# VEP4600 Operating System Installation Guide March 2020



#### Notes, cautions, and warnings

(i) NOTE: A NOTE indicates important information that helps you make better use of your product.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

MARNING: A WARNING indicates a potential for property damage, personal injury, or death.

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# Contents

1 VEP4600 overview	5
2 VEP4600 start up and serial console connection	6
3 VEP4600 configuration guidelines	10
4 Update to the Latest DiagOS	
Burn DiagOS ISO image onto a bootable USB	11
Configure BIOS to install DiagOS from a bootable USB	11
DiagOS Installation	
Configure BIOS and boot into DiagOS	
Update to the latest DiagTools	15
5 Upgrade Firmware through DiagOS	
Check the existing firmware version	17
Copy the Unified Firmware Updater to USB	
Mount_USB_on_the_VEP4600	
Run the Unified Firmware Updater through USB	
6 Upgrade Firmware through BMC	21
Check the existing firmware version	
Configure BMC Management Address in BIOS	
Configure BMC Management address on BMC console	
Run the Unified Firmware Updater from a Linux server	
7 Upgrade rNDC Firmware workaround	
Upgrade rNDC firmware when ESXi is running on VEP4600	27
Upgrade rNDC firmware when CentOS is running on VEP4600	
8 Prepare bootable USB with OS ISO image	
Prepare bootable USB	
Download Rufus	
9 Configure BIOS and Install RHEL OS	
Configure BIOS to Boot From USB	
Install Red Hat OS	
Start Red Hat OS installation	
Configure BIOS to boot from SSD	
10 Configure BIOS and Install Ubuntu OS	
Configure BIOS to boot from USB	49
Ubuntu OS installation	
Configure BIOS to boot from SSD	

11 Configure BIOS and Install Adva OS	
Configure BIOS to boot from USB	
ADVA OS Installation	
Configure BIOS to boot from SSD	
12 Configure BIOS and Install ESXi OS	
Configure BIOS to boot from USB	
Install ESXi OS	
Configure BIOS to boot from SSD	
Logging into ESXi	
Configuring the network on ESXi	
How to add ESXi license	

## **VEP4600 overview**

The VEP4600 platform is a one rack unit, x86-based networking platform running virtualized universal customer premise equipment (uCPE) functions, and basic switching/routing functions as a top-of-rack device with 4, 8, or 16 cores.



#### Figure 1. VEP4600 platform

- 1. Platform status icon LEDs
- 3. SFP+ ports
- 5. 1000 Base-T networking ports
- 7. Micro USB-B port

- 2. RS-232 ports (top) and 10/100/1000 Base-T ports (bottom)
- 4. Luggage tag
- 6. Processor power on/off button
- 8. USB Type A ports

For detailed information about the VEP4600 platform, see the following documents at https://www.dell.com/support:

- BMC User Guide
- BIOS User Guide
- VEP4600 Installation Guide
- VEP4600 Setup Guide
- uCPE Networking DIAG OS Guide

This document describes the steps for OS installation on VEP4600 device. The OS installation steps are tested and verified on VEP4600 device with the OS versions listed below.

- DiagOS image: diagos-recovery-x86\_64-dellemc\_vep4600\_d21xyt-r0.3.41.3.81-6.iso
- RHEL OS image: rhel-server-7.5-x86\_64-dvd.iso
- Ubuntu OS image: ubuntu-18.10-live-server-amd64.iso
- · Adva OS image: SVCS\_connector-18.3.2.61-18.3-standard-dell.134.iso
- ESXi OS image: VMware-VMvisor-Installer-6.7.0.update01-10764712.x86\_64-DellEMC\_Customized-A03.iso

# VEP4600 start up and serial console connection

 On a laptop connected to the VEP4600, bring up Windows Device Manager to get the COM port. Windows Device Manager

占 D	🛃 Device Manager				
File	Action	View Help			
<b>(</b> = =	•				
× 🚽	W10F1	833M2			
>	🖣 Au	dio inputs and outputs			
>	凄 Ba	tteries			
>	🚯 Blu	uetooth			
>	Q Ca	meras			
>	Co	mputer			
>	🕳 Dis	sk drives			
>	🔙 Dis	splay adapters			
>	📔 Fir	mware			
>	🛺 Hu	man Interface Devices			
>	Ke	yboards			
>	🛄 Me	emory technology devices			
>	🕛 Mi	ce and other pointing devices			
>	🛄 Mo	onitors			
>	📮 Ne	twork adapters			
~	Po	rts (COM & LPT)			
	<b></b>	Intel(R) Active Management Technology - SOL (COM3)			
	Ŵ	USB Serial Port (COM4)			
>	🚍 Pri	nt queues			

- It's the USB Serial Port drive in this case for our USB to serial console adapter. The COM port number is 4.
- **2.** Using Putty, configure a console connection with the right COM port and speed.

PuTTy session options

🕵 PuTTY Configuration		×		
Category:				
Session	Basic options for your	Basic options for your PuTTY session		
	Specify the destination you want to connect to			
Keyboard	Serial line	Speed		
Bell	COM4	115200		
Window Appearance	Connection type: CRaw CTelnet Rlogi	n 🔵 SSH 💿 Serial		
<ul> <li>Behaviour</li> <li>Translation</li> <li>Selection</li> <li>Colours</li> <li>Connection</li> <li>Data</li> <li>Proxy</li> <li>Telnet</li> <li>Rlogin</li> <li>SSH</li> <li>Serial</li> </ul>	Load, save or delete a stored see Saved Sessions	ssion		
	<u>.</u>	<ul> <li>▲ Load</li> <li>Save</li> <li>Delete</li> <li>▲</li> </ul>		
	Close window on exit: Always Never	Only on clean exit		
About	Op	en Cancel		

**3.** Plug in a power cord to the back of VEP4600. It starts to power up immediately. Watch for VEP4600 console window. VEP4600 console window

BIOS Boot Selector for VEP-4600 Primary BIOS Version 3.41.0.9-14 CPLD Version:1.0 CPLD Reset Source=0x44 POST Configuration CPU Signature 50654 CPU FamilyID=6, Model=55, SteppingId=4, Processor=0 Microcode Revision 2000057 Platform ID: 0x1000000000000 PKG CST CFG CTL: 0x3 Misc EN: 0x4000840088 Gen PM Con1: 0x0 Therm Status: 0x8000000 POST Control=0xEA000301, Status=0xE600FF00 BIOS initializations... POST: RTC Battery OK at last cold boot RTC date 8/22/2019 4:18:29 POST SPD test ..... PASS POST Lower DRAM Memory test ..... DRAM Interface test ..... Perf cnt (curr,fixed): 0x13E3512956,0x13EC46B39C POST Lower DRAM Memory test ..... PASS POST Lower DRAM ECC check ..... PASS

After the POST Lower DRAM Memory test text displays, the cursor moves to the upper left corner of the console window.

Curser

4. Press the **Delete** button until the **Press <DEL>** ... string displays on the console window.

Console window

```
Version 2.20.1271. Copyright (C) 2018 American Megatrends, Inc.
BIOS Date: 04/11/2018 02:44:05 Ver: 0ACJF020
Press <DEL> or <F2> to enter setup.
```

i NOTE: If you miss the setup screen, a boot up screen displays. If this happens, power cycle the VEP4600 and press the Delete button. Repeat the process until you see the setup screen.

Setup screen

Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.			
/			
BIOS Information		^IChoose the system	
BIOS Vendor	American Megatrends	* default language	
Core Version	5.14	*	
Compliancy	UEFI 2.6; PI 1.4	*	
Project Version	3.41.0.9-14	*	
Build Date and Time	04/10/2019 00:01:36	*	
Access Level	Administrator	*	
		*	
Platform Information		*	
Platform	TypeYubaCityRP	*	
Processor	50654 - SKX M0	* ><: Select Screen	
PCH	- B2-D	* ^v: Select Item	
RC Revision	06D25	* Enter: Select	
		* +/-: Change Opt.	
Memory Information		* F1: General Help	
Total Memory	65536 MB	+ F2: Previous Values	
		+ F3: Optimized Defaults	
System Language		v F4: Save & Exit	
		ESC: Exit	
\		/	

Version 2.20.1271. Copyright (C) 2019 American Megatrends, Inc.

# **VEP4600 configuration guidelines**

#### Topics

- · Types of VEP4600 with pre-installed OS from manufacturing
- Guidelines for upgrading VEP4600 based on manufacturing configuration

This section describes the steps to take to complete the VEP4600 configuration. The VEP4600 will arrive from manufacturing with one of the following configurations.

- · Config1: VEP4600 preinstalled with ESXi
- Config2: VEP4600 preinstalled with DiagOS
- Config3: VEP4600 preinstalled with Versa flex NFV

#### Config1 – ESXi v6.7 Ux is installed on the VEP4600:

Update firmware from the BMC - See Upgrade Firmware through BMC

#### Config2 – DiagOS is installed on the VEP4600:

- Update to the latest version of DiagOS See Upgrade Firmware through DiagOS
- Update the firmware.

#### Config3 – Versa flex NFV is installed on the VEP4600:

Update firmware from the BMC - See Upgrade Firmware through BMC

# **Update to the Latest DiagOS**

This section describes the steps to take to update the DiagOS if your VEP4600 arrived from Dell with the DiagOS as the only operating system. Updating the DiagOS is required prior to updating any other firmware.

#### **Topics:**

- Burn DiagOS ISO image onto a bootable USB
- Configure BIOS to install DiagOS from a bootable USB
- DiagOS Installation
- Configure BIOS and boot into DiagOS
- Update to the latest DiagTools

## Burn DiagOS ISO image onto a bootable USB

- **1.** Insert the USB into a Linux computer.
- 2. Log in to the Linux OS and mount the USB.
- **3.** Download the DIAG OS .ISO image to the Linux computer using TCP, SCP, or a similar protocol.
- 4. Use the following dd (data duplicator) Linux command to burn the DIAG OS install image to the USB.

dd if= diagos-recovery-x86\_64-dellemc\_vep4600\_d21xyt-r0.3.41.3.81-6.iso of=/dev/sdb bs=4M

(i) NOTE: Use /dev/sdb, not sdb# number even if fdisk did show sdb# as one of the USBs plugged in.

Device Boot Start End Sectors Size Id Type /dev/sdb1 \* 7516 7899 384 192K ef EFI (FAT-12/16/32)

**5.** Remove the USB from the Linux computer and plug it into the VEP4600. Reboot the system and go to BIOS settings.

# Configure BIOS to install DiagOS from a bootable USB

 Select the **Boot** menu tab. Using the up and down arrow keys, go down to the UEFI USB Drive BBS Priorities. Boot menu tab

Aptio Setup Utility < Security Boot Save &	- Copyright (C) 2018 Am Exit	erican Megatrends, Inc.
·		+/
Boot Configuration		^ Specifies the Boot
Setup Prompt Timeout	5	* Device Priority
Bootup NumLock State	[On]	* sequence from available
Quiet Boot	[Disabled]	* UEFI USB Drives.
		*1
Boot mode select	[UEFI]	*[ ]
		*
FIXED BOOT ORDER Priorit	ties	*1
Boot Option #1	[Hard Disk:UEFI OS	*1
	(P3: M.2 (S80) 3ME4)]	*
Boot Option #2	[USB Device:UEFI:	*  ><: Select Screen
	Dell Dell USB PMAP,	* ^v: Select Item
	Partition 11	* Enter: Select
Boot Option #3	[Network]	* +/-: Change Opt.
Boot Option #4	UEFI API	* F1: General Help
		* F2: Previous Values
> UEFI Hard Disk Drive BBS	S Priorities	+ F3: Optimized Defaults
> UEFT USB Drive BBS Priot	rities	vIF4: Save & Exit
		IESC: Exit
		+/
Vargion 2 20 1271	Converight (C) 2018 Amor	ican Megatrende Inc

2. Select **UEFI:** then **USB Device:** to boot the DIAG OS from a USB drive.

DIAG OS USB to boot UEFI

```
/----- Boot Option #1 ------
UEFI: Dell Dell USB PMAP, Partition 1
UEFI: Generic Flash Disk 8.07
UEFI: Generic Flash Disk 8.07, Partition 1
Disable
```

DIAG OS USB to boot USB device



**3.** Verify that Boot Option 1 lists the DIAG OS USB as the boot option.

Boot Option 1

Boot Configuration		^ Sets the system boot
Setup Prompt Timeout	5	* order
Bootup NumLock State	[On]	*1
Quiet Boot	[Disabled]	*  *
Boot mode select	[UEFI]	*
FIXED BOOT ORDER Priori	lties	*
Boot Option #1		*  *
Boot Option #2	[Hard Disk:UEFI OS (P3: M.2 (S80) 3ME4)]	* ><: Select Screen * ^v: Select Item * Enter: Select
Boot Option #3	[Network]	* +/-: Change Opt.
Boot Option #4	[UEFI AP]	* F1: General Help * F2: Previous Values
UEFI Hard Disk Drive BH	3S Priorities	+ F3: Optimized Defaults
UEFI USB Drive BBS Price	prities	v F4: Save & Exit  ESC: Exit

4. Press the F4 key to Save the changes and exit the utility.

Save and Exit prompt

Save Options	<pre>^ Exit system setup after</pre>
Discard Changes and Exit	* saving the changes. *  *
Save Changes and Reset	+
Discard Changes and R/ Save &	Exit Setup\
Save Changes Save configu Discard Changes	ration and exit?
Default Options	No Select Screen
Restore Defaults	Select Item
Save as User Defaults	r: Select
Restore User Defaults	+ +/-: Change Opt.
	+ F1: General Help
Boot Override	+ F2: Previous Values
UEFI: Built-in EFI Shell	+ F3: Optimized Defaults
	v F4: Save & Exit
	IESC: Exit

- 5. Confirm saving the configuration by selecting **Yes** and press **Enter**.
- 6. The system will boot from the USB and start the installation.

## **DiagOS Installation**

1. Select VEP4600 DiagOS Install.

#### GNU GRUB version 2.02



- 3. After the DIAG OS installation completes, DiagOS will reboot automatically.
- **4.** When the machine reboots, remove the USB.

### **Configure BIOS and boot into DiagOS**

- 1. Boot into the BIOS settings again.
- 2. Select Boot Option number 1 from the Boot configuration screen, to select boot from DIAG OS on the hard disk.

Boot configuration screen

Aptio Setup Utility < Dell Diagnostics Serv	/ - Copyright (C) 2019 Am /er Mgmt Security <mark>Boot</mark>	erican Megatrends, Inc. Save & Exit		
Boot Configuration Setup Prompt Timeout WARNING: More than 450 cause system timeout, a BIOS.	100 tenth of seconds will and switch to the backup	<pre>^ +</pre>		
Bootup NumLock State Quiet Boot Optimized Boot	[On] [Disabled] [Disabled]	+ devices to decrease +  + boot time. While v  +		
Boot Option Priorities Boot Option #1 Boot Option #2	[EDA-DIAG (P3: M.2 (S80) 3ME4)] [UEFI: PXE IP4	+ ><: Select Screen + ^v: Select Item + Enter: Select + +/-: Change Opt.		
	Intel(R) I210 Gigabit Network Connection]	+ F1: General Help + F2: Previous Values + F3: Optimized Defaults v F4: Save & Exit  ESC: Exit		
Version 2.20.1271. Copyright (C) 2019 American Megatrends, Inc.				

