

Installing RHEL on a standalone UCS C240 M5 server.

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Introduction

This article outlines the procedure for installing RHEL on local RAID configuration in a standalone UCSC C240 M5 server.

Setup Used

UCSC-C240-M5L
RAID Controller: Cisco 12G SAS HBA (UCSC-SAS-M5)
4K sector HDDs
CIMC: 3.1(3a)
OS: RHEL 7.3

Prerequisites

1. Download the RHEL ISO and the Controller Driver ISO:

RHEL: `rhel-server-7.3-x86_64-boot.iso`

Driver ISO: [ucs-cxxx-drivers-linux.3.1.3.iso](#)

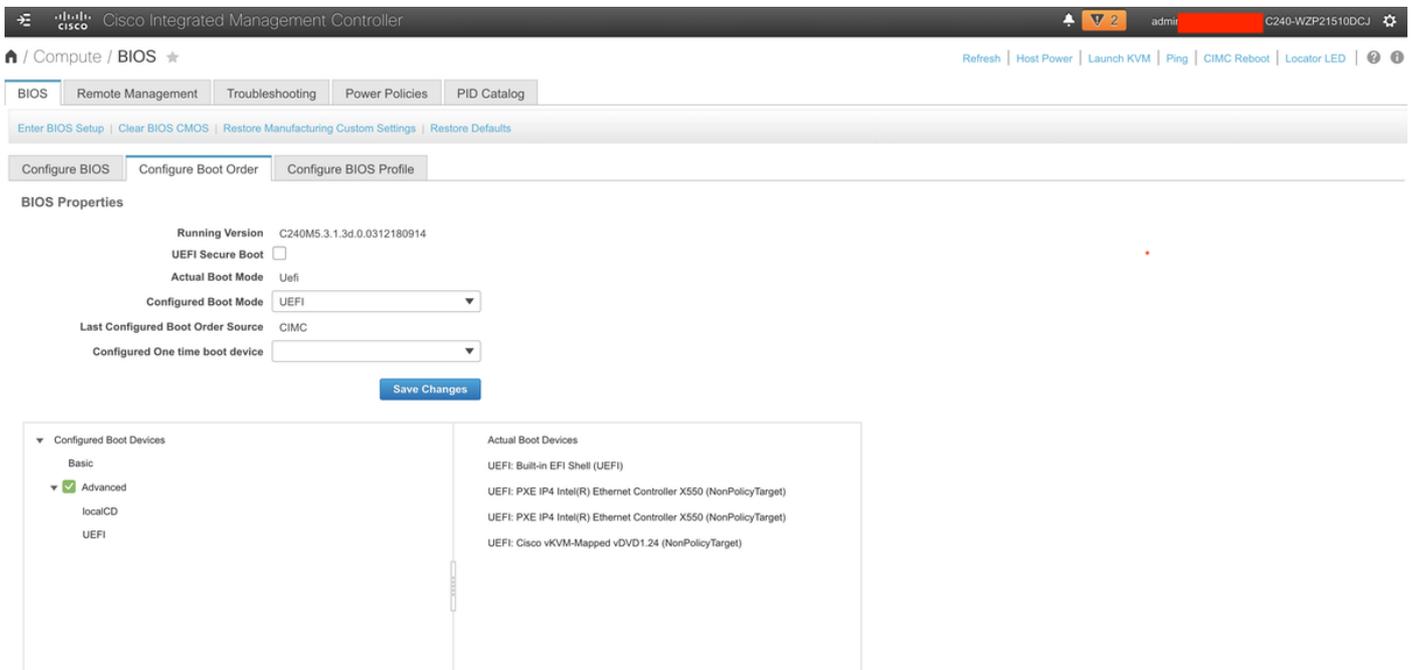
(In the ISO, navigate to Storage -> LS -> UCSC-SAS-M5 -> RHEL -> RHEL7.3 -> mpt3sas-23.00.00.00_el7.3-1.x86_64.iso.gz)

2. If you extract the `mpt3sas-23.00.00.00_el7.3-1.x86_64.iso.gz` file, you will get the driver ISO -> `mpt3sas-23.00.00.00_el7.3-1.x86_64.iso`

