

Virtual Edge Platform 1405 Series

Operating System Installation Guide

Dell Networking Solutions

Notes, cautions, and warnings

 **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.

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

Contents

Chapter 1: Introduction.....	4
Chassis physical design.....	4
Chapter 2: Create a serial console connection.....	11
Chapter 3: Create bootable USB drive.....	13
Chapter 4: Configure BIOS and install Ubuntu 18.04 operating system to SSD.....	15
Configure BIOS to boot from USB.....	15
Installation of Ubuntu 18.04 operating system to SSD.....	16
Configure BIOS to boot from SSD.....	18
Chapter 5: Configure BIOS and install Adva Rocky Linux operating system to SSD.....	19
Configure BIOS to boot from USB.....	19
Install Adva Rocky Linux operating system.....	19
Configure BIOS to boot from SSD.....	20
Chapter 6: Configure BIOS and install ADVA 18.4 operating system installation to SSD.....	21
Configure BIOS to boot from USB.....	21
Install ADVA 18.4 operating system.....	22
Configure BIOS to boot from SSD.....	23
Chapter 7: Download and install VMware ESXi.....	26
Create bootable USB drive for ESXi.....	26
Configure BIOS to boot from USB.....	27
Install VMware ESXi operating system.....	28
Configure BIOS to boot from SSD.....	29
Chapter 8: LTE modem detection.....	33
LTE modem detection on Versa.....	33
LTE modem detection on ADVA.....	33
LTE modem detection on ESXi.....	34

Introduction

This document provides the operating system installation steps for the Dell Virtual Edge Platform (VEP) 1405 series of systems. The steps that are provided have been tested and verified on VEP1405 devices using the following information:

Table 1. Operating system information

Feature	Description
Ubuntu operating system image	ubuntu-18.04.3-live-server-amd64.iso
Adva Rocky Linux operating system image	rhel-server-7.5-x86_64-dvd.iso
ESXi 7.0 operating system image	VMware-VMvisor-Installer-7.0.0-16324942.x86_64-DellEMC_Customized-A03.iso
ADVA operating system image	SVCS_connector-18.4.1.31-18.4-factory-dell-57.iso

The recommended device configuration for the VEP1405 series before installing the operating system is as follows:

Table 2. VEP1405 series recommended firmware versions

Feature	Configuration option 1 (Versa ready)	Configuration option 2 (ADVA ready)
DIAG OS	3.43.3.81-26	3.43.3.81-26
DIAG Tools	3.43.4.81-25	3.43.4.81-25
Firmware Updater	2.2	2.2
BIOS version (4-core)	3.48.0.9-19 (for VEP1405 series) 3.48.0.9-19 (for VEP1405N series)	(4-core option is not available)
BIOS version (8-core and 16-core)	3.48.0.9-19 (for VEP1405 series) 3.48.0.9-19 (for VEP1405N series)	3.48.0.9-19
CPLD version	0.17	0.17
PIC	v40P	v40P

NOTE: When upgrading to the UFW version 2.2, Dell Technologies strongly recommends that you upgrade all the three firmwares - BIOS, CPLD, and PIC. Upgrading only one or two of these firmwares may result in the system becoming unstable:

- BIOS - 3.48.0.9-19
- CPLD - v17
- PIC - v40P

NOTE: 960 GB Swissbit SSD firmware in VEP1445 SKU 210-AWIP, upgrades from SBR10013 to SBR10015. SSD contents are not impacted as a result of the upgrade.

Chassis physical design

Table 3. Dell Virtual Edge Platform (VEP) 1405 model descriptions

Model	CPU	Description
VEP1425	4-core	• 8 GB DDR4

Table 3. Dell Virtual Edge Platform (VEP) 1405 model descriptions (continued)

Model	CPU	Description
		• 16 GB eMMC • 120 GB SSD • 2x 2 Wi-Fi • 6x 1 GB Copper RJ45 • 2x 10 GB SFP+ • Versa software installed • Trusted Platform Module (TPM) 2.0 - World-wide except China • 2x USB 3.0 • Low-energy Bluetooth (BLE) • One fan
VEP1425N	4-core	• 8 GB DDR4 • 16 GB eMMC • 120 GB SSD • 6x 1 GB Copper RJ45 • 2x 10 GB SFP+ • Versa software installed • Trusted Platform Module (TPM) 2.0 - World-wide except China • 2x USB 3.0 • One fan
VEP1445	8-core	• 16 GB DDR4 • 16 GB eMMC • 240 GB SSD • 2x 2 Wi-Fi • 6x 1 GB Copper RJ45 • 2x 10 GB SFP+ • Versa software installed • Trusted Platform Module (TPM) 2.0 - World-wide except China • 2x USB 3.0 • Low-energy Bluetooth (BLE) • Two fans
VEP1445	8-core	• 32 GB DDR4 • 16 GB eMMC • 960 GB SSD • 2x 2 Wi-Fi • 6x 1 GB Copper RJ45 • 2x 10 GB SFP+ • ADVA software installed • Trusted Platform Module (TPM) 2.0 - World-wide except China • 2x USB 3.0 • Low-energy Bluetooth (BLE) • Two fans
VEP1445N	8-core	• 16 GB DDR4 • 16 GB eMMC • 240 GB SSD • 6x 1 GB Copper RJ45 • 2x 10 GB SFP+ • Versa software installed • Trusted Platform Module (TPM) 2.0 - World-wide except China • 2x USB 3.0 • Two fans
VEP1485	16-core	• 32 GB DDR4

Table 3. Dell Virtual Edge Platform (VEP) 1405 model descriptions (continued)

Model	CPU	Description
		• 16 GB eMMC • 240 G SSD • 2x 2 Wi-Fi • 6x 1 GB Copper RJ45 • 2x 10 GB SFP+ • Versa software installed • Trusted Platform Module (TPM) 2.0 - World-wide except China • 2x USB 3.0 • Low-energy Bluetooth (BLE) • Two fans
VEP1485	16-core	• 64 GB DDR4 • 16 GB eMMC • 2 TB SSD • 2x 2 Wi-Fi • 6x 1 GB Copper RJ45 • 2x 10 GB SFP+ • ADVA software installed • Trusted Platform Module (TPM) 2.0 - World-wide except China • 2x USB 3.0 • Low-energy Bluetooth (BLE) • Two fans
VEP1485N	16-core	• 32 GB DDR4 • 16 GB eMMC • 240 G SSD • 6x 1 GB Copper RJ45 • 2x 10 GB SFP+ • Versa software installed • Trusted Platform Module (TPM) 2.0 - World-wide except China • 2x USB 3.0 • Two fans

NOTE: For a listing of the supported optics guidelines for the VEP1405 series, see the [Virtual Edge Platform 1405 Series Technology Guide](#).



Figure 1. VEP1405 series front view

1. Security lock port
2. USB port

NOTE: An additional USB port is located at the opposite side of the system.

3. System status indicator LED

Table 4. Front view system status indicator LED

Color	Status
Red	Power on

Table 4. Front view system status indicator LED (continued)

Color	Status
White	System is booting.
Green	Operating system boots with diagOS
Blue	Reset button is pressed for more than five seconds. <i>i</i> NOTE: See the Reset button behavior table below for more information.

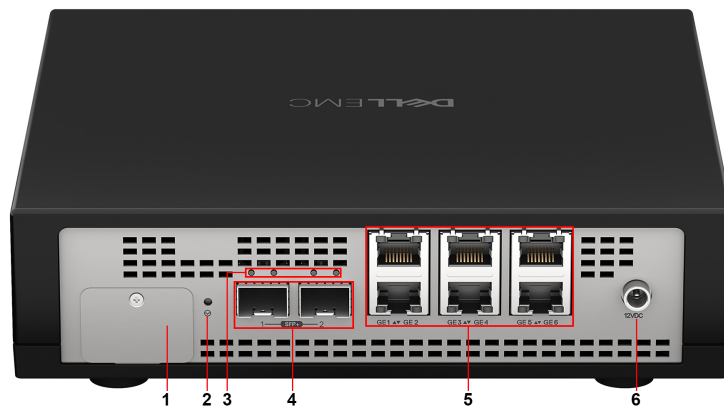


Figure 2. VEP1405 series rear view (with port cover)

1. Port cover
2. Reset button

i **NOTE:** After upgrading to UFW 2.2, the system response when you push the Reset button on a running VEP14xx switch is determined by the operating system that the switch is currently running.

i **NOTE:** See the [Reset button behavior](#) table below for more information.

3. LED status indicators for SFP+ ports
4. SFP+ ports
5. Ethernet ports and LED status indicators
6. Power connection port

i **NOTE:** To prevent the VEP1405 series system console port from being accessed in a nonsecure location, the system ships from the factory with a plate covering the micro USB port. To uncover the port, use a #0 (2.5 mm) Phillips head screwdriver to loosen or remove the screw that holds the plate in place.