3. Press the F4 key to Save the changes and exit the utility.

4. Confirm saving the configuration by selecting Yes and press Enter.

Save & exit



5. The system will boot into the Diag OS and the login command prompt displays.

		Starting OpenBSD Secure Shell server
L	0K	] Started OpenBSD Secure Shell server.
ſ	ок	l Started Regular background program processing daemon
		Starting /etc/rc.local Compatibility
		Starting getty on tty2-tty6 if dbus and logind are not available
		Starting System Logging Service
		Starting Permit User Sessions
[	0K	] Started Permit User Sessions.
Ĩ	0K	] Started System Logging Service.
Ĩ	0K	] Started getty on tty2-tty6 if dbus and logind are not available.
[	0K	] Listening on D-Bus System Message Bus Socket.
		Starting D-Bus System Message Bus
[	0K	] Started D-Bus System Message Bus.
[	0K	] Started /etc/rc.local Compatibility.
		Starting Getty on tty6
[	0K	] Started Getty on tty6.
		Starting Getty on tty5
[	0K	] Started Getty on tty5.
		Starting Getty on tty4
[	0K	] Started Getty on tty4.
		Starting Getty on tty3
[	0K	] Started Getty on tty3.
		Starting Getty on tty2
[	0K	] Started Getty on tty2.
		Starting Getty on ttyl
l	0K	] Started Getty on ttyl.
		Starting Serial Getty on ttyS0
Ļ	0K	] Started Serial Getty on ttyS0.
Ļ	0K	] Reached target Login Prompts.
Ļ	0K	] Reached target Multi-User System.
L	0K	] Reached target Graphical Interface.
		Starting Update UTMP about System Runlevel Changes
L	0K	] Started Update UTMP about System Runlevel Changes.
Del	bian	GNU/Linux 8 dellemc-diag-os ttyS0
ما د <sup>1</sup>	11	a dian an lanin. 🔳
ae	llem	c-diag-os login:

6. To login, type root/calvin.

## Update to the latest DiagTools

 Check the Diag Tool version using dpkg --list| grep dn-diags-vep4600.deb DiagTool Version root@dellemc-diag-os:~# dpkg --list | grep dn-diags-vep4600.deb ii dn-diags-vep4600.deb\_\_\_\_\_\_\_3.41.4.81-16\_\_\_\_\_\_amd64\_\_\_\_\_Dell Networking Diagnostics

- 2. If the Diag Tools version is 3.41.4.81-16, upgrade it to the latest 3.41.4.81-17.
- 3. Copy the latest Diag Tools to the VEP4600.

(i) NOTE: Diag Tools will contain some file in /opt/dellemc. Remove dellemc file so that no other files exist.

4. Use dpkg -i dn-diags-VEP4600-DiagOS-3.41.4.81-17.deb to install the Diag Tools.

Installing Latest DiagTools

```
deb @dellemc-diag-os:~# dpkg -i dn-diags-VEP4600-DiagOS-3.41.4.81-17-2019-04-24.d
Selecting previously unselected package dn-diags-vep4600.deb.
(Reading database ... 20026 files and directories currently installed.)
Preparing to unpack dn-diags-VEP4600-DiagOS-3.41.4.81-17-2019-04-24.deb ...
Unpacking dn-diags-vep4600.deb (3.41.4.81-17) ...
Setting up dn-diags-vep4600.deb (3.41.4.81-17) ...
root@dellemc-diag-os:~#
```

5. Verify the latest Diag Tools is running: dpkg -list | grep dn-diags-VEP4600.deb

```
root@dellemc-diag-os:~# dpkg --list | grep dn-diags-vep4600.deb
ii dn-diags-vep4600.deb 3.41.4.81-17 amd64 Dell Networking Diagnostics
```

# **Upgrade Firmware through DiagOS**

This section describes the steps to take to upgrade the VEP4600's firmware if your VEP4600 arrived from Dell with the DiagOS as the only operating system.

The Unified Firmware Updater will need to be copied to a USB and run from the mounted USB.

#### **Topics:**

- Check the existing firmware version
- Copy the Unified Firmware Updater to USB
- Mount\_USB\_on\_the\_VEP4600
- Run the Unified Firmware Updater through USB

### Check the existing firmware version

To check the current VEP4600 firmware versions from the DiagOS run the following command: DiagOS installed: login and type updatetool -D ALL -V

## **Copy the Unified Firmware Updater to USB**

- 1. Download the Unified Firmware Updater (UFW) from the Dell support site.
- 2. Unzip vep4600\_ufw\_2.8.zip which contains the Unified Firmware Updater zip file, (vep4600\_ufw\_2.8.zip) Contents of zip file vep4600 ufw 2.8.zip

#### vep4600\_ufw\_2.8.zip

🔓 Name	Туре	Modified	Size
UEP4600-BMC-v2.00.zip	WinZip File	5/14/2019 3:0	23,403,442
UEP4600-BIOS-3.41.0.9-15.zip	WinZip File	9/3/2019 3:05	8,181,875
urgen vep4600_ufw_2.8.zip	WinZip File	9/4/2019 4:02	70,695,365
VEP4600_CPLD_V10.zip	WinZip File	3/28/2019 12:	44,000

**3.** Unzip vep4600\_ufw\_2.8.zip file to obtain the vep4600\_ufw\_2.8 (Unified Firmware Updater) script.

vep4600\_ufw\_2.8.zip contents

#### vep4600\_ufw\_2.8.zip

	🔒 Name	Туре	Modified	Size
E	vep4600_ufw_2.8.md5.md5	MD5 File	9/4/2019 3:56	50
	vep4600_ufw_2.8	8 File	9/4/2019 3:56	70,684,333

4. vep4600\_ufw\_2.8 contains the following firmware versions:

- · CPLD 0x10
- BMC v2.0

- BIOS 3.41.0.9-15
- WiFi CPLD image 0x01
- rNDC CPLD image 0x02
- rNDC nvm images (DUP package 18.08.200)
- 5. From a Windows or Linux server, copy the vep4600\_ufw\_2.8 file to a USB. (USB size 2GB is sufficient)

### Mount\_USB\_on\_the\_VEP4600

- 1. Insert the USB into the USB port in the VEP4600 front panel.
- 2. From the serial console DiagOS:
  - a. Run the command mkdir /mnt/usb to create the mount point
  - b. Run the command mount /dev/sdb /mnt/usb
- 3. The USB can take a different device name, but usually VEP4600 DIAG OS assigns sdb for the USB. If you run fdisk -1 the USB is usually one of the last drives in the list.

Device Boot Start End Sectors Size Id Type /dev/sdb1 32 30031871 30031840 14.3G c W95 FAT32 (LBA)

### **Run the Unified Firmware Updater through USB**

- 1. From mounted USB, run the Unified Firmware Updater with the following commands:
  - a. root@dellemc-diag-os:~# cd /mnt/usb
  - b. root@dellemc-diag-os:/mnt/usb# chmod 777 vep4600\_ufw\_x.x
  - C. root@dellemc-diag-os:/mnt/usb# ./vep4600\_ufw\_x.x interactive
- 2. The following menu is displayed below:

```
root@dellemc-diag-os:/mnt/usb# chmod 777 vep4600 ufw x.x
root@dellemc-diag-os:/mnt/usb# ./vep4600 ufw x.x interactive
Creating directory images
                                        MD5 checksums are OK. All good.
Verifying archive integrity... 100%
Uncompressing release 100%
Selecting previously unselected package zlib1g-dev:amd64.
(Reading database ... 20150 files and directories currently installed.)
Preparing to unpack .../zliblg-dev_1%3a1.x.x.dfsg-2+b1_amd64.deb ...
Unpacking zliblg-dev:amd64 (1:1.x.x.dfsg-2+b1) ...
Setting up zliblg-dev:amd64 (1:1.x.x.dfsg-2+b1) ...
Processing triggers for man-db (2.7.0.2-5) ...
fopen: Permission denied
Selecting previously unselected package libssl-dev:amd64.
(Reading database ... 20181 files and directories currently installed.)
Preparing to unpack .../libssl-dev_1.0.1t-1+deb8u6_amd64.deb ...
Unpacking libssl-dev:amd64 (1.0.1t-1+deb8u6)
Setting up libssl-dev:amd64 (1.0.1t-1+deb8u6) ...
Selecting previously unselected package libssl-doc.
(Reading database ... 20267 files and directories currently installed.)
Preparing to unpack .../libssl-doc_1.0.1t-1+deb8u6_all.deb ...
Unpacking libssl-doc (1.0.1t-1+deb8u6) ...
Setting up libssl-doc (1.0.1t-1+deb8u6)
Processing triggers for man-db (2.7.0.2-5) ...
fopen: Permission denied
Selecting previously unselected package bc.
(Reading database ... 21629 files and directories currently installed.)
Preparing to unpack diag/bc_1.06.95-9_amd64.deb ...
Unpacking bc (1.06.95-9) ...
Setting up bc (1.06.95-9) ...
Processing triggers for man-db (2.7.0.2-5) ...
fopen: Permission denied
    Package version: x.x
    Packaged images:
```

BMC image: x.x BIOS image: 3.41.0.x-xx CPLD image: XxXX Wifi CPLD image: XxX Note:If BMC version is less than 1.23 CPLD versions will not be shown correctly 1. Automatically update all firmware components 2. BMC image[Primary version:x.x, backup version:1.23] 3. BIOS image[Booted version: 3.41.0.x-xx] 4. CPLD image[CPLD version: 3.41.0.x-xx] 5. rNDC left CPLD image[CPLD version: 0x2] 6. rNDC right CPLD image[CPLD version: 0x2] q. Exit Enter your choice:1

3. Enter 1 Automatically update all firmware components.

```
updating ALL images
updating BMC image
****
* BMC version = x.x
* Back-up Version = x.x
              ******
Already have x.x programmed
updating BIOS image
****
* BIOS version = 3.41.0.9-13 *
*
              +++
updating primary image only ..
BIOS image is ./VEP4600-BIOS-3.41.0.x-xx.BIN
01
INFO: Yafu INI Configuration File not found... Default options will not be applied...
Creating IPMI session via USB...Done
YAFUFlash - Firmware Upgrade Utility (Version 4.11x.x)
(C)Copyright 2016, American Megatrends Inc.
Beginning BIOS Update...
Uploading Image : 100%... done
Flashing Firmware Image : 100%... done
Verifying Firmware Image : 100%... done
Done with updating image
Will continue to update rest of components
Power cycle cpu to boot new BIOS after update is complete
updating CPLD image
Already have XxXX programmed
updating MC1_CARD CPLD image
Already have 0x2 programmed
WARNING: To avoid damage to your device, do not stop the update or reboot or power off the
system during t update.
Intel(R) Ethernet NVM Update Tool
NVMUpdate version 1.32.20.18
Copyright (C) 2013 - 2018 Intel Corporation.
done updating
Power cycle chassis for updates to take effect
    Package version: x.x
    Packaged images:
        BMC image: x.x
       BIOS image: 3.41.0.x-xx
```

```
CPLD image: XxXX
Wifi CPLD image: XxX
Note:If BMC version is less than 1.23 CPLD versions will not be shown correctly
1. Automatically update all firmware components
2. BMC image[Primary version:x.x, backup version:1.23]
3. BIOS image[Booted version: 3.41.0.x-xx]
4. CPLD image[CPLD version: 3.41.0.x-xx]
5. rNDC left CPLD image[CPLD version: 0x2]
6. rNDC right CPLD image[CPLD version: 0x2]
q. Exit
Enter your choice:q
```

- 4. After firmware upgrade complete, enter **q** to exit.
- 5. Once all firmware updates are complete, a system power cycle is required either with remote power cycler or manually unplugging and plugging back the power cord.

i NOTE: Please note that the power down state should be minimum of 15 seconds for the complete power drain.

## **Upgrade Firmware through BMC**

This section describes the steps to take to upgrade the VEP4600's firmware if your VEP4600 arrived from Dell with the DiagOS as the only operating system.

#### **Topics:**

- Check the existing firmware version
- Configure BMC Management Address in BIOS
- Configure BMC Management address on BMC console
- Run the Unified Firmware Updater from a Linux server

## Check the existing firmware version

To check the current VEP4600 firmware versions when an Operating system is installed:

- a. To find the CPLD and BIOS versions:
  - From the CPU mgmt console:
  - · ESXi is installed: scroll up to last boot output to see BIOS and CPLD versions
  - $\cdot$  DiagOS installed: login and type <code>updatetool -D ALL -V</code>
- **b.** To find the BMC version:

From BMC mgmt console: type ipmitool -I lanplus -H 127.0.0.1 -U admin -P admin mc info

```
~ # ipmitool -I lanplus -H 127.0.0.1 -U admin -P admin mc info
Device ID : 32
Device Revision : 1
Firmware Revision : 2.00
IPMI Version : 2.0
Manufacturer ID : 12290
Manufacturer Name : Unknown (0x3002)
Product ID : 1147 (0x047b)
Product Name : Unknown (0x47B)
Device Available : yes
Provides Device SDRs : no
```

### **Configure BMC Management Address in BIOS**

1. From the BMC console window, run the following commands to boot into the BIOS:

```
ipmitool -I lanplus -H 127.0.0.1 -U admin -P admin chassis bootparam set bootflag
force_bios
ipmitool -I lanplus -H 127.0.0.1 -U admin -P admin power reset
```

2. In the BIOS, tab to Server Mgmt menu, then move cursor down to BMC network configuration.

Select BMC network configuration

Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.				
<pre>&lt; Dell Diagnostics Serv</pre>	er Mgmt Security	Boot Save & Exit		
/		++		
BMC Firmware Revision	1.23	^ Configure BMC network		
IPMI Version	2.0	+ parameters		
BMC Interface(s)	KCS, USB	+1		
		*1		
BMC Support	[Enabled]	*		
Wait For BMC	[Disabled]	*		
FRB-2 Timer	[Enabled]	*1		
FRB-2 Timer timeout	[6 minutes]	*1		
FRB-2 Timer Policy	[Do Nothing]	*		
OS Watchdog Timer	[Disabled]	*		
OS Wtd Timer Timeout	[10 minutes]	*  ><: Select Screen		
OS Wtd Timer Policy	[Reset]	* ^v: Select Item		
Serial Mux	[Disabled]	* Enter: Select		
> System Event Log		* +/-: Change Opt.		
> Bmc self test log		* F1: General Help		
> View FRU information		* F2: Previous Values		
> BMC network configurati		+ F3: Optimized Defaults		
> View System Event Log		v F4: Save & Exit		
		ESC: Exit		

- $\textbf{3.} \ \ \text{Move cursor down to highlight, Configuration address source and press \textbf{Enter.} Select \textbf{Static}.$
- Use Ctrl-h to clear the fields and enter your BMC ip address, Subnet mask and Router IP address (gateway address). Select Static

Aptio Setup Ut.	<mark>ility - Copyright (C) 2</mark> 0: Server Mgmt	19 American Megatrends, Inc.		
BMC network conf	iguration	^ Select to configure LAN		
*****		* channel parameters		
Configure IPV4 support		* statically or		
*****		* dynamically (by BIOS or		
		* (BMC). Unspecified		
Lan channel 1		* option will not modify		
Configuration Add	Configuration Addres	ss source MC network		
source	Unspecified	ers during BIOS		
Current Configura	Static			
Address source	DynamicBmcDhcp			
BMC interface IP	DynamicBmcNonDhcp	ect Screen		
address 📐		ect Item		
Subnet mask		Select		
Station MAC address	D8-9E-F3-BC-56-A9	+ +/-: Change Opt.		
Router IP address	100.67.144.254	+ F1: General Help		
Router MAC address	F8-B1-56-84-E1-26	+ F2: Previous Values		
		+ F3: Optimized Defaults		
************	****	v F4: Save & Exit  ESC: Exit		

- 5. Press the F4 key to Save the changes and exit the utility.
- 6. Confirm saving the configuration by selecting Yes and press Enter to boot.
- 7. Log into the CPU mgmt (DiagOS) console and run the following command:

root@dellemc-diag-os:~# ipmitool lan set 1 ipsrc bios -> this will update the /etc/network/interfaces file to what you have set in the bios

# Configure BMC Management address on BMC console

From the BMC console, run the following commands:

ipmitool -H 127.0.0.1 -U admin -P admin lan set 1 ipsrc <static or dhcp> ipmitool -H 127.0.0.1 -U admin -P admin lan set 1 ipaddr xxx.xx.xxx ipmitool -H 127.0.0.1 -U admin -P admin lan set 1 netmask 255.255.255.0 ipmitool -H 127.0.0.1 -U admin -P admin lan set 1 defgw ipaddr xxx.xx.xx2.254