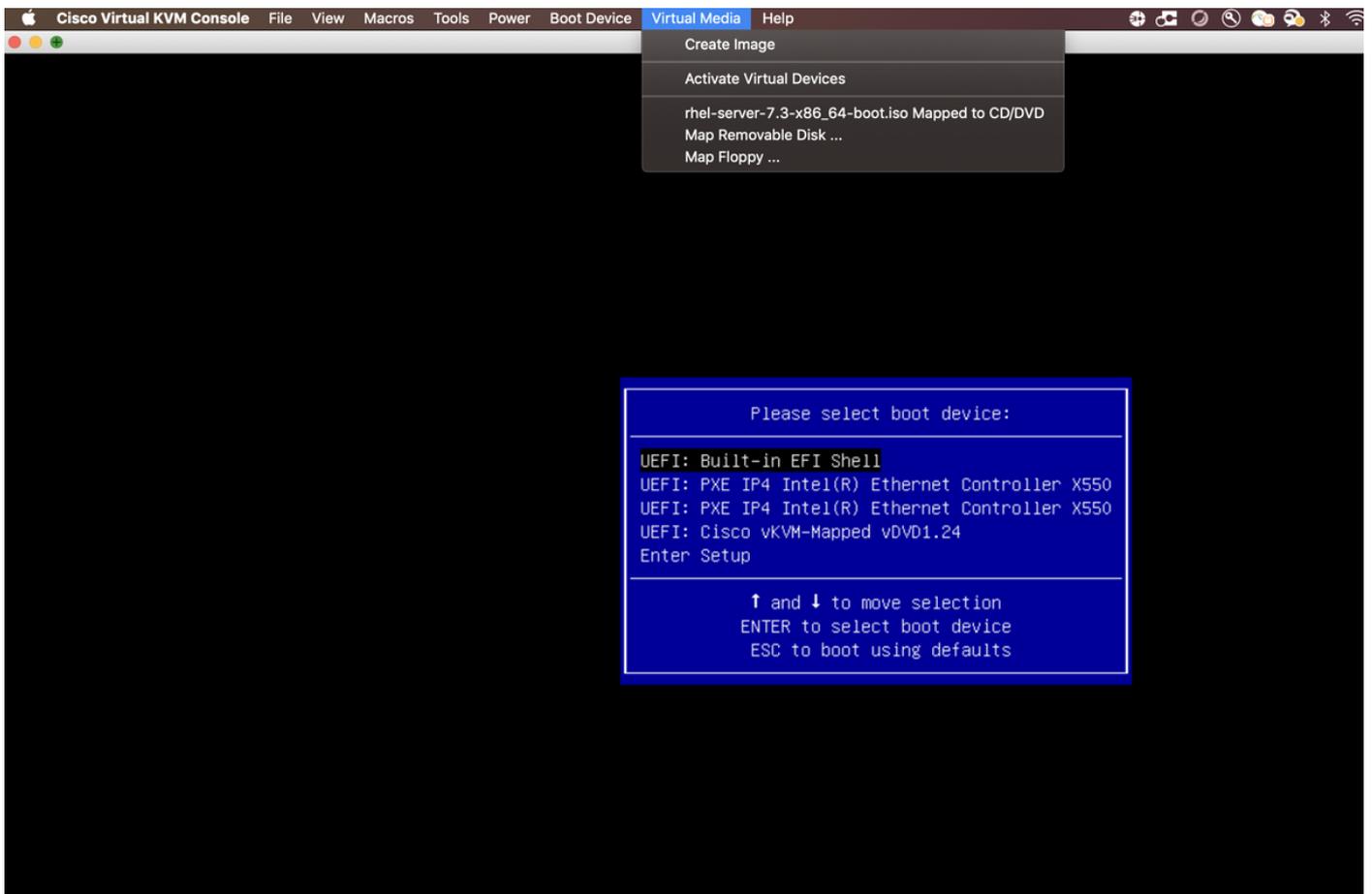
3. Similarly, if you are using a UCSC-RAID-M5 controller in your server, you can navigate to its corresponding driver.