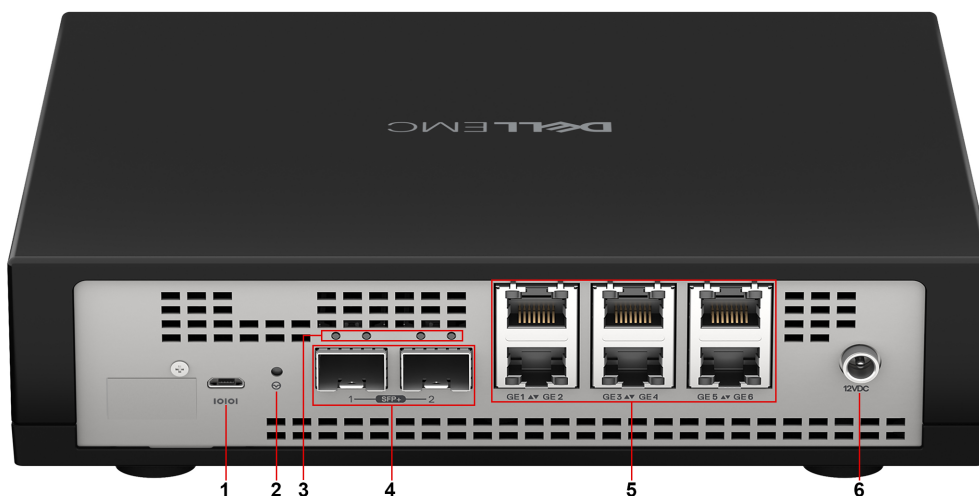


Figure 3. VEP1405 series back view (without port cover)

1. Micro USB serial console port
2. Reset button
 - NOTE:** After upgrading to UFW 2.2, the system response when you push the Reset button on a running VEP14xx switch is determined by the operating system that the switch is currently running.
 - NOTE:** See the [Reset button behavior](#) table below for more information.
3. LED status indicators for SFP+ ports
4. SFP+ ports
5. Ethernet ports and LED status indicators
6. Power connection port

Table 5. Back view system status indicator LED behavior

Class	Behavior
1000 Base-T LED	• Link LED - Green or amber ◦ Solid green - Port is linked and running at maximum 1000M speed on ethernet port ◦ Solid amber - Port is linked and running at lower 100M or 10M speed on ethernet port ◦ Off - No link • Activity LED - Green NOTE: The LED flashes green during port activity. ◦ Off - no port activity
SFP+ LED	• Link LED - Green or amber ◦ Solid green - Port is linked and running at 10G speed ◦ Solid amber - Port is linked and running at 1G speed ◦ Off - No link • Activity LED - Green NOTE: The LED flashes green during port activity. ◦ Off - no port activity

Table 6. Reset button behavior - When the system is in powered-off state in response to the *shutdown* or *poweroff* command

Action	Behavior
Press the Reset button for less than five seconds	System powers up
Press the Reset button for five seconds or more	• System powers up • Status indicator LED color changes to blue • Flag indicating a long push is set by the BIOS in the CMOS RAM NOTE: This flag allows the operating system or an application that there was a long push of the reset button. NOTE: After upgrading to UFW 2.2, the system powers up, but the status indicator does not turn blue and no flag is set in the CMOS RAM indicating long push of the button.

Table 7. Reset button behavior - When the system is already powered on and the OS is running

Action	Behavior
Press the Reset button for less than five seconds	• System reboots NOTE: After upgrading to UFW 2.2, the response of the system to short button-push is determined by the operating system it is running.
Press the Reset button for five seconds or more	• System reboots • Status indicator LED color changes to blue

Table 7. Reset button behavior - When the system is already powered on and the OS is running (continued)

Action	Behavior
	Flag indicating a long push is set by the BIOS in the CMOS RAM NOTE: This flag allows the operating system or an application that there was a long push of the reset button. NOTE: After upgrading to UFW 2.2, the response of the system to long button-push is determined by the operating system it is running.

Table 8. Chassis physical design

Parameter	Configuration option 1	Configuration option 2
Height	5.2 cm (2.0 in)	5.2 cm (2.0 in)
Width	20.8 cm (8.1 in)	20.8 cm (8.1 in)
Depth	20.0 cm (7.9 in)	20.0 cm (7.9 in)
Chassis weight with factory-installed components	4-core: 1.44 kg (3.17 lb) 8-core: 1.42 kg (3.13 lb) 16-core: 1.44 kg (3.17 lb)	8-core: 1.42 kg (3.13 lb) 16-core: 1.44 kg (3.17 lb)

NOTE: Chassis weight does not include the weight of the power supply.

Table 9. Environmental parameters

Parameter	Configuration option 1	Configuration option 2
Operating temperature	0–40°C (32°F–104°F) continuously	0–40°C (32°F–104°F) continuously
Operating humidity	5% to 85% (RH), noncondensing continuously 5% to 90% (RH), noncondensing short-term (< 1% of operational hour per year)	5% to 85% (RH), noncondensing continuously 5% to 90% (RH), noncondensing short-term (< 1% of operational hour per year)
Storage temperature	–40°–70°C (–40° to 158°F)	–40°–70°C (–40° to 158°F)
Storage humidity	5% to 90% (RH), noncondensing	5% to 90% (RH), noncondensing
Maximum operational altitude	3,048 meters (10,000 ft) with no performance degradation to 950 meters (3117 ft)	3,048 meters (10,000 ft) with no performance degradation to 950 meters (3117 ft)
Maximum nonoperational altitude	10,668 meters (35,000 ft)	10,668 meters (35,000 ft)

Table 10. AC power requirements

Parameter	Configuration option 1	Configuration option 2
Power supply	100–240 VAC 50/60 Hz	100–240 VAC 50/60 Hz
Maximum current draw per system - AC	100 VAC: 2.0A 240 VAC: 1.0A	100 VAC: 2.0A 240 VAC: 1.0A
Power consumption	Typical: 40 W (16 core) 35 W (8 core) 20 W (4 core) Maximum: 50 W (16 core) 45 W (8 core)	Typical: 40 W (16 core) 35 W (8 core) Maximum: 50 W (16 core) 45 W (8 core)

Table 10. AC power requirements (continued)

Parameter	Configuration option 1	Configuration option 2
	• 30 W (4 core)	

 **NOTE:** For the most current AC power requirements and power consumption specifications, see the Installation Guide at <https://www.dell.com/support>.

Create a serial console connection

NOTE: The instructions that are provided are intended for use on a system that is running a Microsoft Windows operating system.

To create a serial console connection, perform the following steps:

1. Use a micro USB to USB type-A cable to establish a connection between the VEP1405 series micro USB console port and the personal computer.

NOTE: Ensure that you have the driver for the CP210X USB - UART Bridge VCP from Silicon Labs installed. For more information or to download the necessary driver, see <https://www.silabs.com/products/development-tools/software/usb-to-uart-bridge-vcp-drivers>.
2. Check the CP2102 drive communications port using the Microsoft Windows operating system Device Manager.

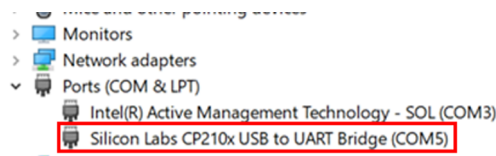


Figure 4. Microsoft Windows Device Manager

3. Using a terminal emulator such as PuTTY, locate and configure the serial port that the USB connection represents.
4. In the **Serial** field, enter the wanted connection name.
5. Enter **115200** as the baud rate, in the **Speed** field.
6. Select **Serial** for the **Connection type**.

NOTE: To save the selected options for future use, enter a name in the **Saved Sessions** field then click **Save**.

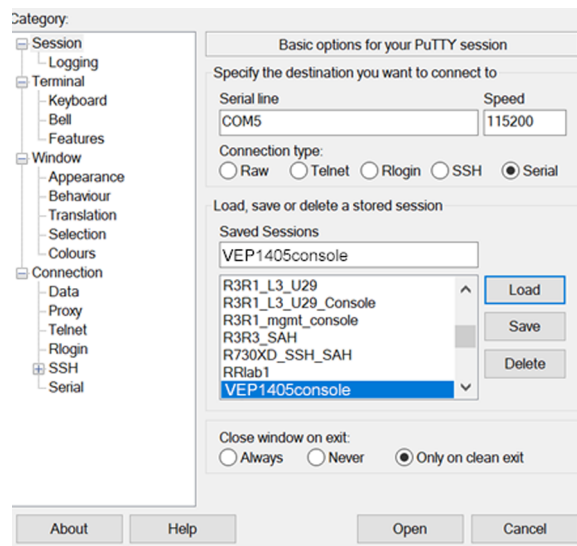
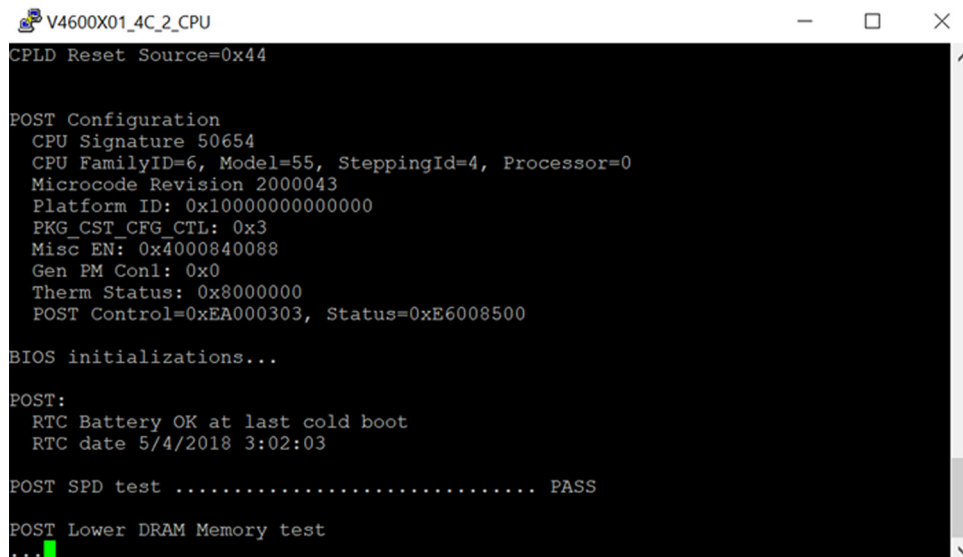


Figure 5. PuTTY configuration screen

7. Click **Open**.

NOTE: Steps 8 and 9 provide instructions on how to access the BIOS setup screen.
8. Plug the VEP1405 system power cable into a power source. The unit immediately starts to power on. Watch for the VEP1405 console window. The **POST Lower DRAM Memory test** screen displays a cursor.



```
V4600X01_4C_2_CPU
CPLD Reset Source=0x44

POST Configuration
CPU Signature 50654
CPU FamilyID=6, Model=55, SteppingId=4, Processor=0
Microcode Revision 2000043
Platform ID: 0x1000000000000000
PKG_CST_CFG_CTL: 0x3
Misc EN: 0x4000840088
Gen PM Conl: 0x0
Therm Status: 0x8000000
POST Control=0xEA000303, Status=0xE6008500

BIOS initializations...

POST:
  RTC Battery OK at last cold boot
  RTC date 5/4/2018 3:02:03

POST SPD test ..... PASS

POST Lower DRAM Memory test
...
```

Figure 6. POST Lower DRAM Memory test screen

9. When the cursor moves into the upper-left corner, press the **Delete** key until the **Press ** string displays in the console window.



```
V4600X01_4C_2_CPU
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.
```

Figure 7. Setup screen

NOTE: If you do not press the **Delete** key fast enough, the boot up screen displays. If this occurs, you must power the VEP1405 unit off and power it on again to restart the boot up process.