# Run the Unified Firmware Updater from a Linux server

- 1. Deploy a Linux OS (CentOS, RedHat, Ubuntu) that connects to the VEP4600 BMC network. Can be a VM based Linux server.
- 2. Verify you can reach the BMC ip address with ipmitool:

test@LinuxVM:~/UFW\$ ipmitool -I lanplus -H xxx.xx.xxx -U admin -P admin power status Chassis Power is on

3. Run the UFW from the Linux server with the following command:

./vep4600\_ufw\_x.x <BMC IP address> interactive

```
test@LinuxVM:~/UFW$ ./vep4600 ufw x.x xxx.xxx.xx interactive
Creating directory temp
Verifying archive integrity... 100%
                                         MD5 checksums are OK. All good.
Uncompressing release 100%
./start.sh: line 20: sh_ver: command not found
firmware updater/
firmware_updater/VEP4600-BIOS-3.41.0.9-15.BIN
firmware_updater/AZUL_CPLD_V10 refresh.vme
firmware_updater/libcrypto.so.1.0.0
firmware_updater/ipmitool
firmware_updater/AZUL_CPLD_V10_norefresh.vme
firmware_updater/mstr_01_20181226.vme
firmware updater/MCCARD mstr cpld 00 02 201809101600.vme
firmware_updater/libcrypto.so.1.1
firmware updater/x520/
firmware updater/x520/Intel Proprietary License.pdf
firmware_updater/x520/PIEConfig.sh
firmware updater/x520/smbiosHelp.txt
firmware updater/x520/UpdRollBack.lst
firmware_updater/x520/spUtilityHelp.txt
firmware_updater/x520/sagepond_map.txt
firmware_updater/x520/payload/
firmware updater/x520/payload/BootIMG.CFB
firmware_updater/x520/payload/FmpUpdateWrapper.efi
firmware_updater/x520/PIEInfo.txt
firmware updater/x520/os mapping.xml
firmware_updater/x520/en.prop
firmware_updater/x520/duppmdatacollector.bin
firmware_updater/x520/nvmupdate.cfg
firmware updater/x520/nvmupdate64e
firmware_updater/x520/package.xml
firmware_updater/x520/nvminv.cfg
firmware_updater/x520/BootIMG.FLB
firmware_updater/x520/vpd.txt
firmware_updater/x520/LinuxDepWrapperLinux.bin
firmware updater/x520/svmExeMsg.xsl
firmware_updater/x520/Version.txt
firmware_updater/x520/uni-eol.txt
firmware_updater/x520/buildVer.sh
```

```
firmware_updater/x520/package.xml.sign
firmware_updater/x520/getSystemId
firmware_updater/x520/shellfit.sh
firmware updater/x520/aqua map.txt
firmware_updater/x520/HashOfHashFileList.txt
firmware_updater/x520/spconfig.xml
firmware_updater/x520/OSFlavourUtils.sh
firmware_updater/x520/00-secupd-dell.rules
firmware updater/x520/mc.txt
firmware_updater/x520/sputility.bin
firmware_updater/x520/spsetup.sh
firmware_updater/x520/sphelp.txt
firmware_updater/x520/98-secupdusb.rules
firmware updater/firmware.files
firmware_updater/install.sh
firmware_updater/libreadline.so.7
firmware_updater/libfreeipmi.so.16
firmware_updater/VEP4600-BMC-v2.00.ima
firmware updater/centos7/
firmware updater/centos7/ipmitool-1.8.18-7.el7.x86_64.rpm
firmware updater/centos7/OpenIPMI-modalias-2.0.23-2.el7.x86 64.rpm
firmware_updater/x710/
firmware_updater/x710/Intel_Proprietary_License.pdf
firmware_updater/x710/PIEConfig.sh
firmware_updater/x710/smbiosHelp.txt
firmware updater/x710/08XJ7.txt
firmware_updater/x710/UpdRollBack.lst
firmware_updater/x710/spUtilityHelp.txt
firmware_updater/x710/payload/
firmware updater/x710/payload/BootIMG.CFB
firmware_updater/x710/payload/FmpUpdateWrapper.efi
firmware_updater/x710/kerby_map.txt
firmware_updater/x710/harbor_map.txt
firmware updater/x710/PIEInfo.txt
firmware_updater/x710/DX69G.txt
firmware_updater/x710/os mapping.xml
firmware_updater/x710/en.prop
firmware_updater/x710/duppmdatacollector.bin
firmware_updater/x710/demere map.txt
firmware_updater/x710/nvmupdate.cfg
firmware_updater/x710/nvmupdate64e
firmware_updater/x710/XD56X.txt
firmware_updater/x710/package.xml
firmware updater/x710/nvminv.cfg
firmware_updater/x710/6VDPG.txt
firmware_updater/x710/BootIMG.FLB
firmware_updater/x710/vpd.txt
firmware_updater/x710/LinuxDepWrapperLinux.bin
firmware_updater/x710/svmExeMsg.xsl
firmware_updater/x710/6VDPG 1G.txt
firmware_updater/x710/Version.txt
firmware_updater/x710/uni-eol.txt
firmware_updater/x710/buildVer.sh
firmware_updater/x710/Y348Y.txt
firmware_updater/x710/package.xml.sign
firmware_updater/x710/KF46X.txt
firmware_updater/x710/getSystemId
firmware_updater/x710/shellfit.sh
firmware updater/x710/HashOfHashFileList.txt
firmware_updater/x710/spconfig.xml
firmware updater/x710/OSFlavourUtils.sh
firmware_updater/x710/00-secupd-dell.rules
firmware_updater/x710/mc.txt
firmware updater/x710/sputility.bin
firmware_updater/x710/68M95.txt
firmware_updater/x710/spsetup.sh
firmware_updater/x710/sphelp.txt
firmware_updater/x710/98-secupdusb.rules
firmware_updater/x710/DDJKY.txt
firmware_updater/x710/Y5M7N.txt
firmware_updater/diag/
firmware_updater/diag/bc_1.06.95-9_amd64.deb
firmware_updater/diag/libssl-dev_1.0.1t-1+deb8u6_amd64.deb
```

```
firmware_updater/diag/zlib1g-dev_1%3a1.2.8.dfsg-2+b1_amd64.deb
   firmware_updater/diag/libssl-doc_1.0.1t-1+deb8u6_all.deb
   firmware_updater/Yafuflash
   ~/UFW/temp ~/UFW/temp
       Package version: x.x
       Packaged images:
           BMC image: x.x
           BIOS image: x.xx.x.x-xx
           CPLD image: XxXX
           Wifi CPLD image: XxX
       Note: If BMC version is less than 1.23 CPLD versions will not be shown correctly
       1. Automatically update all firmware components
       2. BMC image[Primary version:x.x, backup version:1.23]
       3. BIOS image[Booted version: x.xx.x.x-xx]
       4. CPLD image[CPLD version: XxXX]
       5. rNDC left CPLD image[CPLD version: XxX]
       6. rNDC right CPLD image[CPLD version: XxX]
       q. Exit
4. Select the appropriate number of your choice to upgrade the firmware.
   Enter your choice:1
   updating ALL images
   updating BMC image
   * BMC version = 1.23
   * Back-up Version = 2.0 *
   updating primary image only ..
   INFO: Yafu INI Configuration File not found... Default options will not be applied...
   Creating IPMI session via network with address xxx.xx.xxx...Done
   Continuing with Full Firmware Update
   WARNING!
   FIRMWARE UPGRADE MUST NOT BE INTERRUPTED ONCE IT IS STARTED.
   PLEASE DO NOT USE THIS FLASH TOOL FROM THE REDIRECTION CONSOLE.
                                                                 *****
   Preserving Env Variables...
                                          done
   Uploading Firmware Image : 100%... done
   Uploading Firmware Image : 100%... done
   Flashing [boot] Module ....
            Firmware Image : 100%... done
   Flashing
   Verifying Firmware Image : 100%... done
   Flashing [conf] Module ...
   Flashing Firmware Image : 100%... done
   Verifying Firmware Image : 100%... done
   Flashing [root] Module ....
   Flashing Firmware Image : 100%... done
   Verifying Firmware Image : 100%... done
   Flashing [osimage] Module ....
Flashing Firmware Image : 100%... done
   Verifying Firmware Image : 100%... done
   Flashing [www] Module ....
   Flashing Firmware Image : 100%... done
   Verifying Firmware Image : 100%... done
   Flashing [testapps] Module ....
   Flashing Firmware Image : 100%... done
   Verifying Firmware Image : 100%... done
   Flashing [ast2500e] Module
   Flashing Firmware Image : 100%... done
   Verifying Firmware Image : 100%... done
   Setting Env variables...
                                         done
   Resetting the firmware.....
   Done with updating image
```

```
Waiting while BMC reboots ..
\ updating BIOS image
*****
* BIOS version = 3.41.0.9-12 *
updating primary image only ..
BIOS image is ./VEP4600-BIOS-3.41.0.9-15.BIN
01
INFO: Yafu INI Configuration File not found... Default options will not be applied...
Creating IPMI session via network with address xxx.xx.xxx...Done
  _____
YAFUFlash - Firmware Upgrade Utility (Version 4.112.0)
   _____
(C)Copyright 2016, American Megatrends Inc.
Beginning BIOS Update...
Uploading Image : 100%... done
Flashing Firmware Image : 100%... done
Verifying Firmware Image : 100%... done
Done with updating image
Reseting CPU
Chassis Power Control: Cycle
\ Error: Unable to establish IPMI v2 / RMCP+ session
updating CPLD image
Already have 0x10 programmed
updating MC1 CARD CPLD image
Already have 0x2 programmed
Power cycle chassis for updates to take effect
   Package version: x.x
   Packaged images:
       BMC image: x.x
       BIOS image: x.xx.x.x-xx
       CPLD image: XxXX
       Wifi CPLD image: XxX
   Note: If BMC version is less than 1.23 CPLD versions will not be shown correctly
   1. Automatically update all firmware components
   2. BMC image[Primary version:x.x, backup version:1.23]
   3. BIOS image [Booted version: x.xx.x.x-xx]
    4. CPLD image[CPLD version: XxXX]
   5. rNDC left CPLD image[CPLD version: XxX]
    6. rNDC right CPLD image[CPLD version: XxX]
   q. Exit
```

- 5. After firmware upgrade complete, enter  ${\boldsymbol{q}}$  to exit.
- 6. Once all firmware updates are complete, a system power cycle is required either with remote power cycler or manually unplugging and plugging back the power cord.

(i) NOTE: The power down state should be a minimum of fifteen seconds for the complete power drain.

i NOTE: This solution has a limitation that rNDC Firmware upgrade cannot be done through the BMC network. Follow the next section for the workaround.

# Upgrade rNDC Firmware workaround

This section describes the steps to take to upgrade the VEP4600's firmware if your VEP4600 arrived from Dell with the DiagOS as the only operating system.

#### **Topics:**

- Upgrade rNDC firmware when ESXi is running on VEP4600
- Upgrade rNDC firmware when CentOS is running on VEP4600

# Upgrade rNDC firmware when ESXi is running on VEP4600

- 1. Download the rNDC firmware from the Dell Support site: https://www.dell.com/support/home/us/en/19/drivers/driversdetails? driverid=5vj7v
- 2. Scroll down to File Name: Intel\_LAN\_18.8.0\_ESXi\_FWUPDATEPACKAGE\_A00.zip and click on Download File.
- **3.** Copy the Intel\_LAN\_18.8.0\_ESXi\_FWUPDATEPACKAGE\_A00.zip file to ESXi through WinSCP.
- 4. Login into the ESXi ssh shell
- 5. Unzip the Intel\_LAN\_18.8.0\_ESXi\_FWUPDATEPACKAGE\_A00.zip file to the /tmp directory (default root directory has a small space.)
- 6. Run the following command in the unzippped directory under /tmp

chmod a+x ./intelfw.sh ./intelfw.sh

- 7. Wait until the command has been successfully run (takes about 10 minutes)
- 8. Reboot the unit
- 9. Verify the FW upgrade by checking the lights on the ports:
  - a) Connect a cable to both ports. You should see a green light on both ports. If not, it means you have not successfully upgraded firmware.
- 10. Check both fixed 10G ports and rNDC 10G ports.
- 11. Check both fixed 1G ports and rNDC 1G ports (if applicable)

# Upgrade rNDC firmware when CentOS is running on VEP4600

If the unit has an OS other than ESXi installed, follow the steps below to update rNDC firmware via CentOS 7.5 or higher:

- 1. Download the rNDC firmware from the Dell Support site:
  - a) Intel NIC Firmware Family Version 18.8.9 on Intel 1350, 1354, X520, X540, and X550 adapters: https://www.dell.com/support/home/us/en/19/drivers/driversdetails? driverid=yhf9v&oscode=rhe70&productcode=poweredge-r730xd
     Scroll down to File Name: Network\_Firmware\_YHF9V\_LN\_18.8.9\_A00.BIN and click on Download File.
  - b) Intel NIC Firmware Family Version 18.8.9 on Intel X710, XXV710, and XL710 adapters: https://www.dell.com/support/home/us/en/19/drivers/driversdetails? driverid=3w5y5&oscode=rhe70&productcode=poweredge-r730xd Scroll down to File Name: Network\_Firmware\_3W5Y5\_LN\_18.8.9\_A00.BIN and click on Download File.
- 2. Copy the .BIN files to CentOS on VEP4600 through WinSCP.

3. Log into CentOS shell and set permissions on the .BIN files to extract them.

```
root@vep0046-fvqqg02:~# chmod 777 Net*
```

4. Extract the .BIN files to a directory, Example (rNDC):

```
./< Network_Firmware_xx> --extract <dir>
root@vep0046-fvqqg02:~# ./Network_Firmware_YHF9V_LN_18.8.9_A00.BIN --extract rNDC
Successfully
extracted
to
rNDC
root@vep0046-fvqqg02:~# ./Network_Firmware_3W5Y5_LN_18.8.9_A00.BIN --extract rNDC
Successfully
extracted
to
rNDC
root@vep0046-fvqqg02:~#
```

- 5. cd to /rNDC directory and look for these two files:
  - a) BootIMG.flb uncompressed firmware
  - b) Nvmupdate64e utility to load firmware
- 6. Run nvmupdate64e and it will show all Intel NICs that are in the VEP4600

```
Example output:
```

```
root@vep0046-fvqqg02:~# cd rNDC
root@vep0046-fvqqg02:~/rNDC# ./nvmupdate64e
Copyright (C) 2013 - 2018 Intel Corporation.Intel(R) Ethernet NVM Update Tool
NVMUpdate version 1.32.20.18
Copyright (C) 2013 - 2018 Intel Corporation.
WARNING: To avoid damage to your device, do not stop the update or reboot or power off the
system during this update.
Inventory in progress. Please wait [.....]|+**-|+**-|+
Num Description Ver.(hex) DevId S:B Status
                                                                                                                 ____ _____
01) Intel(R) I350 Gigabit Network 1.99(1.63) 1521 00:002 Update not
Connection available
02) Intel(R) I210 Gigabit Network 3.37(3.25) 1533 00:004 Update not
Connection available
03) Intel(R) Gigabit 4P I350-t rNDC 1.103(1.67) 1521 00:023 Update not
available
04) Intel(R) Ethernet 10G 4P X710 SFP+ 6.00(6.00) 1572 00:101 Update
rNDC available - the bin file was for the x710. That's why i350 shows not available. 05) Intel(R) Ethernet Connection X722 3.51(3.33) 37D3 00:181 Update not
for 10GbE SFP+ available
Options: Adapter Index List (comma-separated), [A]ll, e[X]it
Enter selection:4
Would you like to back up the NVM images? [Y]es/[N]o: Y
Update in progress. This operation may take several minutes.
[\ldots\ldots\ldots] + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - + ** - +
Num Description Ver. (hex) DevId S:B Status
                                                                                                                ____ ____
01) Intel(R) I350 Gigabit Network 1.99(1.63) 1521 00:002 Update not
Connection available
02) Intel(R) I210 Gigabit Network 3.37(3.25) 1533 00:004 Update not
Connection available
03) Intel(R) Gigabit 4P I350-t rNDC 1.103(1.67) 1521 00:023 Update not
available
04) Intel(R) Ethernet 10G 4P X710 SFP+ 6.128(6.80) 1572 00:101 Update
rNDC successful
05) Intel(R) Ethernet Connection X722 3.51(3.33) 37D3 00:181 Update not
for 10GbE SFP+ available
Reboot is required to complete the update process.
Tool execution completed with the following status: All operations completed successfully.
Press any key to exit.
```