Procedure

Step 1. Since the server has 4k sector drives, we will do a UEFI boot. The Boot Order should look like below:

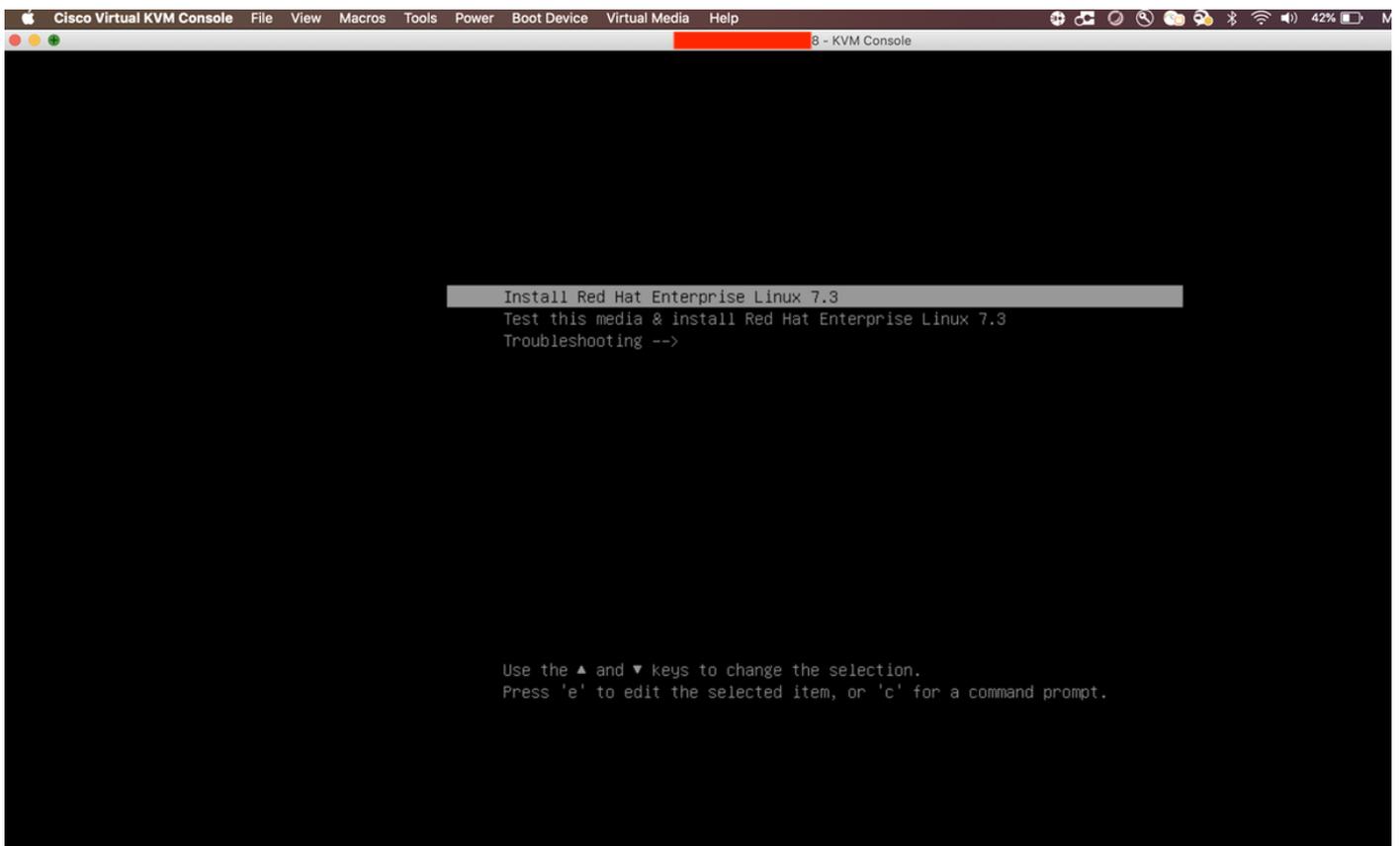


Step 2. Open the KVM and map the RHEL ISO:

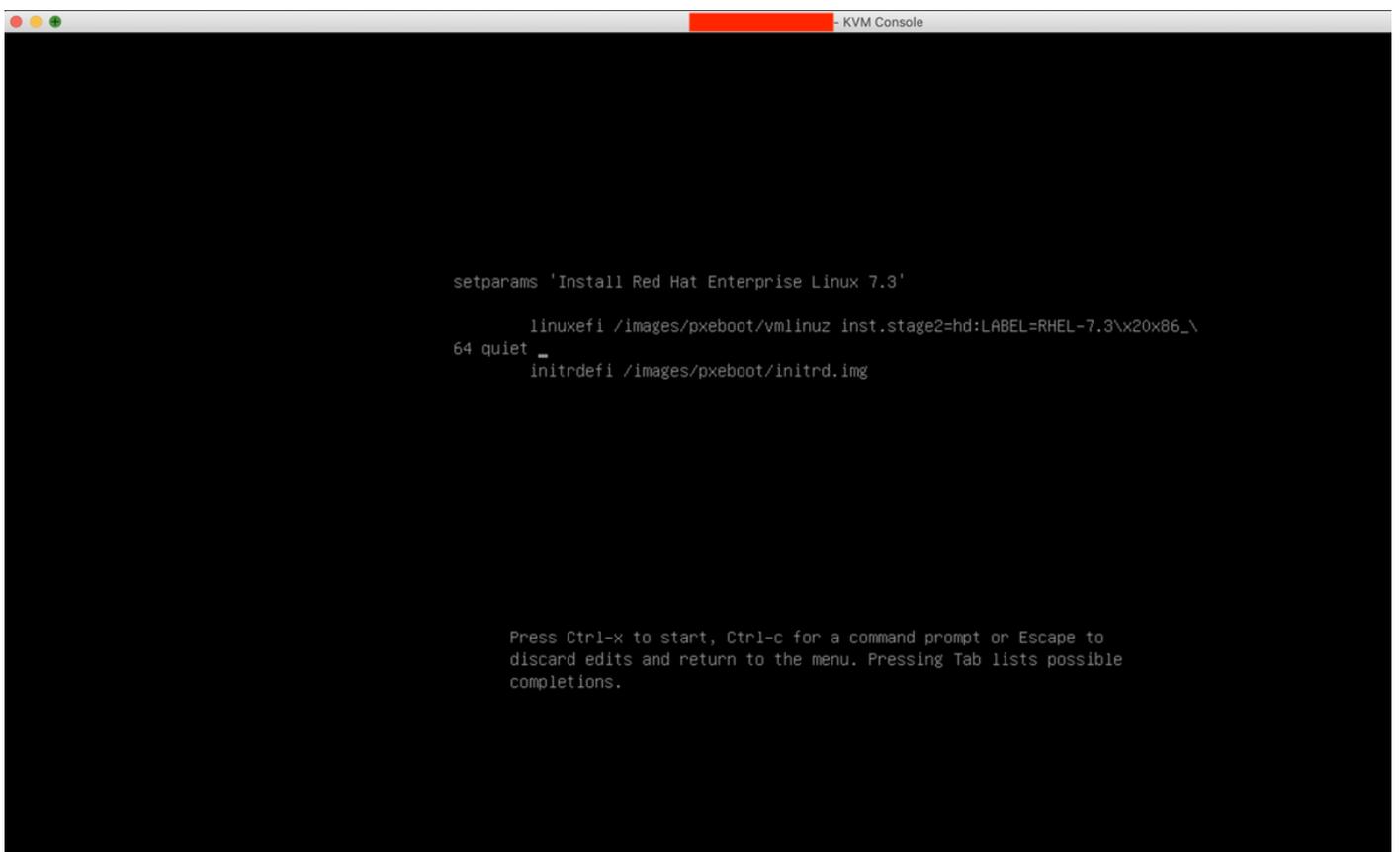


Step 3. Press F6 and boot from the UEFI: Cisco vKVM-Mapped vDVD1.24

Step 4. Select the “Install Red Hat Enterprise Linux 7.3” option and press ‘e’



Step 5. You will see the below screen:



Step 6. Enter the command “linux dd” and do a Ctrl + x

```
setparams 'Install Red Hat Enterprise Linux 7.3'

linuxefi /images/pxeboot/vmlinuz inst.stage2=hd:LABEL=RHEL-7.3\x20x86_\
64 quiet linux dd_
initrddefi /images/pxeboot/initrd.img

Press Ctrl-x to start, Ctrl-c for a command prompt or Escape to
discard edits and return to the menu. Pressing Tab lists possible
completions.
```

