for Redfish to change the "CPU Maximum Performance":

```
PS C:\>Set-OneBIOSAttributeREDFISH -idrac_ip <ip> -idrac_username
<usr> -idrac_password <passwd> -attribute_name SysProfile -
attribute_value Custom -reboot_server n

PS C:\>Set-OneBIOSAttributeREDFISH -idrac_ip <ip> -idrac_username
<usr> -drac_password <passwd> -attribute_name ProcPwrPerf -
attribute_value MaxPerf -reboot_server y
```

Configure the Disk Controller

The "PowerShell cmdlets for Redfish" facility does not support configuring the BOSS-S1 or RAID Controller. Manually configures the reference host from the BIOS Setup. The "System Configuration Profile" does support replicating the BOSS-S1 and RAID Controller settings under the RAID target.

Export the System Configuration Profile Using Clone Export

File is exported to %HOMEPATH%

Use the following PowerShell cmdlets for Redfish:

```
PS C:\>Set-ExportServerConfigurationProfileLocalREDFISH -idrac_ip
<ip> -idrac_username <usr> -idrac_password <passwd> -Target ALL -
ExportFormat XML -ExportUse Clone
```

Import the System Configuration Profile

Leave the host powered off with iDRAC connected.
Only replicate the BIOS and RAID configurations.

Use the following PowerShell cmdlets for Redfish:

```
PS C:\>Set-ImportServerConfigurationProfileLocalFilenameREDFISH -
idrac_ip <ip> -idrac_username <usr> -idrac_password <passwd> -Target
"BIOS,RAID" -filename <SCP-dot-XML-file> -ShutdownType Forced -
HostPowerState Off
```

Lenovo XClarity Essentials OneCLI

Lenovo servers can be managed using the "Lenovo XClarity Essentials OneCLI" utility. This is a feature rich facility providing remote management using a command-line interface for managing and configuring the BIOS and firmware.

To get started, download the OneCLI tool from https://datacentersupport.lenovo.com/us/en/documents/lnvo-tcli.

Additional information about OneCLI is available in Lenovo XClarity Essentials OneCLI User Guide.

The steps are:

1. Selects a reference host
2. Reset BIOS to factory default for **all** hosts
3. Adjust "Operating Mode" in BIOS to "Maximum Performance"
4. Configure the disk controller
5. Save the System Configuration settings
6. Replicate the System Configuration settings to other hosts

Reset BIOS to Factory Default

Use the following OneCLI command to load the BIOS defaults

```
OneCli.exe config loaddefault UEFI –bmc <username>:<password>@<bmc ip address> --post
OneCLI.exe ospower reboot --bmc <username>:<password>@<bmc ip address>
```

Set Operating Mode

Use the following OneCLI command to check the Operating Mode:

```
OneCli.exe config show OperatingModes.ChooseOperatingMode --bmc <username>:<password>@<bmc ip address>
```

Use the following OneCLI command to set Operating Mode to Maximum Performance:

```
OneCli.exe config set "OperatingModes.ChooseOperatingMode" "Maximum Performance" --bmc <username>:<password>@<bmc ip address>
OneCLI.exe ospower reboot --bmc <username>:<password>@<bmc ip address>
```

Configure the Disk Controller

The OneCLI.exe provides the "raid" command to create, clear and save the RAID configuration. Manually configures the reference host from the BIOS Setup. Export the reference host "raid configuration" to replicate other hosts.