- 7. The device will reboot.
- 8. Commands to confirm the firmware was updated:

[root@localhost]# ip addr 1: lo: <LOOPBACK,UP,LOWER UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000 link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00 inet 127.0.0.1/8 scope host lo valid\_lft forever preferred\_lft forever inet6 ::1/128 scope host valid\_lft forever preferred\_lft forever 2: enp2s0f0: <NO-CARRIER, BROADCAST, MULTICAST, UP> mtu 1500 qdisc mq state DOWN group default qlen 1000 link/ether 54:bf:64:be:08:40 brd ff:ff:ff:ff:ff 3: enp2s0f1: <NO-CARRIER, BROADCAST, MULTICAST, UP> mtu 1500 qdisc mq state DOWN group default qlen 1000 link/ether 54:bf:64:be:08:41 brd ff:ff:ff:ff:ff:ff 4: enp2s0f2: <NO-CARRIER, BROADCAST, MULTICAST, UP> mtu 1500 qdisc mq state DOWN group default qlen 1000 link/ether 54:bf:64:be:08:42 brd ff:ff:ff:ff:ff 6: enp2s0f3: <NO-CARRIER, BROADCAST, MULTICAST, UP> mtu 1500 qdisc mq state DOWN group default qlen 1000 link/ether 54:bf:64:be:08:43 brd ff:ff:ff:ff:ff 8: enp4s0: <BROADCAST,MULTICAST,UP,LOWER UP> mtu 1500 qdisc mq state UP group default qlen 1000 link/ether 54:bf:64:be:08:44 brd ff:ff:ff:ff:ff:ff inet 100.67.144.132/24 brd 100.67.144.255 scope global noprefixroute dynamic enp4s0 valid lft 542sec preferred lft 542sec inet6 fe80::56bf:64ff:febe:844/64 scope link noprefixroute valid\_lft forever preferred\_lft forever 9: enp23s0f0: <NO-CARRIER, BROADCAST, MULTICAST, UP> mtu 1500 qdisc mq state DOWN group default qlen 1000 link/ether e4:43:4b:3c:b9:90 brd ff:ff:ff:ff:ff 10: enp23s0f1: <NO-CARRIER, BROADCAST, MULTICAST, UP> mtu 1500 qdisc mq state DOWN group default glen 1000 link/ether e4:43:4b:3c:b9:91 brd ff:ff:ff:ff:ff:ff 12: enp23s0f2: <NO-CARRIER, BROADCAST, MULTICAST, UP> mtu 1500 qdisc mq state DOWN group default qlen 1000 link/ether e4:43:4b:3c:b9:92 brd ff:ff:ff:ff:ff 13: enp23s0f3: <NO-CARRIER, BROADCAST, MULTICAST, UP> mtu 1500 qdisc mq state DOWN group default qlen 1000 link/ether e4:43:4b:3c:b9:93 brd ff:ff:ff:ff:ff:ff 19: enp101s0f0: <NO-CARRIER, BROADCAST, MULTICAST, UP> mtu 1500 qdisc mq state DOWN group default qlen 1000 link/ether e4:43:4b:38:8c:90 brd ff:ff:ff:ff:ff:ff 20: enpl01s0f1: <NO-CARRIER, BROADCAST, MULTICAST, UP> mtu 1500 qdisc mq state DOWN group default qlen 1000 link/ether e4:43:4b:38:8c:91 brd ff:ff:ff:ff:ff:ff 21: enpl01s0f2: <NO-CARRIER, BROADCAST, MULTICAST, UP> mtu 1500 qdisc mq state DOWN group default qlen 1000 link/ether e4:43:4b:38:8c:92 brd ff:ff:ff:ff:ff:ff 22: enp101s0f3: <NO-CARRIER, BROADCAST, MULTICAST, UP> mtu 1500 qdisc mq state DOWN group default qlen 1000 link/ether e4:43:4b:38:8c:93 brd ff:ff:ff:ff:ff 23: enp181s0f0: <BROADCAST,MULTICAST,UP,LOWER UP> mtu 1500 qdisc mq state UP group default qlen 1000 - (Updated x710) link/ether 54:bf:64:be:08:45 brd ff:ff:ff:ff:ff 24: enp181s0f1: <BROADCAST,MULTICAST,UP,LOWER UP> mtu 1500 qdisc mq state UP group default glen 1000 link/ether 54:bf:64:be:08:46 brd ff:ff:ff:ff:ff:ff 25: enp181s0f2: <NO-CARRIER, BROADCAST, MULTICAST, UP> mtu 1500 qdisc mq state DOWN group default qlen 1000 link/ether 54:bf:64:be:08:47 brd ff:ff:ff:ff:ff 26: enp181s0f3: <NO-CARRIER, BROADCAST, MULTICAST, UP> mtu 1500 qdisc mq state DOWN group default glen 1000 link/ether 54:bf:64:be:08:48 brd ff:ff:ff:ff:ff:ff

9. Run the following command to check the version:

[root@localhost]# ethtool -i enp101s0f0
driver: i40e
version: 2.6.12
firmware-version: 6.80 0x80003d74 18.8.9 - (confirmed FW has been updated)

expansion-rom-version: bus-info: 0000:65:00.0 supports-statistics: yes supports-test: yes supports-eeprom-access: yes supports-register-dump: yes supports-priv-flags: yes

#### Optional commands:

[root@localhost]# rmmod i40e -- (command to remove module)
[root@localhost]# modprobe i40e - (command to add module)

## 8

# Prepare bootable USB with OS ISO image

This section describes the how to prepare a USB key to install the operating system of your choice. For this procedure, you need a bootable USB. On a Windows CPU, use Rufus to burn the bootable USB.

#### **Topics:**

- Prepare bootable USB
- Download Rufus

## Prepare bootable USB

## **Download Rufus**

- 1. To download Rufus, go to: https://rufus.akeo.ie
- Open Rufus and click on SELECT button to load the ISO image from the Windows disks. Prepare bootable USB

Device	
RHEL-7.5 Server.x86_64 (D:) [16 GB	3] ~
Boot selection	
rhel-server-7.5-x86_64-dvd.iso	✓ Ø SELECT
Partition scheme	Target system
GPT ~	UEFI (non CSM) ~
<ul> <li>Show advanced drive propertie</li> <li>Format Options</li> <li>Volume label</li> <li>RHEL-7.5 Server.x86_64</li> </ul>	S
<ul> <li>Show advanced drive propertie</li> <li>Format Options</li> <li>Volume label</li> <li>RHEL-7.5 Server.x86_64</li> <li>File system</li> </ul>	s Cluster size
<ul> <li>Show advanced drive propertie</li> <li>Format Options</li> <li>Volume label</li> <li>RHEL-7.5 Server.x86_64</li> <li>File system</li> <li>FAT32 (Default) ~</li> </ul>	s Cluster size 8192 bytes (Default)
<ul> <li>Show advanced drive propertie</li> <li>Format Options</li> <li>Volume label</li> <li>RHEL-7.5 Server.x86_64</li> <li>File system</li> <li>FAT32 (Default) ~</li> <li>Show advanced format options</li> <li>Status</li> </ul>	s Cluster size 8192 bytes (Default)
<ul> <li>Show advanced drive propertie</li> <li>Format Options</li> <li>Volume label</li> <li>RHEL-7.5 Server.x86_64</li> <li>File system</li> <li>FAT32 (Default) </li> <li>Show advanced format options</li> <li>Status</li> </ul>	S Cluster size 8192 bytes (Default)

rhel-server-7.5-x86\_64-dvd

Jubuntu-18.10-live-server-amd64

VMware-VMvisor-Installer-6.7.0.update01-1076...

4. Verify that the file name selected displays at the bottom of the Rufus device dialog box.

3.

Boot selection		
rhel-server-7.5-x86_64-dvd.iso	~ 🔗 SE	LECT
Partition scheme	Target system	
GPT ~	UEFI (non CSM)	
<ul> <li>Show advanced drive propert</li> <li>Format Options —</li> <li>Volume label</li> </ul>	ies	
RHEL-7.5 Server.x86_64		
File system	Cluster size	
FAT32 (Default) ~	8192 bytes (Default)	~
<ul> <li>Show advanced format option</li> <li>Status</li> </ul>		
NL/		
S () =	START CL	OSE

Rufus device dialog box

(i) NOTE: Use the same process to burn a USB with Ubuntu, Adva and ESXi ISO images.

## **Configure BIOS and Install RHEL OS**

9

#### **Topics:**

- Configure BIOS to Boot From USB
- Install Red Hat OS
- Start Red Hat OS installation
- Configure BIOS to boot from SSD

## **Configure BIOS to Boot From USB**

- 1. Boot the VEP4600 into the BIOS and tab to the Boot menu. For more information on how to access the BIOS, see VEP4600 Start up and serial console.
- 2. Select the Advanced tab. Select CSM Configuration and press Enter.

CSM Configuration



CSM support enabled

Aptio Setu Advance	p Utility - Copyright (C) 2019 d	American Megatrends, Inc.
Compatibility	Support Module Configuration	This option controls
CSM Support	[Enabled]	priority

- 3. Use UEFI to install the Red Hat OS.
- **4.** Select the Boot menu tab.
- 5. Highlight the UEFI USB Drive BBS Priorities option using the left and right arrows and press Enter.

Boot Configuration Setup Prompt Timeout 5 Bootup NumLock State [On] Quiet Boot [Disabled] Boot mode select [UEFI] FIXED BOOT ORDER Priorities Boot Option #1 [Hard Disk:UEFI OS (P3: M.2 (S80) 3ME4) Boot Option #2 [USB Device:UEFI: Dell Dell USB PMAP, Partition 1] Boot Option #3 [Network] Boot Option #4 [UEFI AP] > UEFI Hard Disk Drive BBS Priorities > UEFI USB Drive BBS Priorities	Aptio Setup Utility < Security Boot Save &	- Copyright (C) 2018 Exit
Setup Prompt Timeout 5 Bootup NumLock State [On] Quiet Boot [Disabled] Boot mode select [UEFI] FIXED BOOT ORDER Priorities Boot Option #1 [Hard Disk:UEFI OS (P3: M.2 (S80) 3ME4) Boot Option #2 [USB Device:UEFI: Dell Dell USB PMAP, Partition 1] Boot Option #3 [Network] Boot Option #4 [UEFI AP] > UEFI Hard Disk Drive BBS Priorities > UEFI USB Drive BBS Priorities	Boot Configuration	
Bootup NumLock State [On] Quiet Boot [Disabled] Boot mode select [UEFI] FIXED BOOT ORDER Priorities Boot Option #1 [Hard Disk:UEFI OS (P3: M.2 (S80) 3ME4) Boot Option #2 [USB Device:UEFI: Dell Dell USB PMAP, Partition 1] Boot Option #3 [Network] Boot Option #4 [UEFI AP] > UEFI Hard Disk Drive BBS Priorities > UEFI USB Drive BBS Priorities	Setup Prompt Timeout	5
Quiet Boot [Disabled] Boot mode select [UEFI] FIXED BOOT ORDER Priorities Boot Option #1 [Hard Disk:UEFI OS (P3: M.2 (S80) 3ME4) Boot Option #2 [USB Device:UEFI: Dell Dell USB PMAP, Partition 1] Boot Option #3 [Network] Boot Option #4 [UEFI AP] > UEFI Hard Disk Drive BBS Priorities > UEFI USB Drive BBS Priorities	Bootup NumLock State	[On]
Boot mode select [UEFI] FIXED BOOT ORDER Priorities Boot Option #1 [Hard Disk:UEFI OS (P3: M.2 (S80) 3ME4) Boot Option #2 [USB Device:UEFI: Dell Dell USB PMAP, Partition 1] Boot Option #3 [Network] Boot Option #4 [UEFI AP] > UEFI Hard Disk Drive BBS Priorities > DEFI USB Drive BBS Priorities	Quiet Boot	[Disabled]
FIXED BOOT ORDER Priorities Boot Option #1 [Hard Disk:UEFI OS (P3: M.2 (S80) 3ME4) Boot Option #2 [USB Device:UEFI: Dell Dell USB PMAP, Partition 1] Boot Option #3 [Network] Boot Option #4 [UEFI AP] > UEFI Hard Disk Drive BBS Priorities > DEFI USB Drive BBS Priorities	Boot mode select	[UEFI]
Boot Option #1 [Hard Disk:UEFI OS (P3: M.2 (S80) 3ME4) Boot Option #2 [USB Device:UEFI: Dell Dell USB PMAP, Partition 1] Boot Option #3 [Network] Boot Option #4 [UEFI AP] > UEFI Hard Disk Drive BBS Priorities > UEFI USB Drive BBS Priorities	FIXED BOOT ORDER Priori	ties
Boot Option #2 [USB Device:UEFI: Dell Dell USB PMAP, Partition 1] Boot Option #3 [Network] Boot Option #4 [UEFI AP] > UEFI Hard Disk Drive BBS Priorities > UEFI USB Drive BBS Priorities	Boot Option #1	[Hard Disk:UEFI OS (P3: M.2 (S80) 3ME4)
Dell Dell USB PMAP, Partition 1] Boot Option #3 [Network] Boot Option #4 [UEFI AP] > UEFI Hard Disk Drive BBS Priorities > UEFI USB Drive BBS Priorities	Boot Option #2	[USB Device:UEFI:
Partition 1] Boot Option #3 [Network] Boot Option #4 [UEFI AP] > UEFI Hard Disk Drive BBS Priorities > UEFI USB Drive BBS Priorities		Dell Dell USB PMAP,
Boot Option #3 [Network] Boot Option #4 [UEFI AP] > UEFI Hard Disk Drive BBS Priorities > UEFI USB Drive BBS Priorities		Partition 1]
Boot Option #4 [UEFI AP] > UEFI Hard Disk Drive BBS Priorities > UEFI USB Drive BBS Priorities	Boot Option #3	[Network]
> UEFI Hard Disk Drive BBS Priorities > UEFI USB Drive BBS Priorities	Boot Option #4	[UEFI AP]
> UEFI USB Drive BBS Priorities	> UEFI Hard Disk Drive BB	S Priorities
		rities

6. Select Red Hat OS USB as the first option.



- 7. Press the F4 key to Save the changes and exit the utility.
- 8. Confirm saving the configuration by selecting Yes and press Enter.