Step 7. The above command will start the Interactive mode:

```
[ 18.162151] i8042: Can't read CTR while initializing i8042
[ OK ] Started Show Plymouth Boot Screen.
[ OK ] Reached target Paths.
[ OK ] Reached target Basic System.
[ OK ] Started Device-Mapper Multipath Device Controller.
Starting Open-iSCSI...
[ OK ] Started Open-iSCSI.
Starting dracut initqueue hook...
[ 22.759254] nouveau 0000:60:00.0: priv: HUB0: 10ecc0 ffffffff (1c40822c)
[ 22.824063] nouveau 0000:60:00.0: DRM: Pointer to TMDs table invalid
[ 22.824063] nouveau 0000:60:00.0: DRM: Pointer to flat panel table invalid
[ 23.399872] nouveau 0000:61:00.0: priv: HUB0: 10ecc0 ffffffff (1c40822c)
[ 23.463012] nouveau 0000:61:00.0: DRM: Pointer to TMDs table invalid
[ 23.463029] nouveau 0000:61:00.0: DRM: Pointer to flat panel table invalid
[ 24.037588] nouveau 0000:62:00.0: priv: HUB0: 10ecc0 ffffffff (1d40822c)
[ 24.101383] nouveau 0000:62:00.0: DRM: Pointer to TMDs table invalid
[ 24.101400] nouveau 0000:62:00.0: DRM: Pointer to flat panel table invalid
[ 24.676850] nouveau 0000:63:00.0: priv: HUB0: 10ecc0 ffffffff (1c40822c)
[ 24.740881] nouveau 0000:63:00.0: DRM: Pointer to TMDs table invalid
[ 24.740897] nouveau 0000:63:00.0: DRM: Pointer to flat panel table invalid
[ OK ] Created slice system-driver\x2dupdates.slice.
Starting Driver Update Disk UI on tty1...
[ OK ] Started Show Plymouth Boot Screen.
[ OK ] Reached target Paths.
[ OK ] Reached target Basic System.
[ OK ] Started Device-Mapper Multipath Device Controller.
Starting Open-iSCSI...
[ OK ] Started Open-iSCSI.
Starting dracut initqueue hook...
[ OK ] Created slice system-driver\x2dupdates.slice.
Starting Driver Update Disk UI on tty1...
DD: starting interactive mode

(Page 1 of 1) Driver disk device selection
#DEVICE TYPE LABEL UUID
1) sda1 ufat ESX1 591C-E3E2
2) sda2 ufat 4C6C-A2D4
3) sda3 UMFS uol 5aa6e18d-304835ba-1711-4c776d996e2c
4) sda5 ufat 4C6C-A2CA
5) sda6 ufat 4C6C-A2CD
6) sda8 ufat 4C6C-A2C8
7) sr0 iso9660 RHEL-7.3\x20x86_64 2016-10-19-17-41-40-00
# to select, 'r'-refresh, or 'c'-continue: _
```