Create bootable USB drive

The information in this section provides you with the steps necessary to create a bootable USB with the .iso image of the operating system to be installed.

NOTE: Dell Technologies recommends you use Rufus to create the bootable USB drive. To download the latest version of Rufus, see <https://rufus.ie>.

NOTE: The example sequence provided in this section covers the creation of a bootable USB drive for the Ubuntu operating system. Select the appropriate ISO file to install the Adva Pocky Linux, ESXi, or ADVA operating system.

1. Insert the USB drive into the system running Microsoft Windows.
The **Rufus** window displays.
2. Within the **Drive Properties** section, click the **Select** button next to the **Boot selection** section.
The **Browse** window displays.
3. Go to the location where the **ubuntu-18.10-live-server-amd64.iso** file is located, then click **Open**.
4. Locate the **Partition scheme** drop-down and click to select **GPT**.
5. From the **Target system** drop-down, select **UEFI (non CSM)**.

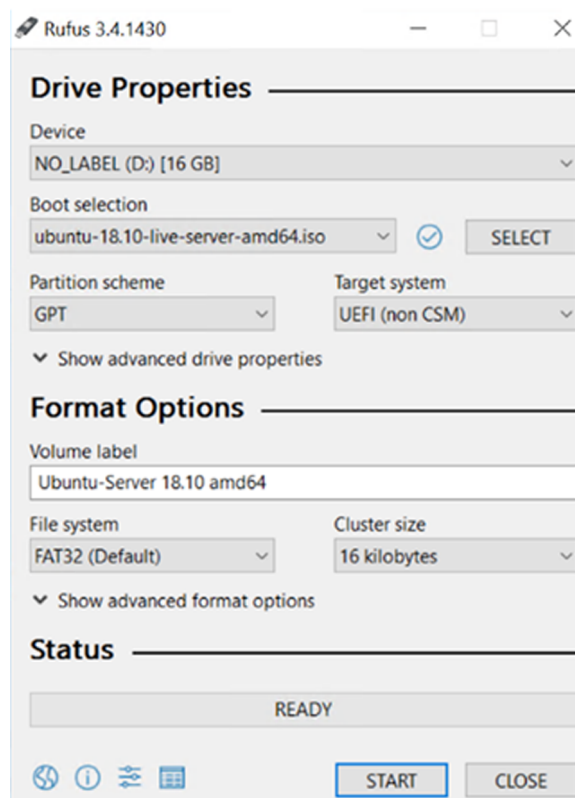


Figure 8. Rufus configuration screen

6. Click **Start**.
The **ISOHybrid image detected** message displays.
7. From the options provided, select **Write in ISO Image mode (Recommended)**, then click **OK**.

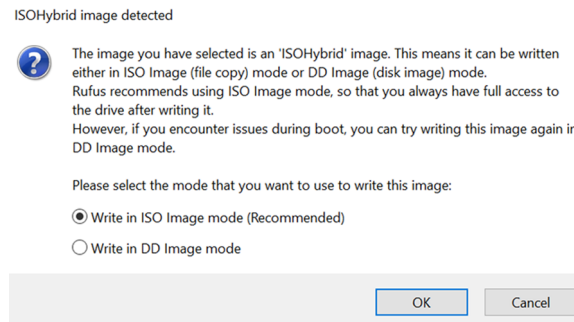


Figure 9. ISOHybrid image selection screen

Creation of the bootable USB drive begins.

8. After the creation of the bootable USB drive is complete, open the folder to ensure that the required files are listed, as shown in the following figure:

UBUNTU-SERV (D:) > boot > grub			
Name	Date modified	Type	Size
x86_64-efi	5/2/2019 2:28 PM	File folder	
efi	5/2/2019 2:28 PM	Disc Image File	2,464 KB
font.pf2	5/2/2019 2:28 PM	PF2 File	5 KB
grub	5/2/2019 2:28 PM	CFG File	2 KB
loopback	5/2/2019 2:28 PM	CFG File	1 KB

Figure 10. Grub file location

9. Open the Notepad or similar application.
10. Click **File, Open**, go the location where the **grub.cfg** file is saved, and then click **Open**.
11. From the **linux** image line, add **console=ttyS0,115200** as shown in the following figure:

```
if loadfont /boot/grub/font.pf2 ; then
    set gfxmode=auto
    insmod efi_gop
    insmod efi_uga
    insmod gfxterm
    terminal_output gfxterm
fi

set menu_color_normal=white/black
set menu_color_highlight=black/light-gray

set timeout=5
menuentry "Install Ubuntu Server" {
    set gfxpayload=keep
    linux /casper/vmlinuz console=ttyS0,115200 boot=casper
    quiet ---
    initrd /casper/initrd
```

Figure 11. Edit grub.cfg file

12. Save the changes that are made to the grub file, then close the file.
13. Plug the bootable USB drive that you created in step 1, into any of the USB ports on the sides of the VEP1405 series system.

NOTE: Perform the same steps listed in this section to create a bootable USB drive for the Adva Pocky Linux and ADVA ISO images. See the [Introduction](#) section for the Adva Pocky Linux and ADVA ISO image file information.

Configure BIOS and install Ubuntu 18.04 operating system to SSD

NOTE: When upgrading to the UFW version 2.2, Dell Technologies strongly recommends that you upgrade all the three firmwares - BIOS, CPLD and PIC. Upgrading only one or two of these firmwares may result in the system becoming unstable:

- BIOS - 3.48.0.9-19
- CPLD - v17
- PIC - v40P

Configure BIOS to boot from USB drive

1. Insert the bootable USB drive that you created using the instructions from the Create bootable USB drive section, and restart the system.
2. From the BIOS screen, use the arrow keys to select the **Advanced tab**.

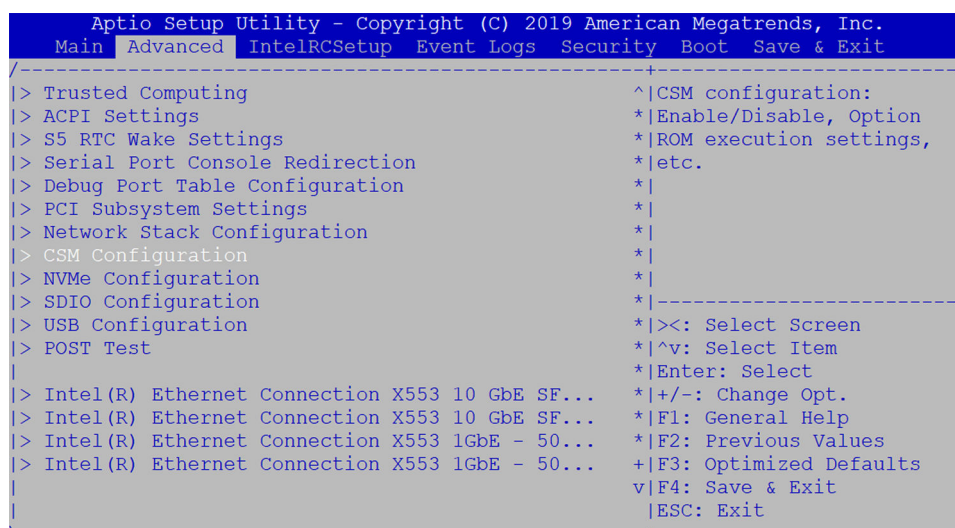


Figure 12. Advanced tab

3. Use the arrow keys to select the **CSM Configuration** listing, then press **Enter**.
4. From the **Compatibility Support Module Configuration** screen, change the **Boot option filter** to **UEFI only** mode and press **Enter**.