/	Save	& Ext	it S	etup	}
Save	confi	gurat	tion	and	exit?
	( <u>65</u>				
	ace.				·

9. The system will now boot from the USB.

## **Install Red Hat OS**

1. Boot into the Red Hat GRUB installation menu.



2. Type e to edit the installation menu entry.

```
setparams 'Install Red Hat Enterprise Linux 7.5'
         linuxefi /images/pxeboot/vmlinuz inst.stage2=hd:LABEL=RHEL-7.5\x20Serv\
  er.x86 64 quiet console=ttyS0,115200 vga=791
         initrdefi /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.
                         100
                                 2
3. Attach the console=ttyS0, 115200 string to the end of the first install line.
4. Press ctrl-x to start the installation.
  Starting installer, one moment...
  anaconda 21.48.22.134-1 for Red Hat Enterprise Linux 7.5 started.
    . . . . . . . . .
5. Select 4 for Software selection.
  Installation wizard
  Installation

    [x] Language settings

                                          [x] Time settings
   (English (United States))
3) [!] Installation source
                                                 (US/Central timezone)
                                       (US/Central timezon
4) [!] Software selection
         (Processing...)
                                                 (Processing...)
   5) [x] Installation Destination

    [x] Kdump

          (Automatic partitioning
                                                 (Kdump is enabled)
          selected)
                                          [x] Root password
   [x] Network configuration
                                                (Password is set.)
          (Wired (enp2s0f2) connected)
   9) [x] User creation
          (User dell_ucpe will be
         (Local media)
         created)
                                              (Source changed - please
   5) [x] Installation Destination verify
(Automatic partitioning 6) [x] Kdump
selected) (Kdump
                                                verify)
   selected)(Kdump is enable7) [x] Network configuration<br/>(Wired (enp2s0f2) connected)8) [x] Root password<br/>(Password is selected)
                                                (Kdump is enabled)
                                               (Password is set.)
   9) [x] User creation
         (User dell_ucpe will be
         created)
    Please make your choice from above ['q' to quit | 'b' to begin installation |
    'r' to refresh]: 4
```

6. Select Minimal Install from the options.
```
Base environment
     Software selection
     Base environment
      1) [x] Minimal Install5) [] Virtualization Host2) [] Infrastructure Server6) [] Server with GUI
      [] File and Print Server
      4)
            [ ] Basic Web Server
        Please make your choice from above ['q' to quit | 'c' to continue |
        'r' to refresh]: c
      . . . . .
7. Configure the disk destination for the installation by entering 5 and enter 1 for hard drive, then enter c to continue.
    Configure Installation Destination
      Installation
      1) [x] Language settings

    Language settings
    (US/Central (US/Ce
                                                                            [x] Time settings
                                                                                           (US/Central timezone)
      [!] Installation source
                  (Processing...)
                                                                                           (Processing...)
      5) [!] Installation Destination 6) [x] Kdump
                  (No disks selected)
                                                                                           (Kdump is enabled)
                                                               (Kdump is enat
8) [!] Root password
      7) [ ] Network configuration
                  (Not connected)
                                                                                          (Password is not set.)
      9) [!] User creation
                  (No user will be created)
        Please make your choice from above ['q' to quit | 'b' to begin installation |
         'r' to refresh]: 5
              Probing storage...
     Installation Destination
     [x] 1) M.2 (S80) 3MG2-P: 924.06 GiB (sda)
     1 disk selected; 924.06 GiB capacity; 922.94 GiB free ...
        Please make your choice from above ['q' to quit | 'c' to continue |
         'r' to refresh]: c
```

8. Enter 3 to Use Free Space, then enter c to continue.

CAUTION: You must select this option. If you do not select this option, the Red Hat OS deletes the DIAG OS.

```
Autopartitioning Options
 [ ] 1) Replace Existing Linux system(s)
 [x] 2) Use All Space
 [ ] 3) Use Free Space
 Installation requires partitioning of your hard drive. Select what space to use
 for the install target.
  Please make your choice from above ['q' to quit | 'c' to continue |
  'r' to refresh]: 3
  Autopartitioning Options
 [ ] 1) Replace Existing Linux system(s)
 [ ] 2) Use All Space
 [x] 3) Use Free Space
 Installation requires partitioning of your hard drive. Select what space to use
 for the install target.
  Please make your choice from above ['q' to quit | 'c' to continue |
  'r' to refresh]: c
  _____
 Partition Scheme Options
9. Enter 3 to select LVM, then enter c to continue.
  Partition Scheme Options
 [ ] 1) Standard Partition
 [ ] 2) Btrfs
 [x] 3) LVM
 [] 4) LVM Thin Provisioning
 Select a partition scheme configuration.
  Please make your choice from above ['q' to quit | 'c' to continue |
   'r' to refresh]: c
 Generating updated storage configuration
 Checking storage configuration...
```

10. Enter 2 to configure the Time settings.

Time settings Timezone: not set NTP servers:not configured 1) Set timezone 2) Configure NTP servers Please make your choice from above ['q' to quit | 'c' to continue | 'r' to refresh]: 1 Timezone settings Available regions1) Europe6) Pacific10) Arctic2) Asia7) Australia11) US3) America8) Atlantic12) Etc Africa Indian Antarctica Please select the timezone. Use numbers or type names directly [b to region list, q to quit]: 11 \_\_\_\_\_ Timezone settings Available timezones in region US 1) Alaska4) Eastern6) Mountain2) Arizona5) Hawaii7) Pacific3) Central Please select the timezone. Use numbers or type names directly [b to region list, q to quit]: 3 

**11.** Enter **9** to configure User creation.

12. Optionally, configure the root password.

```
Installation
1) [x] Language settings
                             2) [x] Time settings
(English (United States))
3) [x] Installation source
                                   (US/Central timezone)
                             [!] Software selection
     (Local media)
                                   (Source changed - please
5) [x] Installation Destination verif
(Automatic partitioning 6) [x] Kdump
                                  verify)
     selected)
                                   (Kdump is enabled)
7) [x] Network configuration
(Wired (enp2s0f2) connected) (Password is s
                                  (Password is set.)
9) [ ] User creation
     (No user will be created)
 Please make your choice from above ['q' to quit | 'b' to begin installation |
 'r' to refresh]: 9
   User creation
1) [ ] Create user
 Please make your choice from above ['q' to quit | 'c' to continue |
 'r' to refresh]: 1
User creation
1) [x] Create user
2) Fullname
3) Username
4) [ ] Use password
5) [ ] Administrator
Groups
Please make your choice from above ['q' to quit | 'c' to continue |
```

```
Please make your choice from above ['q' to quit | 'c' to continue |
 'r' to refresh]: 2
Enter new value for 'Fullname' and press enter
dell ucpe
User creation
1) [x] Create user
Fullname
 dell_ucpe
Username
 dell_ucpe
Use password
[] Administrator
6) Groups
Please make your choice from above ['q' to quit | 'c' to continue |
 'r' to refresh]: 4
User creation
1) [x] Create user
2) Fullname
 dell ucpe
Username
 dell ucpe
4) [x] Use password
Password
6) [ ] Administrator
7) Groups
Please make your choice from above ['q' to quit | 'c' to continue |
```

```
User creation
1) [x] Create user
2) Fullname
  dell ucpe
Username
  dell ucpe
4) [x] Use password
Password
6) [ ] Administrator
Groups
 Please make your choice from above ['q' to quit | 'c' to continue |
 'r' to refresh]: 5
     Password:
Password (confirm):
User creation
1) [x] Create user
2) Fullname
  dell_ucpe
3) Username
 dell_ucpe
(x) Use password
5) Password
  Password set.
6) [ ] Administrator
Groups
 Please make your choice from above ['q' to quit | 'c' to continue |
 'r' to refresh]: c
```

13. Select 7 for network configuration of management interface.

Configure Network interface

```
Please make your choice from above ['q' to quit | 'c' to continue |
'r' to refresh]: 7
______
```

14. And assign IPV4, netmask, gateway, name server as per network setup.

Setting IP, subnet mask, nameserver

```
Device configuration
1) IPv4 address or "dhcp" for DHCP
  100.67.147.22
IPv4 netmask
  255.255.255.0
3) IPv4 gateway
  100.67.147.254
4) IPv6 address[/prefix] or "auto" for automatic, "dhcp" for DHCP, "ignore" to
  turn off
  auto
IPv6 default gateway
Nameservers (comma separated)
  8.8.8.8
7) [x] Connect automatically after reboot
[x] Apply configuration in installer
Configuring device enp2s0f2.
 Please make your choice from above ['q' to quit | 'c' to continue |
 'r' to refresh]: c
 F 1
          . .
```

Network configuration complete

```
Wired (enp2s0f0) disconnected
Wired (enp2s0f1) disconnected
Wired (enp2s0f2) connected
 IPv4 Address: 100.67.147.22 Netmask: 255.255.255.0 Gateway: 100.67.147.254
 DNS: 8.8.8.8
Wired (enp2s0f3) disconnected
Wired (enp5s0) disconnected
Wired (enp24s0f0) disconnected
Wired (enp24s0f1) disconnected
Wired (enp102s0f0) disconnected
Wired (enp102s0f1) disconnected
Wired (enp23s0f0) disconnected
Wired (enp23s0f1) disconnected
Wired (enp101s0f0) disconnected
Wired (enp101s0f1) disconnected
Host name: localhost.localdomain
Current host name: localhost
```

# **Start Red Hat OS installation**

 Enter b to start the installation. Start installation

```
Installation
      Language settings
(English (United States)) (US/Centrat timeto.
4) [!] Software selection
(Processing...)

    [x] Language settings

                                       (US/Central timezone)
[!] Installation source
                                       (Processing...)
      (Processing...)
[x] Installation Destination
                                6) [x] Kdump
      (Automatic partitioning
                                       (Kdump is enabled)
                                [x] Root password
      selected)
[x] Network configuration
                                      (Password is set.)
      (Wired (enp2s0f2) connected)
[x] User creation
      (User dell_ucpe will be
      created)
 Please make your choice from above ['q' to quit | 'b' to begin installation |
 'r' to refresh]: b
Progress
Setting up the installation environment
Creating xfs on /dev/sda3
Creating lvmpv on /dev/sda4
Creating swap on /dev/mapper/rhel-swap
Creating xfs on /dev/mapper/rhel-home
Creating xfs on /dev/mapper/rhel-root
Running pre-installation scripts
```

2. The installation process begins.

```
Preparing transaction from installation source
   Installing libgcc (1/340)
   Installing grub2-common (2/340)
   Installing redhat-release-server (3/340)
   Installing setup (4/340)
   Installing filesystem (5/340)
   Installing tzdata (6/340)
   Installing basesystem (7/340)
   Installing grub2-pc-modules (8/340)
   Installing ncurses-base (9/340)
   Installing nss-softokn-freebl (10/340)
   Installing glibc-common (11/340)
   Installing glibc (12/340)
   Installing nspr (13/340)
   Installing nss-util (14/340)
   Installing libstdc++ (15/340)
   Installing ncurses-libs (16/340)
   Installing bash (17/340)
   Installing libsepol (18/340)
   Installing pcre (19/340)
   Installing libselinux (20/340)
   Installing zlib (21/340)
   Installing info (22/340)
   Installing xz-libs (23/340)
   Installing libcom err (24/340)
   Installing libuuid (25/340)
   Installing popt (26/340)
   Installing chkconfig (27/340)
   Installing sed (28/340)
   Installing libxml2 (29/340)
   Installing bzip2-libs (30/340)
3. Remove the USB and press Return to reboot the system after the installation completes.
  Installing rootfiles (334/340)
  Installing iwl7265-firmware (335/340)
  Installing iwl1000-firmware (336/340)
  Installing iwl6000-firmware (337/340)
  Installing iwl4965-firmware (338/340)
  Installing iwl6000g2b-firmware (339/340)
  Installing iwl5150-firmware (340/340)
  Performing post-installation setup tasks
  Installing boot loader
  Performing post-installation setup tasks
  Configuring installed system
  Writing network configuration
  Creating users
  Configuring addons
  Generating initramfs
  Running post-installation scripts
        Use of this product is subject to the license agreement found at /usr/share/redhat-release/EULA
         Installation complete. Press return to quit
```

```
[anaconda] 1:main* 2:shell 3:log 4:storage-lo> Switch tab: Alt+Tab | Help: F1
```

# **Configure BIOS to boot from SSD**

- 1. Boot up the VEP4600 and navigate to the BIOS settings.
- 2. Navigate to Boot Tab. Scroll to Hard Disk Drive BBS Priorities using the up and down arrow keys and press Enter.

Aptio Setup Util	ity - Copyright (C) 2018 A	merican Megatrends, Inc.
<pre>&lt; Delt Diagnostics s </pre>	Server Mgmt Security Boot	Save & Exit
Boot Option #20	[UEFI: PXE IP4 Intel(R) Ethernet	^ Set the order of the   +llegacy devices in this
	Connection X722 for 10GbE SFP+]	+ group +
Boot Option #21	[UEFI: PXE IP4 Intel(R) Ethernet Connection X722 for	+ + + + + + + + + + + + + + + + + + + +
   Boot Option #22	10GbE backplane] [UEFI: PXE IP4 Intel(R) Ethernet	+  +  +
Boot Option #23	Connection X722 for 10GbE backplane] [UEFI: Built-in EFI Shell]	+ ><: Select Screen + ^v: Select Item + Enter: Select + +/-: Change Opt.
USB Device BBS Prior Hard Drive BBS Prior	rities	* F1: General Help * F2: Previous Values * F3: Optimized Defaults v F4: Save & Exit
Version 2.20.12	271. Copyright (C) 2018 Ame	rican Megatrends, Inc.

**3.** Select Red Hat Boot Manager as Boot Option #1.



4. Configure the boot order priorities and select Red Hat as the first boot option.

Boot Configuration Setup Prompt Timeout	5	^!Sets the system boot *!order
Bootup NumLock State Quiet Boot	[On] [Disabled]	
Boot mode select	(UEFI)	
FIXED BOOT ORDER Priori	ties	*1
		*  *  * ><: Select Screen
Boot Option #2	[USB Device:UEFI: Dell Dell USB PMAP, Partition 1	* ^v: Select Item * Enter: Select * +/-: Change Opt.
Boot Option #3	[Network]	*  F1: General Help
Boot Option #4	(UEFI AP)	* F2: Previous Values + F3: Optimized Defaults
UEFI Hard Disk Drive BB	S Priorities	v F4: Save & Exit  ESC: Exit

5. Traverse to Save & Exit tab and hit enter on Save Changes and Exit. SelectYes to start reboot.

Save Options	<pre>^ Exit system setup afte</pre>
Discard Changes and Exit	* saving the changes. *
Save Channes and Reset	*
Discard Changes and R/	Save & Exit Setup\
Save Channes Sa	ve configuration and exit?
Discard Changes	e contragerocatori ond cract
Default Options	Yes No Select Screen
Restore Defaults	/ Select Item
Save as User Defaults	r: Select
Restore User Defaults	*[+/-: Change Opt. *[E]: General Help
Boot Override	*IF2: Previous Values
UEFI: Built-in EFI Shell	+ F3: Optimized Defaults

Red Hat 7.5 boot screen

[ 17.384290] IPv6: ADDRCONF(NETDEV\_UP): enp2s0f0: link is not ready [ 17.391027] IPv6: ADDRCONF(NETDEV\_UP): enp2s0f1: link is not ready [ 17.397740] IPv6: ADDRCONF(NETDEV\_UP): enp2s0f2: link is not ready [ 17.404427] IPv6: ADDRCONF(NETDEV\_UP): enp2s0f3: link is not ready [ 17.411097] IPv6: ADDRCONF(NETDEV\_UP): enp2s0f1: link is not ready [ 17.4217608] IPv6: ADDRCONF(NETDEV\_UP): enp24s0f0: link is not ready [ 17.4217608] IPv6: ADDRCONF(NETDEV\_UP): enp24s0f1: link is not ready [ 17.431117] IPv6: ADDRCONF(NETDEV\_UP): enp102s0f0: link is not ready [ 17.431117] IPv6: ADDRCONF(NETDEV\_UP): enp102s0f1: link is not ready [ 17.441800] IPv6: ADDRCONF(NETDEV\_UP): enp23s0f0: link is not ready [ 17.441800] IPv6: ADDRCONF(NETDEV\_UP): enp23s0f1: link is not ready [ 17.451602] IPv6: ADDRCONF(NETDEV\_UP): enp23s0f1: link is not ready [ 17.458395] IPv6: ADDRCONF(NETDEV\_UP): enp101s0f0: link is not ready [ 17.45300] IPv6: ADDRCONF(NETDEV\_UP): enp20s0f1: link is not ready [ 17.455300] IPv6: ADDRCONF(NETDEV\_UP): enp101s0f1: link is not ready [ 17.509135] IPv6: ADDRCONF(NETDEV\_UP): enp20s0f2: link is not ready [ 17.509135] IPv6: ADDRCONF(NETDEV\_UP): enp20s0f2: link is not ready [ 19.068001] igb 0000:05:00.0 enp550: igb: enp550 NIC Link is UP 1000 Mbps Full Duplex, Flow Control: RX/TX [ 19.178751] IPv6: ADDRCONF(NETDEV\_CHANGE): enp500: link becomes ready Red Hat Enterprise Linux Server 7.5 (Maipo) Kernel 3.10.0-862.el7.x86\_64 on an x86\_64 localhost login: Red Hat Enterprise Linux Server 7.5 (Maipo) Kernel 3.10.0-862.el7.x86\_64 on an x86\_64

6. Enter the user credentials and verify.

# localhost login: dell\_ucpe Password: [dell\_ucpe@localhost ~]\$

7. Enter the root credentials and verify.

localhost login: root
Password:
[root@localhost ~]#

# **Configure BIOS and Install Ubuntu OS**

### **Topics:**

- Configure BIOS to boot from USB
- Ubuntu OS installation
- Configure BIOS to boot from SSD

# **Configure BIOS to boot from USB**

1. Boot into BIOS settings, select CSM configuration under Advanced Tab.

Aptio Setup Utility - Copyright (C) 2019	9 American Megatrends, Inc.
Main Advanced Platform Configuration Soc	cket Configuration
/	+
> Trusted Computing	<pre>^ CSM configuration:</pre>
> ACPI Settings	* Enable/Disable, Option
> Serial Port Console Redirection	* ROM execution settings,
<pre>&gt; SIO Configuration</pre>	* etc.
<pre>&gt; Option ROM Dispatch Policy</pre>	*1 1
<pre>&gt; PCI Subsystem Settings</pre>	+1 1
<pre>&gt; USB Configuration</pre>	+1 1
> Network Stack Configuration	+1 1
> CSM Configuration	+1 1
<pre>&gt; NVMe Configuration</pre>	+
	+ ><: Select Screen
<pre>&gt; Intel(R) Virtual RAID on CPU</pre>	+ ^v: Select Item
<pre>&gt; Tls Auth Configuration</pre>	+ Enter: Select
<pre>&gt; All Cpu Information</pre>	+ +/-: Change Opt.
<pre> &gt; Intel(R) I350 Gigabit Network Connection -</pre>	+ F1: General Help
54:BF:64:BE:05:40	+ F2: Previous Values
<pre> &gt; MAC:54BF64BE0540-HTTP Boot Configuration</pre>	+ F3: Optimized Defaults
	v F4: Save & Exit
	ESC: Exit
	+/
Version 2.20.1271. Copyright (C) 2019 3	American Megatrends, Inc.