Step 8. Unmap the RHEL ISO and map the controller driver ISO:


```
Cisco Virtual KVM Console File View Macros Tools Power Boot Device Virtual Media Help - KVM Console
[ OK ] Started Open-iSCSI.
Starting dracut initqueue hook...
[ 22.750254] nouveau 0000:60:00.0: priv: HUB0: 10ecc0 ffffffff (1e40822c)
[ 22.824043] nouveau 0000:60:00.0: DRM: Pointer to TMDS table invalid
[ 22.824060] nouveau 0000:60:00.0: DRM: Pointer to flat panel table invalid
[ 23.399872] nouveau 0000:61:00.0: priv: HUB0: 10ecc0 ffffffff (1a40822c)
[ 23.463012] nouveau 0000:61:00.0: DRM: Pointer to TMDS table invalid
[ 23.463029] nouveau 0000:61:00.0: DRM: Pointer to flat panel table invalid
[ 24.037598] nouveau 0000:62:00.0: priv: HUB0: 10ecc0 ffffffff (1d40822c)
[ 24.101383] nouveau 0000:62:00.0: DRM: Pointer to TMDS table invalid
[ 24.101400] nouveau 0000:62:00.0: DRM: Pointer to flat panel table invalid
[ 24.676850] nouveau 0000:63:00.0: priv: HUB0: 10ecc0 ffffffff (1c40822c)
[ 24.740881] nouveau 0000:63:00.0: DRM: Pointer to TMDS table invalid
[ 24.740897] nouveau 0000:63:00.0: DRM: Pointer to flat panel table invalid
[ OK ] Created slice system-driver\x2dupdates.slice.
Starting Driver Update Disk UI on tty1...
[ OK ] Started Show Plymouth Boot Screen.
[ OK ] Reached target Paths.
[ OK ] Reached target Basic System.
[ OK ] Started Device-Mapper Multipath Device Controller.
Starting Open-iSCSI...
[ OK ] Started Open-iSCSI.
Starting dracut initqueue hook...
[ OK ] Created slice system-driver\x2dupdates.slice.
Starting Driver Update Disk UI on tty1...
DD: starting interactive mode

(Page 1 of 1) Driver disk device selection
  /DEVICE  TYPE    LABEL                                UUID
  1) sda1   ufat    ESXi                                  591C-E3E2
  2) sda2   ufat
  3) sda3   UMFS_vol
  4) sda5   ufat
  5) sda6   ufat
  6) sda8   ufat
  7) sr0    iso9660 RHEL-7.3\x20x86_64 2016-10-19-17-41-40-00
# to select, 'r'-refresh, or 'c'-continue: r

(Page 1 of 1) Driver disk device selection
  /DEVICE  TYPE    LABEL                                UUID
  1) sda1   ufat    ESXi                                  591C-E3E2
  2) sda2   ufat
  3) sda3   UMFS_vol
  4) sda5   ufat
  5) sda6   ufat
  6) sda8   ufat
  7) sr0    iso9660 CDROM      2017-05-26-05-44-09-00
# to select, 'r'-refresh, or 'c'-continue:
```

Step 10. You will now see the controller driver ISO listed. Type '7' and make the selection:

```
3 - KVM Console
[ 23.463012] nouveau 0000:61:00.0: DRM: Pointer to TMDS table invalid
[ 23.463029] nouveau 0000:61:00.0: DRM: Pointer to flat panel table invalid
[ 24.037598] nouveau 0000:62:00.0: priv: HUB0: 10ecc0 ffffffff (1d40822c)
[ 24.101383] nouveau 0000:62:00.0: DRM: Pointer to TMDS table invalid
[ 24.101400] nouveau 0000:62:00.0: DRM: Pointer to flat panel table invalid
[ 24.676850] nouveau 0000:63:00.0: priv: HUB0: 10ecc0 ffffffff (1c40822c)
[ 24.740881] nouveau 0000:63:00.0: DRM: Pointer to TMDS table invalid
[ 24.740897] nouveau 0000:63:00.0: DRM: Pointer to flat panel table invalid
[ OK ] Created slice system-driver\x2dupdates.slice.
      Starting Driver Update Disk UI on tty1...
[ OK ] Started Show Plymouth Boot Screen.
[ OK ] Reached target Paths.
[ OK ] Reached target Basic System.
[ OK ] Started Device-Mapper Multipath Device Controller.
      Starting Open-iSCSI...
[ OK ] Started Open-iSCSI.
      Starting dracut initqueue hook...
[ OK ] Created slice system-driver\x2dupdates.slice.
      Starting Driver Update Disk UI on tty1...
DD: starting interactive mode

(Page 1 of 1) Driver disk device selection
  /DEVICE  TYPE  LABEL  UUID
  1) sda1   ufat  ESXi    591C-E3E2
  2) sda2   ufat                4C6C-A2D4
  3) sda3   UMFS_vol 5aa6e18d-304835ba-1711-4c776d996e2e
  4) sda5   ufat                4C6C-A2CA
  5) sda6   ufat                4C6C-A2CD
  6) sda8   ufat                4C6C-A2CB
  7) sr0    iso9660  RHEL-7.3\x20x86_64 2016-10-19-17-41-40-00
# to select, 'r'-refresh, or 'c'-continue: r

(Page 1 of 1) Driver disk device selection
  /DEVICE  TYPE  LABEL  UUID
  1) sda1   ufat  ESXi    591C-E3E2
  2) sda2   ufat                4C6C-A2D4
  3) sda3   UMFS_vol 5aa6e18d-304835ba-1711-4c776d996e2e
  4) sda5   ufat                4C6C-A2CA
  5) sda6   ufat                4C6C-A2CD
  6) sda8   ufat                4C6C-A2CB
  7) sr0    iso9660  CDROM   2017-05-26-05-44-09-00
# to select, 'r'-refresh, or 'c'-continue: 7
DD: Examining /dev/sr0
mount: /dev/sr0 is write-protected, mounting read-only

(Page 1 of 1) Select drivers to install
  1) [ ] /media/DD-1/rpms/x86_64/kmod-mpt3sas-23.00.00.00_e17.3-1.x86_64.rpm
# to toggle selection, or 'c'-continue: _
```