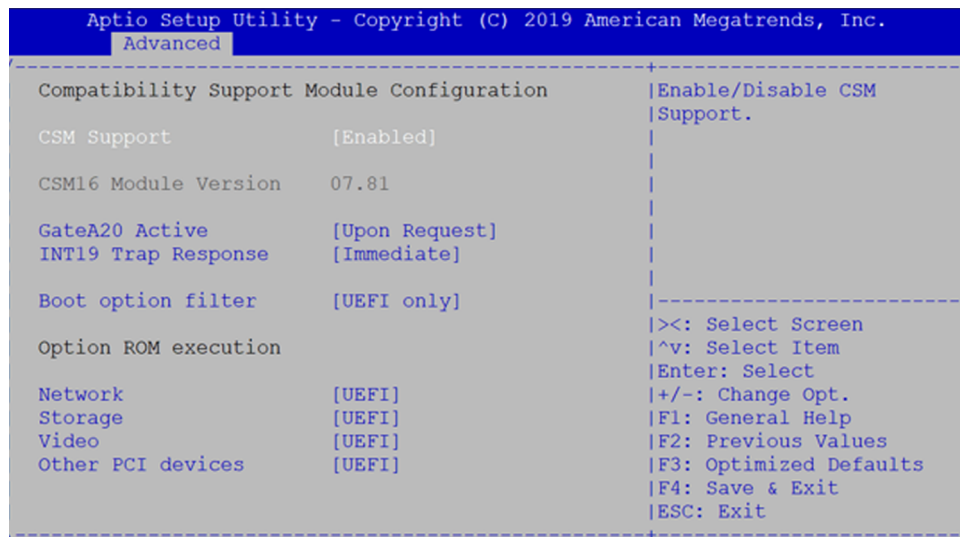


Figure 13. Boot option filter

5. From the BIOS screen, use the arrow keys to select the **Boot** tab and press **Enter** to change the boot option priority.
6. Using the arrow keys, select the listing of the driver on the bootable USB drive and then press **Enter**.

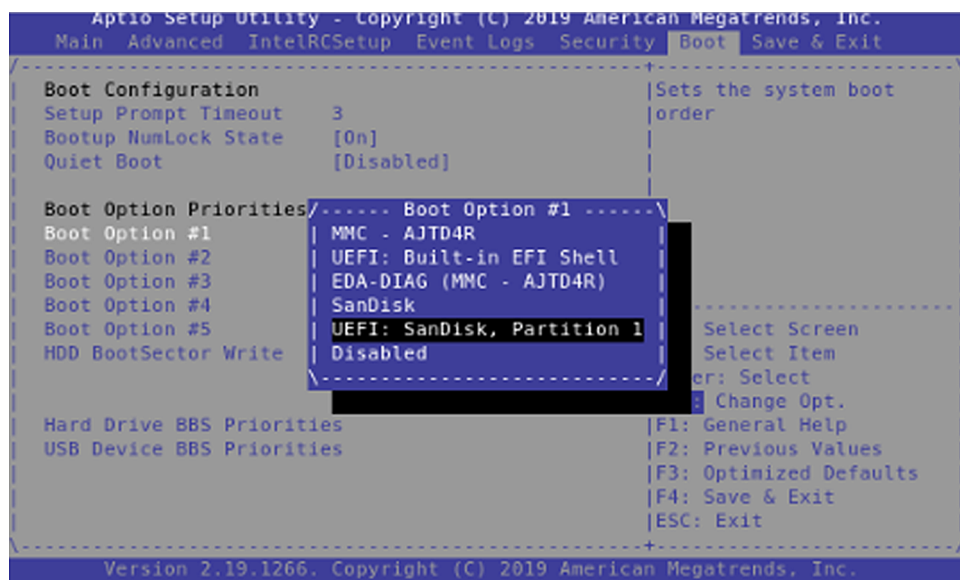


Figure 14. Select USB drive

7. Press **F4** to save the selection and to exit the selection screen.
8. When prompted to confirm the option to **Save & Exit?**, select **Yes** and press **Enter**.

Installation of Ubuntu 18.04 operating system to SSD

This section provides the steps necessary to install the Ubuntu 18.04 operating system.

To install Ubuntu 18.04, perform the following steps:

1. From the **GNU GRUB** screen, use the arrow keys to select the **Install Ubuntu Server** option.
2. Press the **e** key to verify the installation menu entry.

```

GNU GRUB  version 2.02

/-----/
|setparams 'Install Ubuntu Server'|
|                                |
|   set gfxpayload=keep         |
|   linux      /casper/vmlinuz  | console=ttyS0,115200 boot=casper quiet|
|t ---                          |
|   initrd      /casper/initrd.gz|
|                                |
|-----|

Minimum Emacs-like screen editing is supported. TAB lists
completions. Press Ctrl-x or F10 to boot, Ctrl-c or F2 for a
command-line or ESC to discard edits and return to the GRUB menu.

```

Figure 15. Edit boot entry screen

NOTE: If the `grub.cfg` file was updated as instructed in the Create bootable USB drive section, the `linux` image line contains the following content: `console=ttyS0, 115200`.

3. Press `Ctrl-x` to start the installation.
4. From the **Language selection** menu, select **English**.
5. Within the Ubuntu 18.04 screen, select **Install Ubuntu**.
6. Highlight the wanted management network interface from the **Network connections** screen.

NOTE: In the example provided, **eno4** is selected as the management interface for the VEP1405 series device.

7. **NOTE:** If DHCP is not being used, from the **Interface configuration** screen, modify the interface configuration for static IP assignment.

From the **Interface configuration** screen, modify the interface configuration for static IP assignment.

```

Configure at least one interface this server can use to talk to
other machines, and which preferably provides sufficient access
for updates.

50:9a:4c:dc:79:77 / Intel Corporation / Ethernet Co
1GbE

enp2s0f0 eth DHCPv4 has supplied no addresses
50:9a:4c:dc:79:70 / Intel Corporation / I350 Gigabit
Connection

Network configuration timed out; please verify your settings.

[ Done      ]
[ Back     ]

```

Figure 16. Choose edit IPv4

NOTE: In the example provided, the **Edit IPv4** option is selected.

8. Within the **IPv4 configuration** screen, enter the required **Subnet**, **Address**, **Gateway**, and **Name** server in the fields provided, then select **Save**.
9. Click **Done** to apply the network configuration the changes.
10. From the **Configure the interface server**, **proxy connection settings**, and **alternate mirror configuration** screens, select **Done** to continue.
11. Within the **Filesystem setup** screen, locate and select the **Use An Entire Disk And Set Up LVM** option.
12. When prompted to select the disk to install to, select **SATA Flash Drive** and then select **Done**.
13. From the **Confirm destructive action** screen, select **Continue** to proceed with the disk partition.
14. In the fields provided, enter the required **Name**, **Server name**, and **User name**, then select **Done**.
15. Review the snaps information that is provided and select **Done** to start the installation process.



Figure 17. Server environment snap listing

16. After the installation process is complete, remove the USB drive from the device then select **Reboot Now**.

Configure BIOS to boot from SSD

The information in this section provides the instructions for configuring the BIOS to boot from the SSD.

1. From the BIOS screen, use the arrow keys to select the **Boot** tab and press **Enter** to change the boot option priority.
2. Using the arrow keys, change the **Boot Option** filter to **SATA Flash Drive** and then press **Enter**.

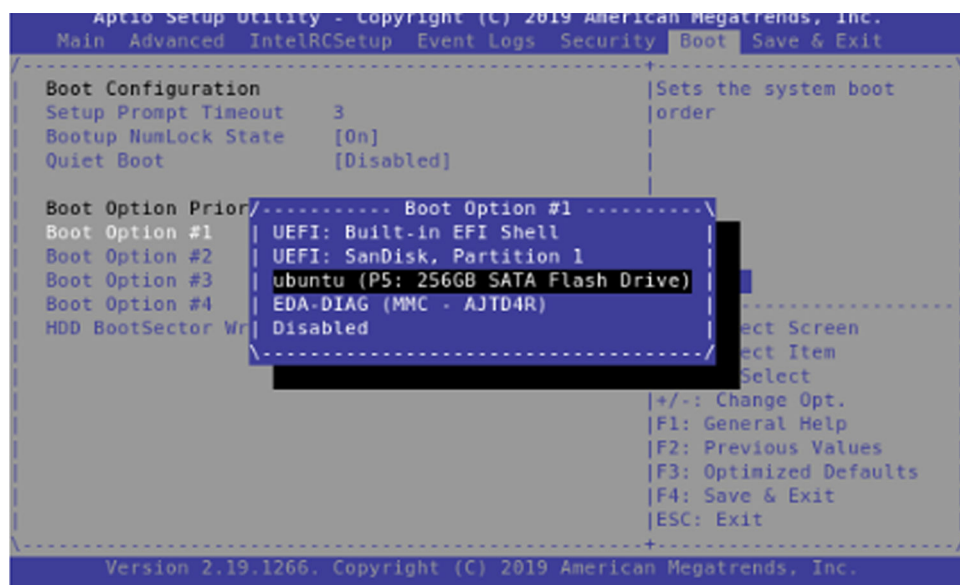


Figure 18. SATA Flash Drive selection

3. Press **Enter** to save the selection, then press **F4** to save and exit the Boot screen.
4. When prompted to confirm the option to **Save configuration and exit?**, select **Yes** and press **Enter**. The system starts to boot. When the boot process is complete, the log in prompt displays.

Configure BIOS and install Adva Rocky Linux operating system to SSD

NOTE: When upgrading to the UFW version 2.2, Dell Technologies strongly recommends that you upgrade all the three firmwares - BIOS, CPLD and PIC. Upgrading only one or two of these firmwares may result in the system becoming unstable:

- BIOS - 3.48.0.9-19
- CPLD - v17
- PIC - v40P

Configure BIOS to boot from USB

To configure the BIOS to boot from the USB drive, perform the following steps:

1. Boot the device and go to the BIOS settings.
2. Using the arrow keys, select the **Advanced** tab.
3. From the **Advanced** tab, select **CSM Configuration** and press **Enter**.
4. Within the **Boot option filter** screen, use the arrows to select **UEFI only** and press **Enter**. This option installs the Red Hat operating system.
5. Use the arrow keys to select the **Boot** menu tab.
6. Highlight the **UEFI USB Drive BBS Priorities** and press **Enter**.
7. For **Boot Option 1**, select **Red Hat OS USB** as the first option.
8. Use the up and down arrow keys, select **USB** for **Boot Option 1** and press **Enter**.
9. Use the left and right arrow keys to select **Yes** after the **Save configuration and exit?** prompt displays, then press **Enter**.