2. Change the Boot option filter to UEFI only mode

Compatibility Support M	odule Configuration	This option controls
CSM Support	[Enabled]	priority
CSM16 Module Version	07.82	
GateA20 Active	[Upon Request]	
Option ROM Messages	[Force BIOS]	1
INT19 Trap Response	[Immediate]	
	[UEFI only]	><: Select Screen
Option ROM execution		Enter: Select
Network	(UEFI)	F1: General Help
Storage	[Legacy]	F2: Previous Values
Video	[Legacy]	F3: Optimized Defaults
Other PCI devices	[UEFI]	F4: Save & Exit  ESC: Exit

3. Go to the Boot tab.

🛃 V4600X01_4C_1_CPU		- 🗆 X
Aptio Setup Utility < Security Boot Save &	r - Copyright (C) 2018 Am Exit	erican Megatrends, Inc.
Boot Configuration   Setup Prompt Timeout   Bootup NumLock State	5 [On]	<pre>^  Number of seconds to    *  wait for setup    *  activation key.    *  65535(0vFFFF) moons</pre>
     Boot mode select	[UEFI]	<pre>*/indefinite waiting.   *  * </pre>
FIXED BOOT ORDER Priori Boot Option #1	ties [USB Device:UEFI: Dell Dell USB PMAP,	*  *  *
   Boot Option #2 	Partition 1] [Hard Disk:DiagOs (P3: M.2 (S80) 3ME4)]	<pre>*  &gt;&lt;: Select Screen   *  ^v: Select Item   *  Enter: Select  </pre>
Boot Option #3   Boot Option #4 	[Network] [UEFI AP]	<pre>*  +/-: Change Opt.   *  F1: General Help   *  F2: Previous Values  </pre>
> UEFI Hard Disk Drive BB  > UEFI USB Drive BBS Prio 	S Priorities rities	+ F3: Optimized Defaults   v F4: Save & Exit    ESC: Exit
Version 2 20 1271	Convright (C) 2018 Amer	ican Megatrends Inc

4. Under Boot Option #1, press **Enter** and select USB.

🛃 V4600X01_4C_1_CPU			- 🗆 ×
Aptio Setup Utility < Security Boot Save &	7 - Copyright (C) Exit	2018 American Megatr	cends, Inc.
/ Setup Prompt Timeout   Bootup NumLock State   Quiet Boot	5 [On] [Disabled]	^ Sets the + order *  *	system boot   
Boot mode select	[UEFI]	*	
FIXED BOOT   Hard Disk:   Boot Option   USB Device   Network   UEFI AP   Boot Option   Disabled	Boot Optio DiagOs (P3: M.2 :UEFI: Dell Dell	on #1 (S80) 3ME4) USB PMAP, Partition	1
Boot Option #			
Boot Option #4 	[UEFI AP]	* +/-: Char * F1: Gener	nge Opt.   cal Help
> UEFI Hard Disk Drive BE	S Priorities	* F2: Previ	ous Values
<pre> &gt; UEFI USB Drive BBS Pric  &gt; UEFI Application Boot F     \</pre>	rities riorities	* F3: Optim v F4: Save  ESC: Exit	nized Defaults   & Exit   :/
Version 2.20.1271.	Copyright (C) 2	018 American Megatrer	nds, Inc.

5. If you don't see required USB boot, go down to UEFI USB Drive BBS Priorities and press Enter.

🛃 V4600X01_4C_1_CPU		- 🗆 X
Aptio Setup Utility < Security Boot Save	y - Copyright (C) 2018 Ame & Exit	erican Megatrends, Inc.
Setup Prompt Timeout	5	^ Specifies the Boot
Bootup NumLock State	[On]	+ Device Priority
Quiet Boot	[Disabled]	* sequence from available
1		* UEFI USB Drives.
Boot mode select	[UEFI]	*
1		*
FIXED BOOT ORDER Prior:	ities	*
Boot Option #1	[USB Device:UEFI:	*
1	Dell Dell USB PMAP,	*
I	Partition 1]	*
Boot Option #2	[Hard Disk:DiagOs	* ><: Select Screen
1	(P3: M.2 (S80) 3ME4)]	* ^v: Select Item
Boot Option #3	[Network]	* Enter: Select
Boot Option #4	[UEFI AP]	* +/-: Change Opt.
1		* F1: General Help
> UEFI Hard Disk Drive B	BS Priorities	* F2: Previous Values
> UEFI USB Drive BBS Pric	orities	* F3: Optimized Defaults
> UEFI Application Boot	Priorities	v F4: Save & Exit
		ESC: Exit
\		+/

 $\textbf{6.} \quad \text{Make sure the required USB is selected.}$ 

# V4600X01\_4C\_1\_CPU Aptio Setur

Setup Boot

	- 🗆 X	
Jtility - Copyright (C) 2018 Ameri	can Megatrends, Inc.	
[UEFI: Dell Dell USB PMAP, Partition 1]	+\  Sets the system boot    order                 	

|><: Select Screen
|^v: Select Item
|Enter: Select
|+/-: Change Opt.
|F1: General Help
|F2: Previous Values
|F3: Optimized Defaults</pre>

|F4: Save & Exit

|ESC: Exit

- 7. Press the **F4** key to save the changes and exit the utility.
- 8. Confirm saving the configuration by selecting Yes and press Enter.



9. The system will boot from the USB and start the installation.

# **Ubuntu OS installation**

1. Boot into Ubuntu GRUB menu. Highlight Install Ubuntu Server option

2. Type e and Add console=ttyS0, 115200 string as shown in the following figure.

Edit Boot Entry

GNU GRUB version 2.02

/  set	para	ms 'Insta	ll Ubuntu Server'	·\ 
		set gfxpa linux	ayload=keep /casper/vmlinuz console=ttyS0,115200 boot=casper	quie\
Ιt		initrd	/casper/initrd.gz	
\				/
	Min com com	imum Emacs pletions. mand-line	s-like screen editing is supported. TAB lists Press Ctrl-x or F10 to boot, Ctrl-c or F2 for a or ESC to discard edits and return to the GRUB menu.	

- 3. Press **ctrl-x** to start the installation.
- 4. Choose Preferred Language (In this case, preferred language selection is English)

Willkommen!	Bienvenue! Welcome! Добр	о пожаловать! Welkom!
Please choos	e your preferred languag	e.
1	English	
T T	Asturianu	0.1
i i i i i i i i i i i i i i i i i i i	Català	n i
L L L	Hrvateki	n i
	Nederlands	E i
	Ruceri	
L	Suomi	H 1
L L	Français	
l	Deutsch	
[	Ελληνικά	
[	Magyar	
[	Latviešu	
[	Norsk bokmål	
[	Polski	
[	Русский	
-		
	1 / 11	
	- /	
Use UP, DOWN	and ENTER keys to selec	t your language.

- 5. Select Done.
- 6. Select Install Ubuntu.

7. Scroll up/down to select management network interface accordingly (In this case, enp4s0 is selected as management interface of the VEP4600 device)

Network connections

Configure at least one interface this server can use to talk to other machines, and which preferably provides sufficient access for updates. eth 100.67.147.216/24 (from dhcp) [enp4s0 3c:2c:30:3d:eb:04 / Intel Corporation / I210 Gigabit Network Connection [ ens4f0 eth DHCPv4 has supplied no addresses . 24:6e:96:02:63:80 / Intel Corporation / 82599ES 10-Gigabit SFI/SFP+ Network Connection (Ethernet 10G 4P X520/I350 rNDC) ], DHCPv4 has supplied no addresses . [ ens4f1 eth [ Done [ Back

8. Follow the installation wizard to complete interface configuration (In this case, choose Edit IPv4 from the list to modify Interface configuration for static IP assignment).

Choose Edit IPv4

Network connections

Configure a	at lea	ast on	e in	terface	this	server	can	use	to	talk	to
other mach:	ines,	and w	hich	prefera	ably p	provides	su	ffici	ient	acce	ess
for updates	s.										



9. Fill the entries manually according to your network (Subnet, Address, Gateway and Name Server)

	<ul> <li>Edit enp4s0 IPv4 configuration</li> </ul>
IPv4 Method: [	Manual v]
Subnet :	
	•
Address:	Address cannot be empty
	•
	[Save ] [Cancel ]

**10.** Click **Done** to apply network configuration.

### Applying network configuration

Configure at least one interface this server can use to talk to other machines, and which preferably provides sufficient access for updates. [ ens6f0 DHCPv4 has supplied no addresses . eth ]. FP+ 24:6 Netw Applying network config -0 % [ ens6 [ Cancel 1 24:6 FP+ Netw [ Create bond + ] [ Done 1 1 Back [

#### 11. Click Done.

Proxy address

If this system requires a proxy to connect to the internet, enter its details here.

Proxy address:

If you need to use a HTTP proxy to access the outside world, enter the proxy information here. Otherwise, leave this blank.

> The proxy information should be given in the standard form of "http://[[user][:pass]@]host[:port]/".

> > [Done ]

#### 12. Click Done.

If you use an alternative mirror for Ubuntu, enter its details here. Mirror address: http://archive.ubuntu.com/ubuntu You may provide an archive mirror that will be used instead of the default 'http://archive.ubuntu.com/ubuntu'

[ Done

1

13. Select Use Entire Disk and Set Up LVM or follow the installation wizard for different configuration options.

Filesystem setup	
The installer can guide you throu entire disk either directly or us prefer, you can do it manually.	gh partitioning an ing LVM, or, if you
If you choose to partition an ent have a chance to review and modif	ire disk you will still y the results.
[ Use An Entire Disk [ <mark>U</mark> se An Entire Disk And [ Manual [ Back	] Set Up LVM ] ]
7 / 11	8
Choose guided or manual partitioning	

14. Select Hard Drive.

Filesystem setup

The LVM guided partitioning scheme creates three partitions on the selected disk: one as required by the bootloader, one for '/boot', and one covering the rest of the disk.

A LVM volume group is created containing the large partition. A 4 gigabyte logical volume is created for the root filesystem. It can easily be enlarged with standard LVM command line tools.

Choose the disk to install to:

[ M.2\_580\_3MG2-P\_BCA11804210360142 924.060G + ]

15. Click Done to continue the selected disk partition format.

Filesystem setup

MOUNT POINT [ / [ /boot [ /boot/efi	SIZE 4.000G 1.000G 512.000M	TYPE ext4 ext4 fat32	DEVICE TYPE LVM logical volume	
AVAILABLE DEVICES				
DEVICE [ ubuntu-vg [ ubuntu-lv formatted	as ext4,	mounted	SIZE TYPE 922.554G LVM volume group ► ] 4.000G (0%) ► ] at /	•
		[ D [ R [ B	eset ] ack ]	

16. Select **Continue** to start the installation.

Filesystem setup	
Confirm destructive action Selecting Continue below will begin the installation process and result in the loss of data on the disks selected to be formatted. You will not be able to return to this or a previous screen once the installation has started.	
Are you sure you want to continue?	
[No ] [Continue ]	
7 / 11 Select available disks to format and mount	
17. Enter your profile information and choose <b>Done</b> .	

5

Enter the usernar	ne and password	(or ssh	1dent1ty)	you w	111	use
to log in to the	system.					
Your	name:					÷
Your server's	name: The name	it use	s when it i	talks	to	

four server s nume.	The name it uses when it talks to other computers.
Pick a username:	

[Done ]

- 18. Click **Done** to start the installation.
- **19.** After Installation completes, remove the USB from the device.
- 20. Choose Reboot Now.

Installation complete

Finished install!	
writing etc/fstab configuring multipath updating packages on target system configuring pollinate user-agent on target finalizing installation running 'curtin hook' curtin command hook	
executing late commands	
[ View full log ] [ Neboot Now ]	

## **Configure BIOS to boot from SSD**

1. Change the Boot Option Priority to Ubuntu Hard Drive in the Boot Tab.

Select Ubuntu Hard Drive



2. Save and Exit



### Boot up screen

-	0.0	-	Found device 25668 SALA FLASS UTIVE Z.
			Hounting John
	200		Formand Jice swites Jun21w2douscen alice
	-		Classing Jun Dy scan a davis 0.3
	-		Starting Lynz Py Scan on Device 013
	05		Mounted / boot.
			Mounting /boot/eti
	OK.	1	Started LVM2 PV scan on device 8:3.
	0K	-1	Mounted /boot/efi.
	0K	-1	Reached target Local File Systems.
			Starting Tell Plymouth To Write Out Runtime Data
			Starting Commit a transient machine-id on disk
			Starting Create final runtime dir for shutdown pivot root
			Starting Create Volatile Files and Directories
			Starting Set console font and keymap
			Starting AppArmor initialization
			Starting GRUB failed boot detection
	0K	1	Started Tell Plymouth To Write Out Runtime Data.
	OK.	÷	Started Commit a transient machine-id on disk.
	OK.	- 1	Started Create final runtime dir for shutdown pivot root.
	OK.	÷	Started Create Volatile Files and Directories.
			Starting Undate UTMP about System Root/Shutdown
			Starting Network Time Synchronization
	CIK.		Started GRUB failed host detection
	nic l	4	Started Undate IIITB about Sustan Roat/Shutdown
	200	4	Started opuit of the Conchronization
	22		Started Network Lang Synchronization.
	22	4	Reached Larges system rame synchronazed.
	-		Startieu Apparmer initiatiation. Startieu landicus DE Vill Guiteb Status
	-		Starting Lond/Save RF Kill Switch Status
	- N.	1.	Started Londy-Save AF All Switch Status,
	12	- 91	1/581] CLOUG-INIT[504]] CLOUG-INIT V. 18.4-7-046520196-BUDUNTUI FUNNING 'INIT-LOCAL' AT WED, 10 JUL 2019 06134154 +80000. UP 12.01 Seconds.
	OK.	1	Started Initial cloud-init job (pre-networking).
	OK.	1	Reached target Network (Pre).
			Starting Network Service
	OK.	-1	Started Set console font and keymap.
	OK.	1	Started Network Service.
			Starting Wait for Network to be Configured
			Starting Network Name Resolution
	0K	1	Started Network Name Resolution.
	0K	1	Reached target Network.
	0K	1	Reached target Host and Network Name Lookups.
[	•••	1	A start job is running for Wait for_ to be Configured (35s / no limit)
_	_		

# **Configure BIOS and Install Adva OS**

Configure BIOS settings required for Adva (UEFI and Legacy)

### **Topics:**

- Configure BIOS to boot from USB
- ADVA OS Installation
- Configure BIOS to boot from SSD

# **Configure BIOS to boot from USB**

- 1. Boot into the BIOS and go to the Advanced menu tab.
- 2. Select CSM Configuration and press  $\ensuremath{\text{Enter}}$  .