Step 11. Enter '1' and then 'c' to continue:

```
[ 24.101400] nouveau 0000:62:00.0: DRM: Pointer to flat panel table invalid
[ 24.676850] nouveau 0000:63:00.0: priv: HUB0: 10ecc0 ffffffff (1c40822c)
[ 24.740881] nouveau 0000:63:00.0: DRM: Pointer to TMDS table invalid
[ 24.740897] nouveau 0000:63:00.0: DRM: Pointer to flat panel table invalid
[ OK ] Created slice system-driver\x2dupdates.slice.
Starting Driver Update Disk UI on tty1...
[ OK ] Started Show Plymouth Boot Screen.
[ OK ] Reached target Paths.
[ OK ] Reached target Basic System.
[ OK ] Started Device-Mapper Multipath Device Controller.
Starting Open-iSCSI...
[ OK ] Started Open-iSCSI.
Starting dracut initqueue hook...
[ OK ] Created slice system-driver\x2dupdates.slice.
Starting Driver Update Disk UI on tty1...
DD: starting interactive mode

(Page 1 of 1) Driver disk device selection
  /DEVICE  TYPE      LABEL          UUID
1) sda1    ufat       ESXi           591C-E3E2
2) sda2    ufat       ESXi           4C6C-A2D4
3) sda3    UMF5_vol   ESXi           5aa6e18d-304835ba-1711-4c776d996e2e
4) sda5    ufat       ESXi           4C6C-A2CA
5) sda6    ufat       ESXi           4C6C-A2CD
6) sda8    ufat       ESXi           4C6C-A2CB
7) sr0     iso9660    RHEL-7.3\x20x86_64 2016-10-19-17-41-40-00
# to select, 'r'-refresh, or 'c'-continue: r

(Page 1 of 1) Driver disk device selection
  /DEVICE  TYPE      LABEL          UUID
1) sda1    ufat       ESXi           591C-E3E2
2) sda2    ufat       ESXi           4C6C-A2D4
3) sda3    UMF5_vol   ESXi           5aa6e18d-304835ba-1711-4c776d996e2e
4) sda5    ufat       ESXi           4C6C-A2CA
5) sda6    ufat       ESXi           4C6C-A2CD
6) sda8    ufat       ESXi           4C6C-A2CB
7) sr0     iso9660    CDR0M          2017-05-26-05-44-09-00
# to select, 'r'-refresh, or 'c'-continue: 7
DD: Examining /dev/sr0
mount: /dev/sr0 is write-protected, mounting read-only

(Page 1 of 1) Select drivers to install
1) [ ] /media/DD-1/rpms/x86_64/kmod-mpt3sas-23.00.00.00_e17.3-1.x86_64.rpm
# to toggle selection, or 'c'-continue: 1

(Page 1 of 1) Select drivers to install
1) [x] /media/DD-1/rpms/x86_64/kmod-mpt3sas-23.00.00.00_e17.3-1.x86_64.rpm
# to toggle selection, or 'c'-continue:
```

Step 12. The .rpm driver is inside the .iso file. You may get a warning that “DD repo content not a file”, but it is only a warning – the driver would have been installed.