Follow the steps in the next section to boot to the Red Hat 7.5 GRUB installation menu.

Install Adva Rocky Linux operating system

To install the Adva Rocky Linux operating system, perform the following steps:

1. Boot into the Adva Rocky GRUB installation menu.
2. Type **e** to edit the installation menu entry.
3. Enter the `console=ttyS0,115200` string to the end of the first install line.

NOTE: If you modified the `grub.cfg` file as instructed in the [Create bootable USB drive](#) section, press **e** to verify that the string is present as shown in the figure below.

```
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
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.
```

Figure 19. Edit installation menu

4. Press **ctrl-x** to start the installation.
The installation status screen displays.
5. Press **5** to configure the disk destination for the installation.
6. Select **SSD disk** and then press **c** to continue.
7. Press **2** to select **Use All Space**, then press **c** to continue.
8. Press **1** to select **Standard Partition**, then enter **c** to continue.
9. Enter **2** to configure the **Time** settings, then enter **9** to create a user.
10. Enter the required information in each of the fields provided, then press **c** to continue.
11. Press **7** to enter the network configuration screen.
12. Select the number that corresponds to your network interface.



Figure 20. Interface selection

13. In the fields provided, enter the required network information such as **IP address**, **Netmask**, and **Gateway**, then enter **c** to continue.
14. Enter **4** to select **Installation Source** then enter **c** to continue.

Configure BIOS to boot from SSD

1. From the **BIOS** screen, select the **Boot** tab.
2. Boot into the BIOS settings and select **Adva Rocky Linux** as **Boot Option #1**.

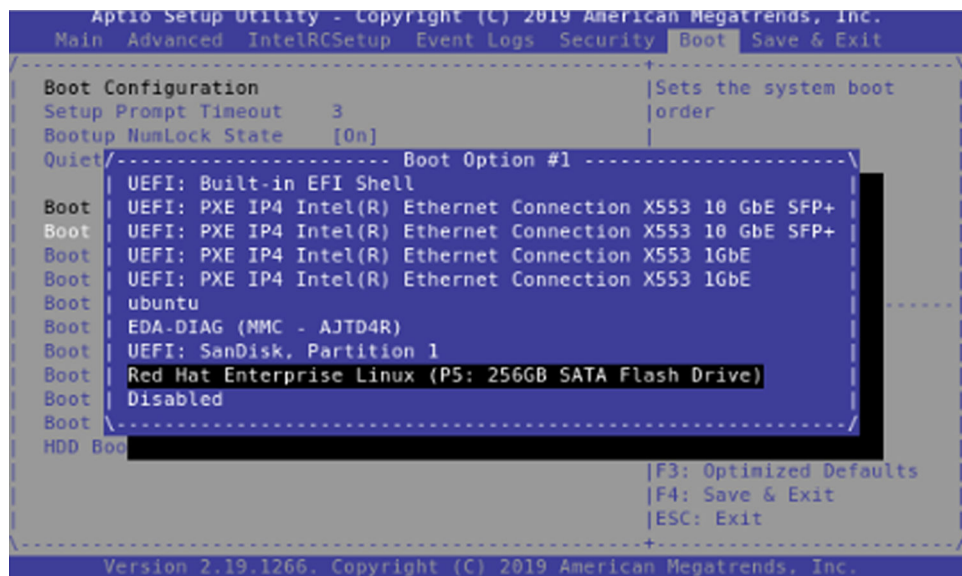


Figure 21. Adva Rocky Linux boot selection screen

- The **Save configuration?** confirmation screen displays.
3. Using the left and right arrow keys, select **Yes** then press **Enter**.
The system automatically starts to boot.
 4. From the system boot screen, enter your log in credentials in the field provided.

Configure BIOS and install ADVA 18.4 operating system installation to SSD

The information in this section details the steps to configure the BIOS for the installation of the ADVA 18.4 operating system.

NOTE: When upgrading to the UFW version 2.2, Dell Technologies strongly recommends that you upgrade all the three firmwares - BIOS, CPLD and PIC. Upgrading only one or two of these firmwares may result in the system becoming unstable:

- BIOS - 3.48.0.9-19
- CPLD - v17
- PIC - v40P

Configure BIOS to boot from USB

To configure the BIOS to boot from the USB:

1. Insert the bootable USB drive that you created using the instructions from the [Create bootable USB drive](#) section, and restart the system.
2. Boot the VEP1405 series system and press **F2** during the boot process to enter the BIOS. The **BIOS Setup** screen displays.
3. Select the **Advanced** menu tab and select **CSM Configuration** in BIOS Settings.

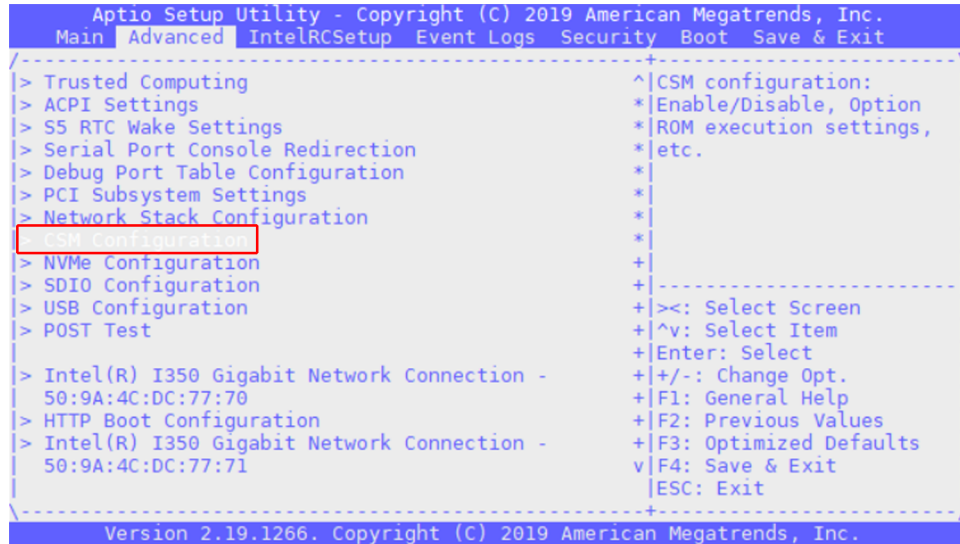


Figure 22. CMS configuration screen

4. Within the **Boot option filter** section, select **UEFI and Legacy** in the CSM.

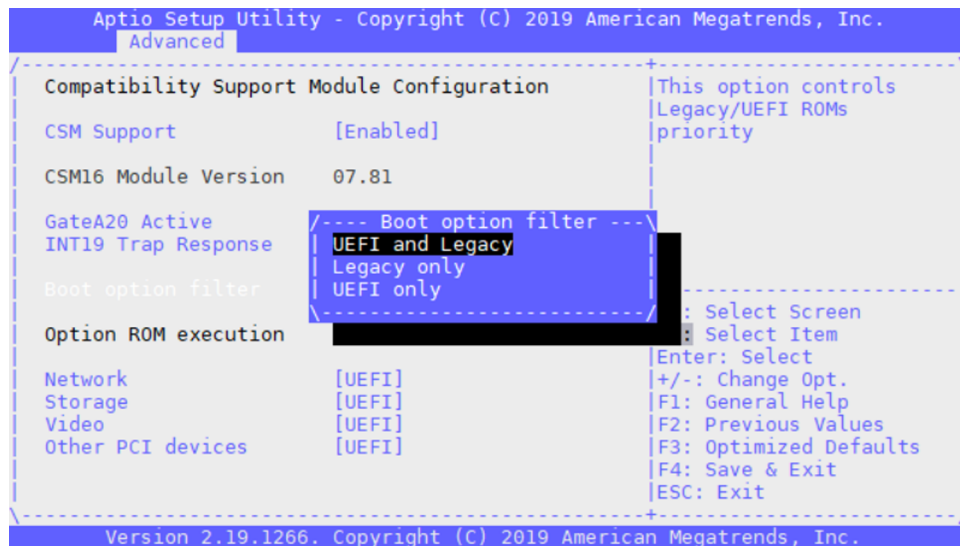


Figure 23. Boot option filter

- Using the arrow keys, select the listing of the driver on the bootable USB drive and then press **Enter**.

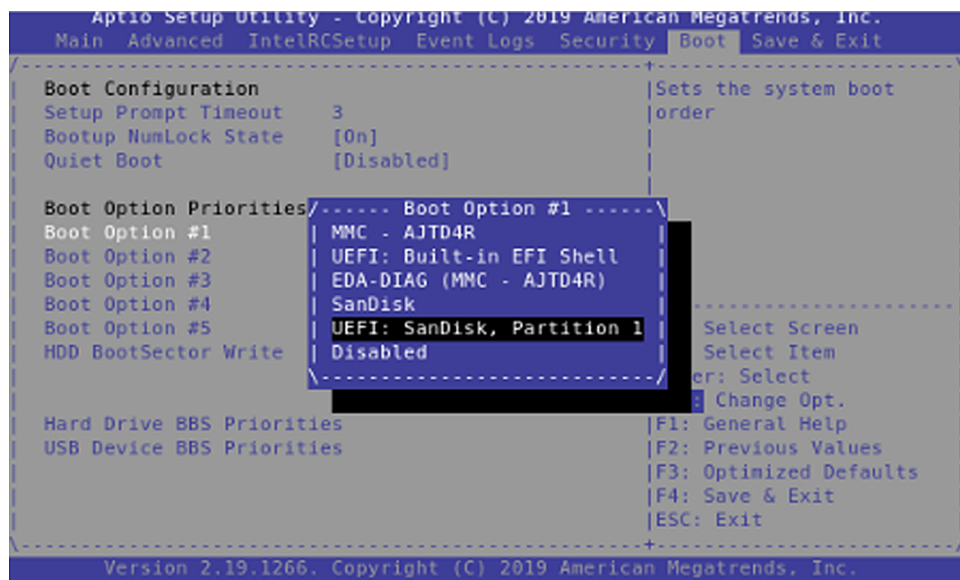


Figure 24. Select USB drive

- Press **F4** to save the selection and to exit the selection screen.
- When prompted to confirm the option to **Save & Exit?**, select **Yes** and press **Enter**. The system begins to boot.