3. Change the Boot option filter to UEFI and Legacy mode.



4. Disable Hyper-Threading

a) Tab to Socket Configuration, press  ${\it Enter}$  on Processor Configuration

Aptio Setup Utility - Copyright (C) Main Advanced Platform Configuration	2019 American Megatrends, Inc.
<pre>&gt; Processor Configuration &gt; Common RefCode Configuration &gt; UPI Configuration &gt; Memory Configuration &gt; IIO Configuration &gt; Advanced Power Management Configuration</pre>	Displays and provides  option to change the  Processor Settings
	  ><: Select Screen    ^v: Select Item    Enter: Select    +/-: Change Opt.    F1: General Help    F2: Previous Values    F3: Optimized Defaults    F4: Save & Exit    ESC: Exit
Version 2.20.1271. Copyright (C) 20	)19 American Megatrends, Inc.

- b) Scroll down to Hyper-Threading, press Enter and select Disable.
- 5. Go to the Boot menu, select USB using the up and down arrows for Boot Option #1 and press Enter.

Select USB

Boot Configuration		AlSats the system boot
Setup Promot Timeout	5	*lorder
Bootup NumLock State	[0n]	*1
Quiet Boot	[Disabled]	
fores noor	[oronored]	*1
Boot mode select	(URFT)	
Door mode beleet	(one a)	
FIXED BOOT ORDER Prior:	ities	
		*1
		*
		*  ><: Select Screen
Boot Option #2	[Hard Disk:DiagOs	* ^v: Select Item
and a provide the	(P3: M.2 (S80) 3ME4)1	*  Enter: Select
Boot Option #3	[Network]	*1+/-: Change Opt.
Boot Option #4	[UEFI AP]	* F1: General Help
		*1F2: Previous Values
UEFI Hard Disk Drive Ba	S Priorities	+1F3: Optimized Defaults
UEFI USB Drive BBS Prid	rities	vIF4: Save 4 Exit
		IESC: Exit

- 6. Press the F4 key to Save the changes and exit the utility.
- 7. Confirm saving the configuration by selecting Yes and press Enter.

₽ V4600X01_4C_1_CPU	- 🗆 ×
Aptio Setup Utility - Copyright (C < Security Boot Save & Exit	) 2018 American Megatrends, Inc.
/	<pre>^  Exit system setup after   *   saving the changes. *   *   *  </pre>
Save Changes and Reset   Discard Changes and R <mark>/ Save &amp; Exi</mark> 	*  t Setup\
Save Changes Save configurat	ion and exit?
Default Options   Yes   Restore Defaults   Save as User Defaults   Restore User Defaults	No   Select Screen   / Select Item   r: Select + +/-: Change Opt.   + F1: General Help
Boot Override   UEFI: Dell Dell USB PMAP, Partition 1   UEFI: Generic Flash Disk 8.07	+ F2: Previous Values + F3: Optimized Defaults   v F4: Save & Exit  ESC: Exit

8. The system will boot from the USB and start the installation.

### **ADVA OS Installation**

1. The OS installation starts.

```
]
      7.125864] i8042: No controller found
    10.644350] dracut-pre-udev[417]: modprobe: ERROR: could not insert 'floppy': No such device
    10.660267] dracut-pre-udev[417]: modprobe: ERROR: could not insert 'edd': No such device
[
C
  OK ] Started Device-Mapper Multipath Device Controller.
         Starting Open-iSCSI..
      ] Started Show Plymouth Boot Screen.
I
   OK
      ] Started Forward Password Requests to Plymouth Directory Watch.
   OK
]
[
]
   0K
       ] Reached target Paths.
       ] Reached target Basic System.
   OK
   0K
      ] Started Open-iSCSI.
         Starting dracut initqueue hook...
[
   11.940931] c6xx 0000:b5:00.0: Failed to load MMP firmware qat_c62x_mmp.bin
    11.947901] c6xx 0000:b5:00.0: Failed to load acceleration FW
12.065306] c6xx 0000:b6:00.0: Failed to load MMP firmware qat_c62x_mmp.bin
    12.072272] c6xx 0000:b6:00.0: Failed to load acceleration FW
    12.189301] c6xx 0000:b7:00.0: Failed to load MMP firmware qat_c62x_mmp.bin
    12.196258] c6xx 0000:b7:00.0: Failed to load acceleration FW
   14.139242] dracut-initqueue[1776]: mount: /dev/sdb is write-protected, mounting read-only
   OK ] Started dracut initqueue hook.
         Starting dracut pre-mount hook...
   0K
       1
         Reached target Remote File Systems (Pre).
      ] Reached target Remote File Systems.
I
   OK
   OK
       ] Started dracut pre-mount hook.
ן
נ
       ] Reached target Initrd Root File System.
   0K
         Starting Reload Configuration from the Real Root...
   0K
       ] Started Reload Configuration from the Real Root.
   0K
       ] Reached target Initrd File Systems.
```

Disk formatting and installation complete successfully

np2s0f3', u'em4', u'em1', u'em3', u'em2']}
<pre>[ 52.164932] sysprep.py[13896]: Comparing physical_core_count, expected 8</pre>
<pre>[ 52.165143] sysprep.py[13896]: Comparing physical_core_count, expected 8</pre>
[ 52.165346] sysprep.py[13896]: Comparing physical_core_count, expected 8
<pre>[ 52.165549] sysprep.py[13896]: Comparing physical_core_count, expected 8</pre>
<pre>[ 52.165753] sysprep.py[13896]: Comparing physical_core_count, expected 8</pre>
[ 52.165956] sysprep.py[13896]: Comparing interface_names, expected {u'set_requires': [u'wwp0s2lu4il2', u'enp2s0f0', u'enp2s0f1',
u'enp2s0f2', u'enp2s0f3', u'enp8s0f0', u'enp8s0f1', u'enp7s0f1', u'enp7s0f0']}
[ 52.166170] sysprep.py[13896]: Comparing interface_names, expected {u'set_requires': [u'wwp0s2lu4il2', u'enp2s0f0', u'enp2s0f1',
u'enp2s0f2', u'enp2s0f3', u'enp8s0f0', u'enp8s0f1', u'enp7s0f1', u'enp7s0f0']}
[ 52.166377] sysprep.py[13896]: Comparing physical_core_count, expected 4
<pre>[ 52.166581] sysprep.py[13896]: Comparing physical_core_count, expected 4</pre>
<pre>[ 52.166785] sysprep.py[13896]: Comparing physical_core_count, expected 12</pre>
[ 52.166989] sysprep.py[13896]: Comparing physical_core_count, expected 8
[ 52.167199] sysprep.py[13896]: Comparing physical_core_count, expected 8
[ 52.167402] sysprep.py[13896]: Comparing physical_core_count, expected 16
[ 52.167605] sysprep.py[13896]: Comparing dmi_system_manufacturer, expected DELL
[ 52.167847] sysprep.py[13896]: Comparing interface_pci_addrs, expected {u'set_requires': [u'0000:b8:00.0', u'0000:b8:00.1', u'00
00:02:00.0', u'0000:02:00.1', u'0000:02:00.2', u'0000:02:00.3', u'0000:04:00.0']}
[ 52.168061] sysprep.py[13896]: Comparing dmi_system_product_name, expected VEP-4600
[ 52.168267] sysprep.py[13896]: szm= True tym= True
[ 52.168471] sysprep.py[13896]: hd_type= any drv_type= ssd
[ 52.168674] sysprep.py[13896]: min_size_in= 100.0 size= 924.1 max_size_in= 1048576.0
[ 52.168877] sysprep.py[13896]: initializing DiskAttributes, disk device is sda
[ 52.169087] sysprep.py[13896]: Checking max_size 64 against disk size 924
[ 52.169291] sysprep.py[13896]: Checking max_size 72 against disk size 924
[ 52.169493] sysprep.py[13896]: Checking max_size 100 against disk size 924
[ 52.169697] sysprep.py[13896]: Checking max_size 128 against disk size 924
[ 52.169903] sysprep.py[13896]: Checking max_size 99999999 against disk size 924
[ 52.170115] sysprep.py[13896]: found matching disk policy
Disk formatting and installation completed successfully. Shutting down.
Parrie Instruction Nervice

#### Power down prompt

	with	3 Stopped Neballa Souther Calalog.	
		Stopping Rebuild Journal Catalog	
[]	OK	] Stopped target Local File Systems.	
[	OK	] Stopped Configure read-only root support.	
		Stopping Configure read-only root support	
		Unmounting /run/install/repo	
		Unmounting /mnt/images	
		Unmounting /mnt/var	
		Unmounting Configuration File System	
		Unmounting /boot/efi	
1	OK	] Stopped Rebuild Hardware Database.	
		Stopping Rebuild Hardware Database	
[	OK	] Stopped Read and set NIS domainname from /etc/sysconfig/network.	
		Stopping Read and set NIS domainname from /etc/sysconfig/network	
[	OK	] Stopped Apply Kernel Variables.	
		Stopping Apply Kernel Variables	
[	OK	] Stopped target Slices.	
1	OK	] Removed slice User and Session Slice.	
[	OK	Stopped Load/Save Random Seed.	
[	OK	] Failed unmounting /run/install/repo.	
[	OK	] Failed unmounting Configuration File System.	
[	OK	] Unmounted /mnt/var.	
[	OK	] Unmounted /boot/efi.	
		Unmounting /boot	
Į.,	OK	] Unmounted /mnt/images.	
Į.	OK	] Unmounted /boot.	
1	OK	] Reached target Unmount All Filesystems.	
Ļ	OK	] Stopped target Local File Systems (Pre).	
1	OK	] Stopped Create Static Device Nodes in /dev.	
	1272	Stopping Create Static Device Nodes in /dev	
L	OK	] Stopped Collect Read-Ahead Data.	
		Stopping Collect Read-Ahead Data	
		Stopping Monitoring of LVM2 mirrors dmeventd or progress polling	
L.	OK	] Stopped Monitoring of LVM2 mirrors,ng dmeventd or progress polling.	
		Stopping Device-mapper event daemon	
•	-	stopping LVM2 metadata daemon	
Ł.	UK	Stopped LVM2 metadata daemon.	
Ļ.	OK	Stopped Device-mapper event daemon.	
ł.	OK	Reached target Shutdown.	
L	OK	Reached Target Final Step.	
	200	Starting Power-off	
ł.	200	U34003] systemd-snutdown[1]: Falled to Tinalize Tile systems, UM devices, ignoring	
ł.	200	1923/0] 1400 0000 b0:00.3: Failed to update MAC address registers; cannot enable Multicast Magic packet wake up	
ł	200	310374) 1400 0000 bo:00.2: Failed to update MAC address registers; cannot enable Multicast Magic packet wake up	
	200	430351 1400 0000 b0:00.1: Failed to update MAC address registers; cannot enable Multicast Magic packet wake up	
ł	200	330376) 1400 0000.00.00.00.00.00.00.00.00.00.00.00	
	201	320320] FVNCI VVNII.	

2. Remove the USB and start up the system.

(i) NOTE: User required to power on/off device either physically or by using PDU.

# **Configure BIOS to boot from SSD**

- 1. After the install completes, reboot the system and go into the BIOS settings.
- 2. In the Boot menu, select Hard Drive BBS Priorities then press Enter.



**3.** Select sSATA P3: INTEL as Boot Option #1.



- 4. Press the F4 key to Save the changes and exit the utility.
- 5. Confirm saving the configuration by selecting Yes and press Enter.



6. The system will boot from the hard drive.

```
[
   0K
      ] Started containerd container runtime.
   0K
      ] Started Notify NFS peers of a restart.
[
   OK ] Started OpenSSH server daemon.
[
[
   0K
      ] Reached target Remote File Systems (Pre).
   0K
       ] Reached target Remote File Systems.
[
         Starting Permit User Sessions...
         Starting Virtualization daemon...
       ] Started Permit User Sessions.
   0K
[
       ] Started Serial Getty on ttyS0.
[
   0K
   0K
      ] Started Getty on tty1.
[
   0K
       ] Reached target Login Prompts.
[
       1 Started Command Scheduler.
[
   0K
       ] Started 65vse Time Verifier.
   0K
[
[
   0K
      1 Started 65vse Time Store.
       ] Started Virtualization daemon.
[
   0K
   0K
       ] Started Dynamic System Tuning Daemon.
[
[
   0K
       ] Started LSB: modprobe the QAT modul...o pass configuration parameters.
         Starting Virtualization daemon...
[
   0K
       ] Started Virtualization daemon.
         Stopping irgbalance daemon...
   0K
       ] Stopped irgbalance daemon.
[
   0K
       ] Started irgbalance daemon.
ſ
         Mounting FUSE Control File System...
       ] Mounted FUSE Control File System.
ſ
   0K
Г
   0K
       ] Started vSE Prepare.
CentOS Linux 7 (Core)
Kernel 4.14.79-adva-23 on an x86 64
MaestrOS login: root
Password:
Last login: Wed Aug 28 03:54:35 EST 2019 on ttyS0
Last login: Wed Aug 28 04:08:18 on ttyS0
[root@MaestrOS ~]#
```

7. Login to the ADVA OS (with username as root and password as overture)

# **Configure BIOS and Install ESXi OS**

### **Topics:**

- Configure BIOS to boot from USB
- Install ESXi OS
- Configure BIOS to boot from SSD
- Logging into ESXi
- Configuring the network on ESXi
- How to add ESXi license

### **Configure BIOS to boot from USB**

- **1.** In BIOS, set Boot Option Filter to UEFI only.
- a) Select the Advanced menu tab using the up and down arrow keys from the Setup Utility screen. Select CSM Configuration.

Aptio Setup Utility - Copyright (C) 201	<b>19 American Megatrends, Inc.</b>
Main Advanced IntelRCSetup Event Logs	Security Boot Save & Exit
Aptio Setup Utility - Copyright (C) 20 Main Advanced IntelRCSetup Event Logs /	<pre>19 American Megatrends, Inc. Security Boot Save &amp; Exit ^ CSM configuration: * Enable/Disable, Option * ROM execution settings, * etc. *  *  *  *  *  *  *  *  *  * </pre>
<pre> &gt; Intel(R) Ethernet Connection X553 10 GbE SI</pre>	F * +/-: Change Opt.
> Intel(R) Ethernet Connection X553 10 GbE SI	F * F1: General Help
<pre> &gt; Intel(R) Ethernet Connection X553 1GbE - 50  &gt; Intel(R) Ethernet Connection X553 1GbE - 50    </pre>	0 * F2: Previous Values   0 + F3: Optimized Defaults   v F4: Save & Exit   ESC: Exit

b) Verify that UEFI is selected for the Boot option filter from the Compatibility Support Module Configuration screen.

Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc. Advanced			
Compatibility Support N	Nodule Configuration	Enable/Disable CSM    Support.	
CSM Support			
CSM16 Module Version	07.81		
GateA20 Active INT19 Trap Response	[Upon Request] [Immediate]		
Boot option filter	[UEFI only]		
Option ROM execution		<pre> &gt;&lt;: Select Screen    ^v: Select Item   IEnter: Select</pre>	
Network	[UEFI]	+/-: Change Opt.	
Storage	[UEFI]	F1: General Help	
Video	[UEFI]	F2: Previous Values	
Other PCI devices	[UEFI]	F3: Optimized Defaults    F4: Save & Exit  ESC: Exit	

- 2. Enable Hyper-Threading
  - a) Tab to Socket Configuration, press **Enter** on Processor Configuration

Aptio Setup Utility - Copyright (C) Main Advanced Platform Configuration	2019 American Megatrends, Inc. Socket Configuration >
<ul> <li>&gt; Processor Configuration</li> <li>&gt; Common RefCode Configuration</li> <li>&gt; UPI Configuration</li> <li>&gt; Memory Configuration</li> <li>&gt; IIO Configuration</li> <li>&gt; Advanced Power Management Configuration</li> </ul>	Displays and provides  option to change the  Processor Settings     
	<pre>&gt;&lt;: Select Screen  ^v: Select Item  Enter: Select  +/-: Change Opt.  F1: General Help  F2: Previous Values  F3: Optimized Defaults  F4: Save &amp; Exit  ESC: Exit</pre>
Version 2.20.1271. Copyright (C) 20	)19 American Megatrends, Inc.

b) Scroll down to Hyper-Threading, press  ${\bf Enter}$  and select  ${\tt Enable}.$ 

Processor Max Ratio	00H	T	00H		^ Enables Hyper Threading
Processor Min Ratio	00H	1	00H		+  (Software Method to
Microcode Revision	N/A	1	N/2	P	+ Enable/Disable Logical
Ll Cache RAM	0KB	1	(	OKB	+ Processor threads.
L2 Cache RAM	0KB	1	(	OKB	*
L3 Cache RAM	0KB	1	(	OKB	*
Processor 0 Version	Intel(R)	Xeo	n(R) D-	-2187	* ]
Processor 1 Version Processor 2 Version Processor 3 Version \-	Disable Enable 				   <mark>-</mark> / Select Screen Select Item
TRACE HUB STH ACPIBAR BASE	[Disable]				+ Enter: Select + +/-: Change Opt.
Hyper-Threading [ALL]					+ F1: General Help
Intel Enhanced Debug	[4096K]				+ F2: Previous Values
IED Trace memory	[Disable]				+ F3: Optimized Defaults
TSEG Smram Size	[128M]				v F4: Save & Exit

3. Configure the USB, UEFI:Samsung Flash Drive- 1100, as Boot Option #1 from the Boot Configuration screen, then press **Enter** to save the changes.

Boot Configuration Setup Prompt Timeout WARNING: More than 450 cause system timeout, a BIOS.	100 tenth of seconds will and switch to the backup	<pre>^ Sets the system boot * order * + + +</pre>
Bootup NumLock State Quiet Boot	[On] [Disabled]	++++
Boot Option Priorities		+  +
Boot Option #1		+ ><: Select Screen + ^v: Select Item
Boot Option #2	[EDA-DIAG]	+ Enter: Select
Boot Option #3	[Samsung Flash Drive 1100]	+ +/-: Change Opt. + F1: General Help
Boot Option #4	[UEFI: PXE IP4 Intel(R) I210 Gigabit Network Connection]	+ F2: Previous Values + F3: Optimized Defaults v F4: Save & Exit  ESC: Exit

- 4. Press the F4 key to Save the changes and exit the utility.
- 5. Confirm saving the configuration by selecting Yes and press Enter.

Save & E	xit Setup\
Save configur	ation and exit?
Yes	No
	/

6. The system will boot from the USB and start the ESXI installation. ESXi installation output

<6>Loading /lsu_lsiv00
<6>Loading /lsu_lsiv01
<6>Loading /lsu_lsiv02
<6>Loading /lsu_lsiv03
<6>Loading /lsu_smar.v00
<6>Loading /native_m.v00
<6>Loading /rste.v00
<6>Loading /vmware_e.v00
<6>Loading /vsan.v00
<6>Loading /vsanheal.v00
<6>Loading /vsanmgmt.v00
<6>Loading /tools.t00
<6>Loading /dell_con.v00
<6>Loading /xorg.v00
<6>Loading /imgdb.tgz
<6>Loading /imgpayld.tgz
<6>UEFI Secure Boot is not enabled
<6>Shutting down firmware services
Ingli Ing Whernel initialization
Initializing memory
Initializing nardware support
Initializing timing
Initializing scheduler
Initializing device support
Late chipset initialization
Toitiolizing DCL
Initializing FCI
Enabling interrunts
Initializing ACPT
Initializing storage stack
Initializing power management
Initializing page cache
Initializing PCI passthru
Initializing events
Initializing heartbeat
VMKernel loaded successfully.

### **Install ESXi OS**

1. Press Enter to continue installation process.



2. Press F11 to Accept and Continue Licence Agreement.



3. Select the keyboard layout option using up down keys and press Enter.



4. Enter Root Password and press Enter



5. Select SSD from the VMware ESXi 6.7.0 screen as the destination disk.



6. Press F11 to confirm the repartition and installation.

End User License Agreement (EULA) VMWARE END USER LICENSE AGREEMENT PLEASE NOTE THAT THE TERMS OF THIS END USER LICENSE AGREEMENT SHALL GOVERN YOUR USE OF THE SOFTWARE, REGARDLESS OF ANY TERMS THAT MAY APPEAR DURING THE INSTALLATION OF THE SOFTWARE. IMPORTANT-READ CAREFULLY: BY DOWNLOADING, INSTALLING, OR USING THE SOFTWARE, YOU (THE INDIVIDUAL OR LEGAL ENTITY) AGREE TO BE BOUND BY THE TERMS OF THIS END USER LICENSE AGREEMENT ("EULA"). IF YOU DO NOT AGREE TO THE TERMS OF THIS EULA, YOU MUST NOT DOWNLOAD, INSTALL, OR USE THE SOFTWARE, AND YOU MUST DELETE OR RETURN THE UNUSED SOFTWARE Use the arrow keys to scroll the EULA text

7. Confirm the disk selection by pressing Enter.



8. The ESXi installation status screen displays.



9. Press Enter to reboot after the installation completion screen displays.



10. Remove the USB and press Enter to continue. The VEP4600 platform reboots.

### **Configure BIOS to boot from SSD**

- 1. Boot into the BIOS settings and select the Boot menu tab.
- 2. Configure the hard disk as Boot Option 1.



3. Press Save and Exit. Reboot the system...

Save & E	xit Setup
Save configure	ation and exit?
Yes	No
	/

# Logging into ESXi

i NOTE: Logging into the ESXi console will invoke the 90-day license. You can log into the browser-based vSphere UI without starting the clock on the license.
- 1. Login credentials for ESXi will be the VEP4600 Service Tag + 1. To get the Service Tag, pull out the luggage tag on the top right corner of the VEP4600 server. The Service Tag can also be found in the BIOS.
- 2. To view Service tag in the BIOS, go to Server Mgmt tab.

BMC Firmware Revision	2.00	^ Press <enter> to view</enter>
IPMI Version	2.0	+ FRU information.
BMC Interface(s)	KCS, USB	+   *
BMC Support	[Enabled]	*
Wait For BMC	[Disabled]	*
FRB-2 Timer	[Enabled]	*
FRB-2 Timer timeout	[6 minutes]	*
FRB-2 Timer Policy	[Do Nothing]	*
OS Watchdog Timer	[Disabled]	*
OS Wtd Timer Timeout	[10 minutes]	* ><: Select Screen
OS Wtd Timer Policy	[Reset]	* ^v: Select Item
Serial Mux	[Disabled]	* Enter: Select
System Event Log		*  +/-: Change Opt.
Bmc self test log		* F1: General Help
View FRU information		* F2: Previous Values
BMC network configurati	lon	+ F3: Optimized Defaults
View System Event Log		vIF4: Save & Exit

3. Scroll down to View FRU information and press Enter.

FRU Information		
System Manufacturer System Product Name	DELL VEP-4600-V930	
System Version System Serial Number	A0 FHXRG02	
Board Manufacturer Board Product Name	DELL VEP-4600-V930	   
Board Version Board Serial Number	OCWV1NAOO CNCESOO84COO3O	<pre>/v: Select Screen /v: Select Item /Enter: Select /+/-: Change Opt. /F1: General Help /F2: Previous Values /F3: Optimized Defaults /F4: Save &amp; Exit /ESC: Exit</pre>

(i) NOTE: System serial number is the service tag.

- **4.** To log into the serial console:
  - a) After ESXi boots, press **F2**.
  - b) Enter the required login and password credentials at the login screen then press **Enter**.

Authentication	Required			
Enter an author localhost.lab.s	ized login na olignis.com.	ame and passwor	d for	
	originis.com.			
Login Name:	[ root			]
Login Name: Password:	[ root			]
Login Name: Password:	[ root			]

## **Configuring the network on ESXi**

1. After booting with ESXi, Press **F2** to configure the static network.



2. Select Configure network management from the System Customization screen then press Enter.

System Customization	Configure Management Network
Configure Password Configure Lockdown Mode	Hostname: localhost
Configure Management Network Restart Management Network Test Management Network	IPv4 Address: 100.67.144.137
Network Restore Options	Network identity acquired from DHCP server 100.67.144.100
Troubleshooting Options	IPv6 Addresses:
View System Logs	fe80::56bf:64ff:febe:844/64
View Support Information	To view or modify this host's management network settings in
Reset System Configuration	detail, press <enter>.</enter>
	<enter> More <esc> Log Out</esc></enter>
VMware ESXi 6.7.0 (VMKerr	nel Release Build 10764712)

3. Select Netork Adapters using the up and down arrow keys from the Configure Management Network screen and press Enter.

Configure Management Network	Network Adapters	
Network Adapters VLAN (optional) IPv4 Configuration IPv6 Configuration DNS Configuration Custom DNS Suffixes	<pre>vmnic0 (3c:2c:30:4c The adapters listed default network cond from this host. When adapters are used, o be fault-tolerant an traffic will be load</pre>	:e3:84) here provide the nection to and n two or more connections will nd outgoing d-balanced.
<up down=""> Select</up>	<enter> Change</enter>	<esc> Exit</esc>

VMware ESXi 6.7.0 (VMKernel Release Build 10764712)

4. Select IPv4 Configuration.

Configure Management Network	IPv4 Configuration
Network Adapters VLAN (optional) IPv4 Configuration IPv6 Configuration DNS Configuration Custom DNS Suffixes	Automatic IPv4 Address: 100.67.144.137 Subnet Mask: 255.255.255.0 Default Gateway: 100.67.144.254 This host can obtain an IPv4 address and other networking parameters automatically if your network includes a DHCP server. If not, ask your network administrator for the appropriate settings.
<up down=""> Select</up>	<enter> Change <esc> Exit</esc></enter>
VMware ESXi 6.7.0 (VMKern	nel Release Build 10764712)

5. Select Set Static IPv4 address and network configuration.

6. Select Network Adapter which is connected, and press Enter to save changes.

Select the adap connection. Use load-balancing.	ters for this host's default ma two or more adapters for fault	anagement netwo -tolerance and	rk
Device Name [] vmnic0 [] vmnic1 [] vmnic2 [] vmnic3 [X] vmnic3 [] vmnic5 [] vmnic6 [] vmnic11 [] vmnic12	Hardware Label (MAC Address) N/A (3c:2c:30:3d:eb:00) N/A (3c:2c:30:3d:eb:01) N/A (3c:2c:30:3d:eb:02) N/A (3c:2c:30:3d:eb:03) N/A (3c:2c:30:3d:eb:04) Slot01; rel (68:e8:44) Slot01; rel (68:e8:45) Chassis slo (02:63:80) Chassis slo (02:63:82)	Status Disconnected Disconnected Disconnected Connected { Disconnected Disconnected Disconnected Disconnected Disconnected	.)
<d> View Details</d>	<space> Toggle Selected</space>	<enter> OK</enter>	<esc> Cancel</esc>

7. Enter the IPv4 Address, Subnet Mask, and Default Gateway configurations in the fields that are provided at the Network Adapters screen then press **Enter**.

Configure Management Network	IPv4 Configuration
IPv4 Configuration	
This host can obtain networ includes a DHCP server. If specified:	k settings automatically if your network it does not, the following settings must be
( ) Disable IPv4 configurat ( ) Use dynamic IPv4 addres	ion for management network s and network configuration
(o) Set static IPv4 address	and network configuration:
(o) Set static IPv4 address IPv4 Address	and network configuration: [ 100.67.147.124 ]
(o) Set static IPv4 address IPv4 Address Subnet Mask	and network configuration: [ 100.67.147.124 ] [ 255.255.255.0 ]
(o) Set static IPv4 address IPv4 Address Subnet Mask Default Gateway	and network configuration: [ 100.67.147.124 ] [ 255.255.255.0 ] [ 100.67.147.254 ]
(o) Set static IPv4 address IPv4 Address Subnet Mask Default Gateway «Up/Down> Select <space> Ma</space>	and network configuration: [ 100.67.147.124 ] [ 255.255.255.0 ] [ 100.67.147.254 ] ark Selected <enter> OK <esc> Cancel</esc></enter>

- 8. Press the Y key to confirm the changes that you made and to restart the management network.
- 9. Select Troubleshooting Options and press Enter.
- **10.** Select Enable ESXi Shell from the Troubleshooting Mode Options menu.

Enable ESXi Shell

- 11. Press Enter to enable the service.
- 12. Login to the ESXI Shell and add the following entries in the passthru.map file located at /etc/vmware/passthru.map.

168c 003c d3d0 false

## How to add ESXi license

1. Log into ESXi vSphere UI.

vmware <sup>,</sup> ESXi"			root@10	).203.12.35 🕶   Help 🛩   🭳
Bavigator	🗇 [ localhost.localdomain	localhost.localdomain		
<ul> <li>Host</li> <li>Manage Monitor</li> <li>Monitor</li> <li>Monitor</li> <li>Virtual Machines</li> <li>Storage</li> <li>Networking</li> </ul>	Control Contro	Create/Register VM   Pa Shut down Reboot   caldomain 6 7 0 Update 1 (Build 10764712) Normal (not connected to any vCenter Server) 0 01 days C Customized Image ESXI 6.7 Update 1 A04 (based o ESXI in evaluation mode. This license will expire in 6	C Refresh   Actions	CPU USED: 75 MHz MEMORY USED: 1 93 GB STORAGE USED: 1 42 GB
	* Hardware		* Configuration	
	Manufacturer	DELL	Image profile	DellEMC-ESXI-6.7U1-107
	Model	VEP-4600		0
	P CPU	16 CPUs x Intel(R) Xeon(R) D-2187NT CP	vSphere HA state	Not configured
		U @ 2.00GHz	▶ vMotion	Supported
	Memory	63.67 GB	* System Information	
	Persistent Memory	0.8	-,	

2. Click Manage from the menu on the left panel.

Click on the Licensing tab

vmware" ESXi"	, m
📲 Navigator 🗆	🔋 localhost.localdomain - Manage
▼ 🗐 Host	System Hardware Licensing Packages Services Security & users
Manage Monitor	🔏 Assign license 😠 Remove license   🤁 Refresh   🔅 Actions
Virtual Machines	Evaluation Mode         Key:       00000-00000-00000-00000         Expiration date:       Monday, October 07, 2019, 23.02:16-0700         Features:       Unlimited virtual SMP         H:264 for Remote Console Connections         vSphere API         Content Library         Storage APIs         vSphere Motion         vSphere HA         vSphere Data Protection         vSphere Replication         vSphere Storage vMotion         vSphere Storage vMotion         Storage Storage VMotion         vSphere T(up to 8 virtual CPUs)         Virtual Volumes         Prote Storage VMotion
	APIs for Storage Awareness Storage-Policy Based Management vSphere Storage APIs for Array Integration

**3.** Enter a valid license and click **Check license**.

Assign license	
License key	×××××-×××××
	Check license Cancel