Export the Raid Configuration

Use the following OneCLI command to save the raid configuration:

```
OneCli.exe raid save --bmc <username>:<password>@<bmc ip address> --
file <raid-config>
```

Import the Raid Configuration:

Use the following OneCLI commands to add the raid configuration:

```
OneCli.exe raid clear --bmc <username>:<password>@<bmc ip address> -
-force
```

```
OneCli.exe raid add --bmc <username>:<password>@<bmc ip address> --
file <raid-config> --force
```

Save the System Configuration Settings

Use the following OneCLI command to save the System Configuration settings:

```
OneCli.exe config save --file <filename> --bmc
<username>:<password>@<bmc ip address> --excbackupctl
```

Replicate the System Configuration Settings

Use the following OneCLI command to replicate the System Configuration settings to other hosts:

```
OneCli.exe config replicate --file <filename> --bmc
<username>:<password>@<bmc ip address>
```

```
OneCLI.exe ospower reboot --bmc <username>:<password>@<bmc ip
address>
```

Supermicro Update Manager (SUM)

Supermicro provides the “Supermicro Update Manager (SUM)” for managing and configuring the BIOS and firmware on X9 generation motherboards and later.

To get started, download the SUM.exe tool from https://www.supermicro.com/en/solutions/management-software/supermicro-update-manager.

See the *SUM User Guide* for more information.

The steps are:

1. Selects a reference host
2. Reset BIOS to factory default for **all** hosts
3. Adjust “Advanced Power Management Configuration” ENERGY_PERF_BIAS_CFG in BIOS to “Maximum Performance”
4. Configure the disk controller
5. Save the System Configuration settings
6. Replicate the System Configuration settings to other hosts

Reset BIOS to Factory Default

Use the following SUM command to load the Factory BIOS settings:

The uploaded configuration will take affect only after a reboot or power up

---

```
sum -i <bmc ip address> -u <username> -p <password> -c
LoadDefaultBiosCfg --reboot
```

Set Operating Mode

SUM does not provide a facility to manipulate a single BIOS attribute. Manually configure the reference host from the BIOS Setup. The BIOS configuration from the reference host can be exported and replicated to other hosts.

In the BIOS setup
Go to Advanced → Advanced Power management configuration → Change Power Technology to Custom, ENERGY_PERF_BIAS_CFG mode to Maximum Performance

---

Configure the Disk Controller

SUM does not provide a facility for configuring the RAID Controller. Manually configure the reference host from the BIOS Setup. The RAID configuration from the reference host can be exported and replicated to other hosts.

Save the System Configuration Settings

The commands `GetCurrentBiosCfg` and `GetRaidCfg` for SUM allow capturing the BIOS and RAID configurations from the reference host. See the SUM User Guide for more information.

Save the Current BIOS settings:

```
sum -i <bmc ip address> -u <username> -p <password> -c
GetCurrentBiosCfg --file <USER_SETUP.file> --overwrite
```

Save the RAID settings:

```
sum -i <bmc ip address> -u <username> -p <password> -c GetRaidCfg -
file <RAIDCfg.xml> --overwrite
```

Replicate the System Configuration Settings

The commands `ChangeBiosCfg` and `ChangeRaidCfg` for SUM allow replicating the BIOS and RAID configurations from the reference host. See the SUM User Guide for more information.

Considers updating the RAID settings before the BIOS since the host needs to be rebooted after BIOS settings change

---

Updating the RAID Settings

```
sum -i <bmc ip address> -u <username> -p <password> -c ChangeRaidCfg
-file <RAIDCfg.xml>
```

Updating the BIOS Settings

```
sum -i <bmc ip address> -u <username> -p <password> -c ChangeBiosCfg
-file <USER_SETUP.file> --reboot
```

Quantum

Quantum technology, software, and services provide the solutions that today's organizations need to make video and other unstructured data smarter – so their data works for them and not the other way around. With over 40 years of innovation, Quantum's end-to-end platform is uniquely equipped to orchestrate, protect, and enrich data across its lifecycle, providing enhanced intelligence and actionable insights. Leading organizations in cloud services, entertainment, government, research, education, transportation, and enterprise IT trust Quantum to bring their data to life, because data makes life better, safer, and smarter. Quantum is listed on Nasdaq (QMCO) and the Russell 2000® Index. For more information visit www.quantum.com.

www.quantum.com | 800-677-6268

6-69043-01 Rev A