Install ADVA 18.4 operating system

- From the ADVA Connector Customization and Installation screen, press **I** then **Enter**.

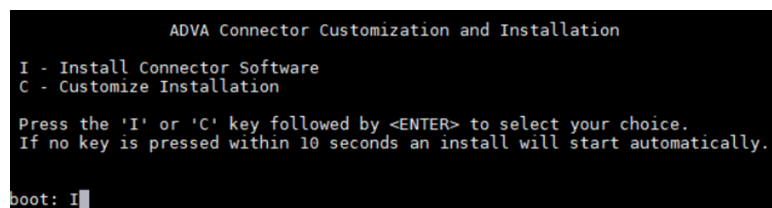


Figure 25. ADVA Connector Customization and Installation screen

The installation process starts.

```
Initiating Installation and Installation
I - Install Connector Software
[ 6.520277] i8042: No controller found
[ 10.156591] dracut-pre-udev[373]: modprobe: ERROR: could not insert 'floppy': No such device
[ 10.175569] dracut-pre-udev[373]: modprobe: ERROR: could not insert 'edd': No such device
[ OK ] Started Show Plymouth Boot Screen.install will start automatically.
[ OK ] Started Forward Password Requests to Plymouth Directory Watch.
[ OK ] Reached target Paths.
[ OK ] Reached target Basic System.
[ OK ] Mounted Configuration File System...
[ OK ] Started Device-Mapper Multipath Device Controller.
[ OK ] Mounted Configuration File System.
[ OK ] Starting Open-iSCSI...
[ OK ] Started Open-iSCSI.
[ OK ] Starting dracut initqueue hook...
[ 11.444075] c3xxx 0000:01:00.0: Failed to load MMP firmware qat_c3xxx_mmp.bin
[ 11.451352] c3xxx 0000:01:00.0: Failed to load acceleration FW
```

Figure 26. Installation of ADVA 18.4 operating system starts

2. Continue to monitor the installation process.
When the installation process is complete, the Power down message displays in the installation window.

```
[ OK ] Stopping Load/Save Random Seed...
[ OK ] Stopped target Local Encrypted Volumes.
[ OK ] Stopped Create Volatile Files and Directories.
[ OK ] Stopped Import network configuration from initramfs.
[ OK ] Stopped target Local File Systems.
[ OK ] Unmounting /run/install/repo...
[ OK ] Unmounting /mnt/images...
[ OK ] Unmounting /mnt/var...
[ OK ] Unmounting /boot/efi...
[ OK ] Stopped target Slices.
[ OK ] Removed slice User and Session Slice.
[ OK ] Stopped Load/Save RF Kill Switch Status of rfkill0.
[ OK ] Stopped Load/Save Random Seed.
[ FAILED ] Failed unmounting /run/install/repo.
[ OK ] Unmounted /boot/efi.
[ OK ] Unmounting /boot...
[ OK ] Stopped Configure read-only root support.
[ OK ] Removed slice system-systemd\x2drfkill.slice.
[ OK ] Unmounted /mnt/var.
[ OK ] Unmounted /boot.
[ OK ] Unmounted /mnt/images.
[ OK ] Reached target Unmount All Filesystems.
[ OK ] Stopped target Local File Systems (Pre).
[ OK ] Stopped Create Static Device Nodes in /dev.
[ OK ] Stopped Remount Root and Kernel File Systems.
[ OK ] Stopped Collect Read-Ahead Data.
[ OK ] Stopped Monitoring of LVM2 mirrors... dmeventd or progress polling...
[ OK ] Stopped Monitoring of LVM2 mirrors...ng dmeventd or progress polling.
[ OK ] Stopped LVM2 metadata daemon...
[ OK ] Stopped Device-mapper event daemon...
[ OK ] Stopped LVM2 metadata daemon.
[ OK ] Stopped Device-mapper event daemon.
[ OK ] Reached target Shutdown.
[ 205.360205] systemd-shutdown[15013]: Failed to unmount /run/install/repo: Device or resource busy
[ 205.369345] systemd-shutdown[1]: Failed to wait for process: Protocol error
[ 205.513129] systemd-shutdown[1]: Failed to finalize DM devices, ignoring
[ 206.446186] Power down.
```

Figure 27. Installation complete screen

After the ADVA operating system is installed, the system powers off.

Configure BIOS to boot from SSD

1. Power up the VEP1405 series system and press **F2** to boot into the BIOS.
2. Using the arrow keys, to go to the **Boot** tab then press **Enter**.
3. From the **Boot Option Priorities** section, select **CentOS SATA Flash Drive** as **Boot Option #1**, then press **Enter**.

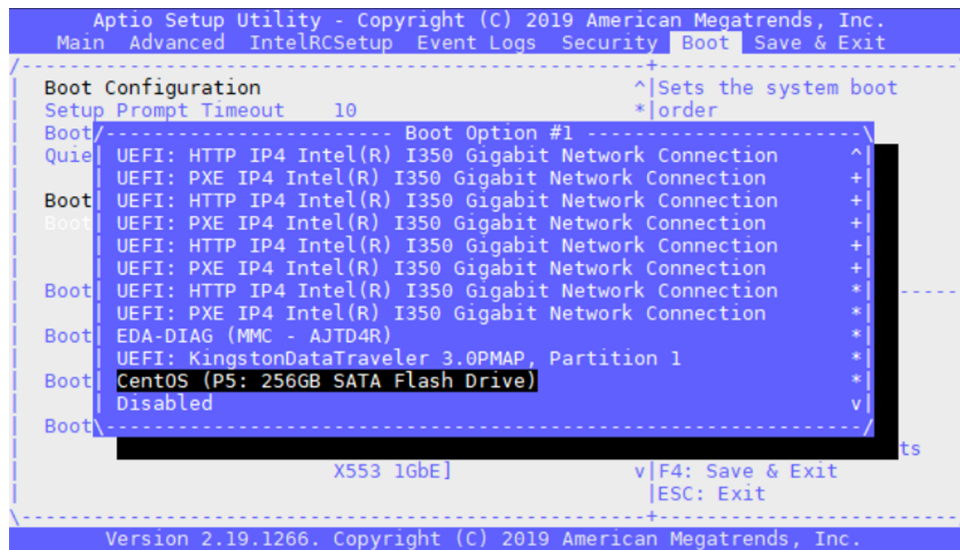


Figure 28. CentOS SATA Flash Drive selection screen

4. Using the arrow keys, select the **Save & Exit** tab.
5. Highlight the **Save Changes and Exit** listing, then press the **Enter** key. The **Save & Exit Setup** window displays.
6. Highlight **Yes** then press the **Enter** key.

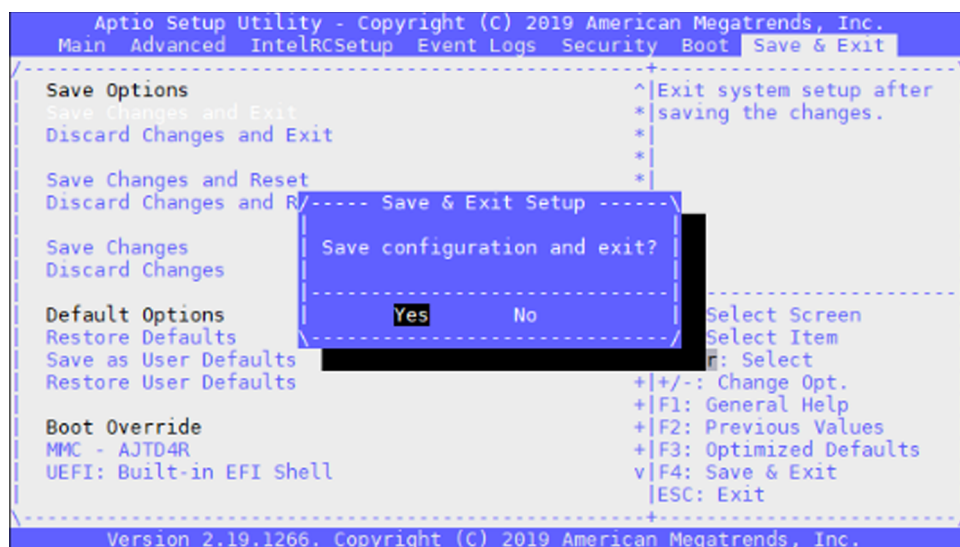


Figure 29. Save configuration confirmation screen

The system starts to boot. The **ADVA login** screen displays.

```

[ OK ] Started Logout off all iSCSI sessions on shutdown.
[ OK ] Started containerd container runtime.
[ OK ] Started Xinetd A Powerful Replacement For Inetd.
[ OK ] Started Notify NFS peers of a restart.
[ OK ] Reached target Remote File Systems (Pre).
[ OK ] Reached target Remote File Systems.
      Starting Virtualization daemon...
      Starting Permit User Sessions...
[ OK ] Started Permit User Sessions.
[ OK ] Started Getty on tty1.
[ OK ] Started Serial Getty on ttyS0.
[ OK ] Reached target Login Prompts.
[ OK ] Started Command Scheduler.
[ OK ] Started 65vse Time Verifier.
[ OK ] Started 65vse Time Store.
[ OK ] Started Connector System Config File Create.
      Starting vSE Prepare...
      Starting Overture Datapath Service...
[ OK ] Started OpenSSH Server Key Generation.
      Starting OpenSSH server daemon...
[ OK ] Started OpenSSH server daemon.
[ OK ] Started Virtualization daemon.
[ OK ] Started LSB: modprobe the QAT modul...o pass configuration parameters.
[ OK ] Created slice system-systemd\x2drfkill.slice.
      Starting Load/Save RF Kill Switch Status of rfkill0...
[ OK ] Started Load/Save RF Kill Switch Status of rfkill0.
      Mounting FUSE Control File System...
[ OK ] Mounted FUSE Control File System.
      Starting Virtualization daemon...
[ OK ] Started Virtualization daemon.
[ OK ] Started Dynamic System Tuning Daemon.

CentOS Linux 7 (Core)
Kernel 4.14.79-adva-23 on an x86_64

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

```

Figure 30. ADVA login screen

Download and install VMware ESXi

Create bootable USB drive for ESXi

NOTE: Dell Technologies recommends you use Rufus to create the bootable USB drive. To download the latest version of Rufus, see <https://rufus.ie/>.