Step 13. You should be at the “Driver disk device selection” menu again. Unmap the driver ISO and map your RHEL ISO again. Press ‘r’ to refresh and then – press ‘c’ to continue with the RHEL installation. The installer should be able to recognise the RAID controller and the disks managed by it.

```
Cisco Virtual KVM Console File View Macros Tools Power Boot Device Virtual Media Help
Create Image
Activate Virtual Devices
rhel-server-7.3-x86_64-boot.iso Mapped to CD/DVD
Map Removable Disk ...
Map Floppy ...

3) sda3  UMFS_vol
4) sda5  ufat
5) sda6  ufat
6) sda8  ufat
7) sr0   iso9660  RHEL-7.3\x20x86_64
# to select, 'r'-refresh, or 'c'-continue:

(Page 1 of 1) Driver disk device selection
/DEVICE TYPE LABEL UUID
1) sda1  ufat  ESXi  591C-E3E2
2) sda2  ufat
4C6C-A2D4
3) sda3  UMFS_vol  5aa6e18d-304835ba-1711-4c776d996e2e
4) sda5  ufat  4C6C-A2CA
5) sda6  ufat  4C6C-A2CD
6) sda8  ufat  4C6C-A2C8
7) sr0   iso9660  CDROM  2017-05-26-05-44-09-00
# to select, 'r'-refresh, or 'c'-continue: ?
DD: Examining /dev/sr0
mount: /dev/sr0 is write-protected, mounting read-only

(Page 1 of 1) Select drivers to install
1) [ ] /media/DD-1/rpms/x86_64/kmod-mpt3sas-23.00.00.00_e17.3-1.x86_64.rpm
# to toggle selection, or 'c'-continue: 1

(Page 1 of 1) Select drivers to install
1) [x] /media/DD-1/rpms/x86_64/kmod-mpt3sas-23.00.00.00_e17.3-1.x86_64.rpm
# to toggle selection, or 'c'-continue: 1

(Page 1 of 1) Select drivers to install
1) [ ] /media/DD-1/rpms/x86_64/kmod-mpt3sas-23.00.00.00_e17.3-1.x86_64.rpm
# to toggle selection, or 'c'-continue: 1

(Page 1 of 1) Select drivers to install
1) [x] /media/DD-1/rpms/x86_64/kmod-mpt3sas-23.00.00.00_e17.3-1.x86_64.rpm
# to toggle selection, or 'c'-continue: c
DD: Extracting: kmod-mpt3sas
DD: WARNING: DD repo content not a file: /media/DD-1/rpms/x86_64/repoata

(Page 1 of 1) Driver disk device selection
/DEVICE TYPE LABEL UUID
1) sda1  ufat  ESXi  591C-E3E2
2) sda2  ufat
4C6C-A2D4
3) sda3  UMFS_vol  5aa6e18d-304835ba-1711-4c776d996e2e
4) sda5  ufat  4C6C-A2CA
5) sda6  ufat  4C6C-A2CD
6) sda8  ufat  4C6C-A2C8
7) sr0   iso9660  CDROM  2017-05-26-05-44-09-00
# to select, 'r'-refresh, or 'c'-continue:
```



INSTALLATION SUMMARY

RED HAT ENTERPRISE LINUX 7.3 INSTALLATION

us

Help!

LOCALIZATION



DATE & TIME
Americas/New York timezone



KEYBOARD
English (US)



LANGUAGE SUPPORT
English (United States)

SOFTWARE



INSTALLATION SOURCE
Setting up installation source...



SOFTWARE SELECTION
Installation source not set up

SYSTEM



INSTALLATION DESTINATION
No disks selected



KDUMP
Kdump is enabled



NETWORK & HOST NAME
Not connected



SECURITY POLICY
Not ready

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.

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

223.57 GiB  ATA Mircon_5100_MTFD sda / 79 KiB free	5589.03 GiB  TOSHIBA MGO4SCA60EA sdf / 5589.03 GiB free	5589.03 GiB  TOSHIBA MGO4SCA60EA sdg / 5589.03 GiB free	5589.03 GiB  TOSHIBA MGO4SCA60EA sdh / 5589.03 GiB free	TO sc
--	---	---	---	----------

Specialized & Network Disks

 Add a disk...

Other Storage Options

Partitioning

Automatically configure partitioning. I will configure partitioning.

I would like to make additional space available.

Encryption

Encrypt my data. You'll set a passphrase next.

0 disks selected; 0 B capacity; 0 B free [Refresh...](#)

 No disks selected; please select at least one disk to install to.