Before you install VMware ESXi, you must first download the ISO image locally, and then create a bootable USB drive.

1. Go to the following URL to download the appropriate ESXi ISO image as per your requirement:
<https://www.dell.com/support/home/en-us/product-support/product/dell-emc-networking-vep1445-vep1485/drivers>
2. Save the ISO file to a recognizable and accessible location on your system.
3. After saving the ISO file, insert the USB drive.
The **Rufus** window displays.
4. Within the **Drive Properties** section, click the **Select** button next to the **Boot selection** section.
The **Browse** window displays.
5. Access the location where the ESXi ISO file is located, then click **Open**.
6. Locate the **Partition scheme** drop-down and click to select **MBR**.
7. From the **Target system** drop-down, select **BIOS or UEFI**.

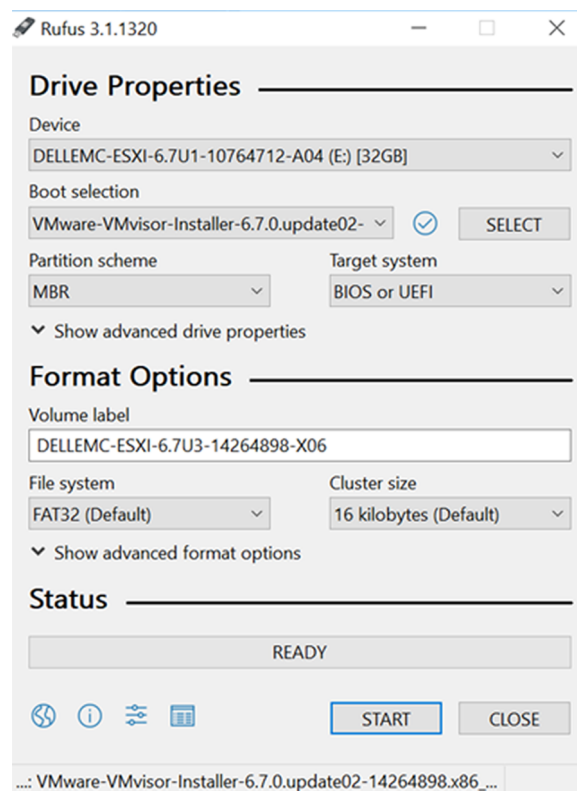


Figure 31. Rufus configuration screen

8. Click **Start**.
9. After the creation of the bootable USB drive is complete, open the folder to ensure that the required files are listed.

Configure BIOS to boot from USB

To configure the BIOS to boot from the USB:

- 1. Boot the VEP1405 system and go to the **BIOS settings screen**.
- 2. From the **BIOS** screen, select the **Advanced** tab.
- 3. Using the arrow keys, select **CSM Configuration** and then press **Enter**.

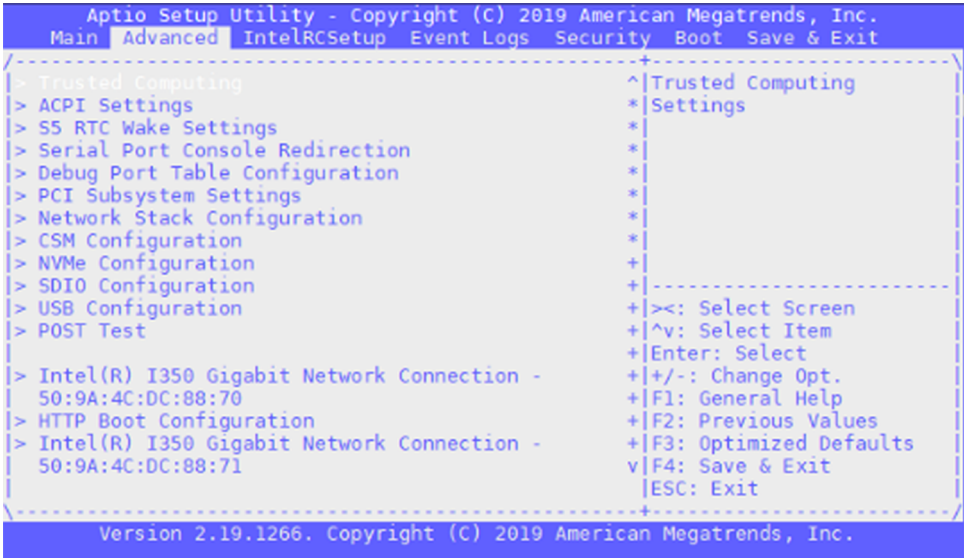


Figure 32. BIOS screen - Advanced tab

- 4. From the **CSM Configuration** screen, verify that **UEFI** is selected for the **Boot option filter**.

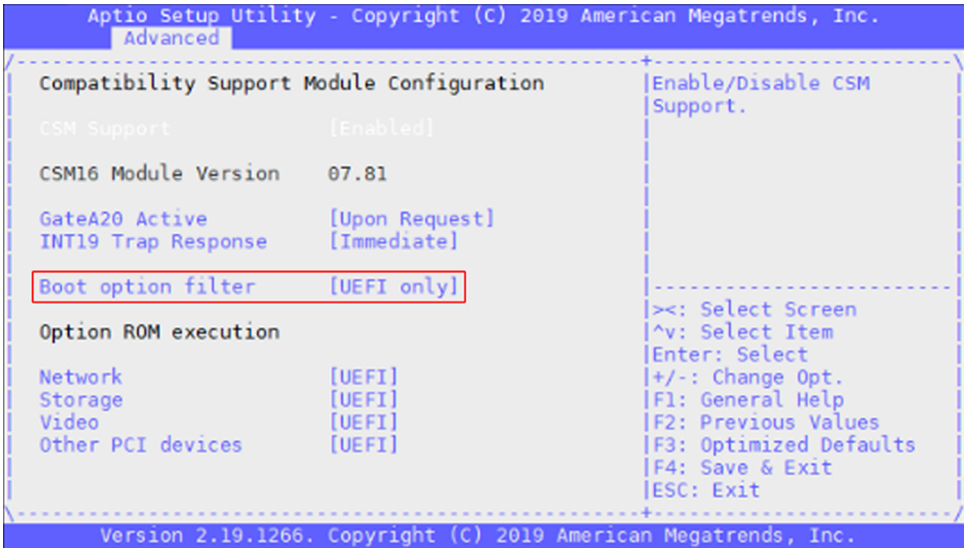


Figure 33. CSM Configuration screen

- 5. From the **Boot Configuration** screen, configure the USB stick as **Boot Option 1**, and then press **Enter** to save the change.

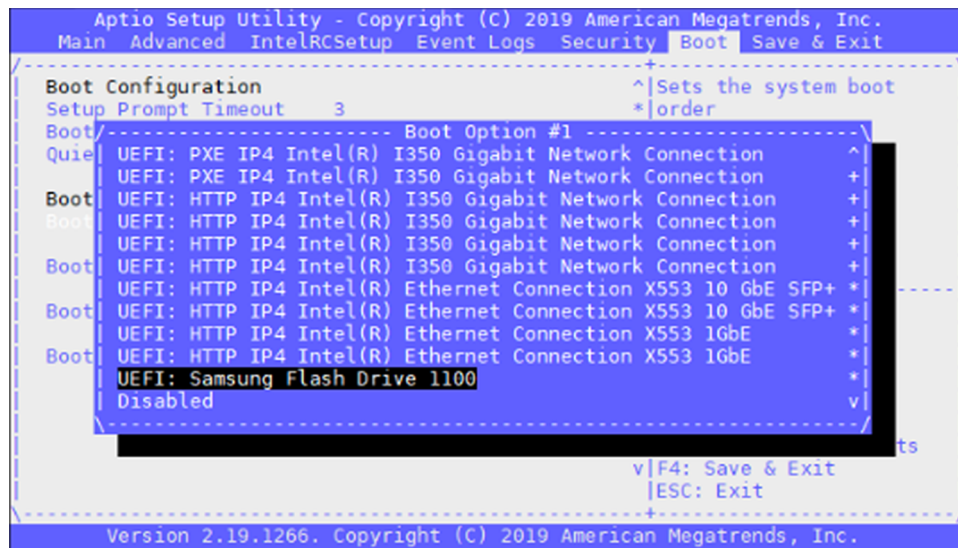


Figure 34. Boot option selection screen

6. Using the arrow keys, select the **Save & Exit** tab.
7. Highlight the **Save Changes and Exit** listing, then press the **Enter** key. The **Save & Exit Setup** window displays.
8. Highlight **Yes** then press the **Enter** key.

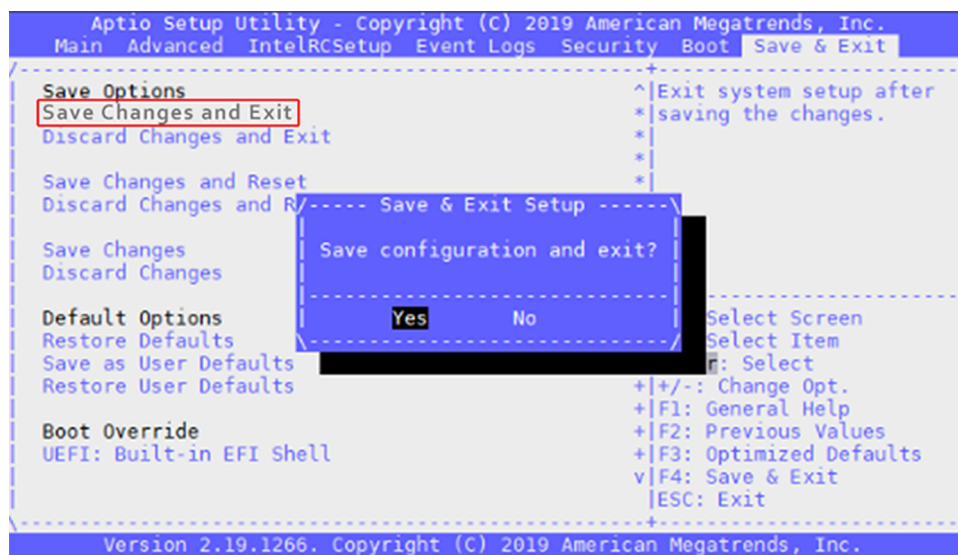


Figure 35. Save settings confirmation screen

The installation of ESXi begins.

Install VMware ESXi operating system

To install the VMware ESXi operating system, perform the following steps:

1. From the **Welcome to the VMware ESXi x.x Installation** screen, press **Enter** to continue. The **End User License Agreement (EULA)** screen is seen.
2. Use the arrow keys to review the information that is provided within the EULA and if you agree to the terms, press **F11** to **Accept and Continue**. The **Select a Disk to Install or Upgrade** screen displays.
3. When prompted to select a disk to install or upgrade, use the arrow keys to select the **SATA Flash Drive** from the options provided.

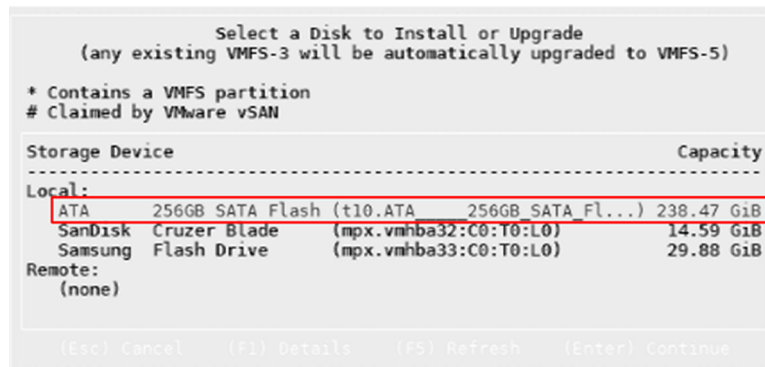


Figure 36. Disk selection screen

- From the **Keyboard layout** screen, select the **US Default** listing then press **Enter** to continue. The **Enter a root password** screen displays.
- In the entry and confirmation fields, enter the root password then press **Enter** to continue.



Figure 37. Root password entry screen

- From the **Confirm Install** screen, press **F11** to proceed with the installation. The **ESXi installation status** screen displays, followed by the **Installation Complete** screen.
- Remove the USB drive from the system and press **Enter**. The VEP1405 system reboots.

Configure BIOS to boot from SSD

To configure the BIOS to boot from the SSD:

- After the system reboots, press the **Delete** key to enter the BIOS. The BIOS screen displays.
- Use the arrow keys to select the **Boot** tab.
- From the **Boot Option Priorities** section, select **UEFI OS SATA Flash Drive** as **Boot Option #1**.

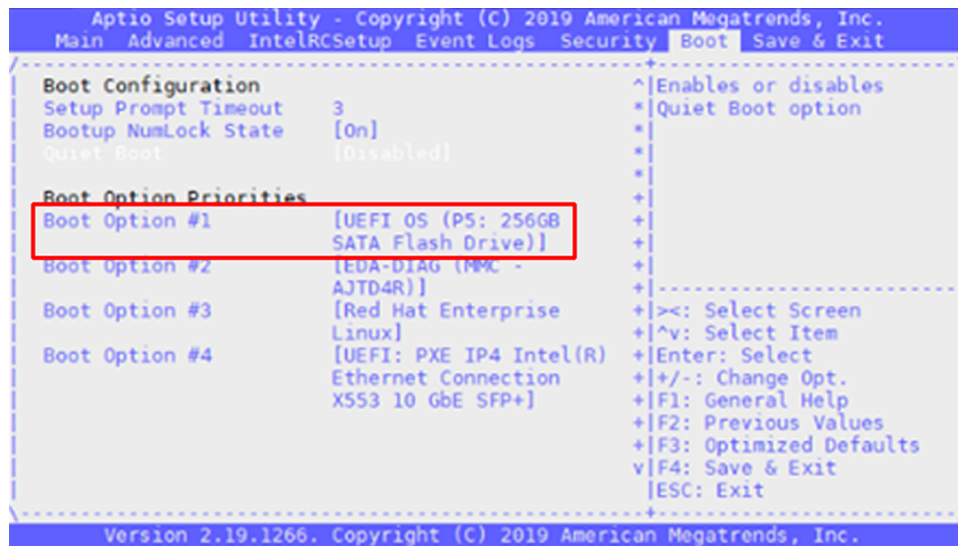


Figure 38. SSD boot priority setting

4. Using the arrow keys, select the **Save & Exit** tab.
5. Select the **Save Changes and Exit** listing, then press the **Enter** key. The **Save & Exit Setup** window displays.
6. Select **Yes** then press the **Enter** key.

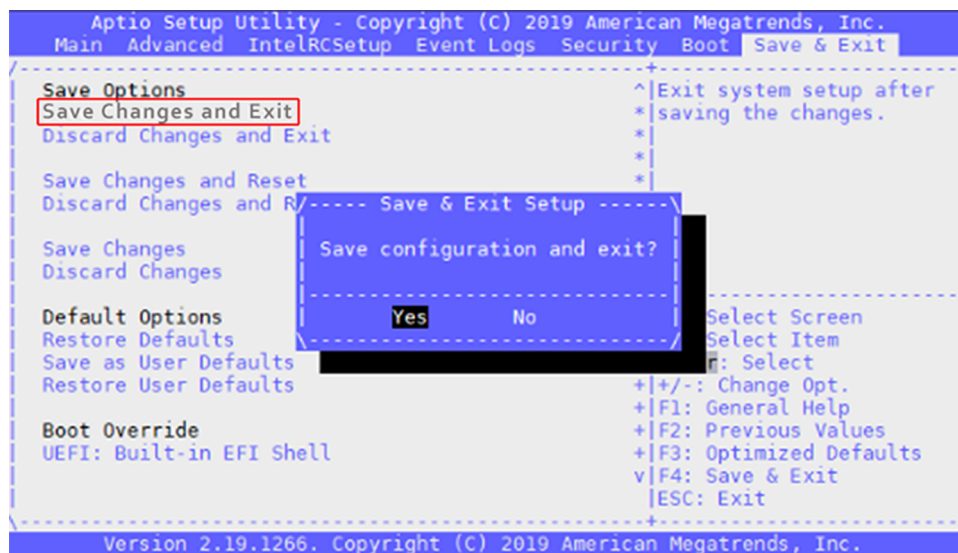


Figure 39. Save settings confirmation screen

7. From the **VMware ESXi** screen, press **F2** to configure the network. The **Authentication Required** screen displays.
8. In the field provided, enter the required password then press **Enter**.
NOTE: The **Login Name** field is already populated. This autopopulation only occurs at the log in screen. The **System Customization** screen displays.
9. From the **System Customization** screen, select **Configure Management Network** and then press **Enter**.

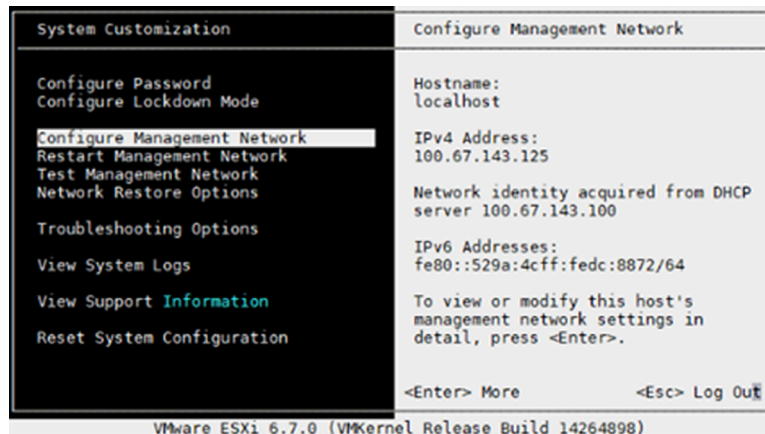


Figure 40. System customization screen

10. From the **Configure Management Network** screen, use the arrow keys to select **Network Adapters** then press **Enter**.
11. From the **Network Adapters** screen, select the network adapter that is connected, press the **Space bar** to select the adapter, then press the **Enter** key to save the changes.

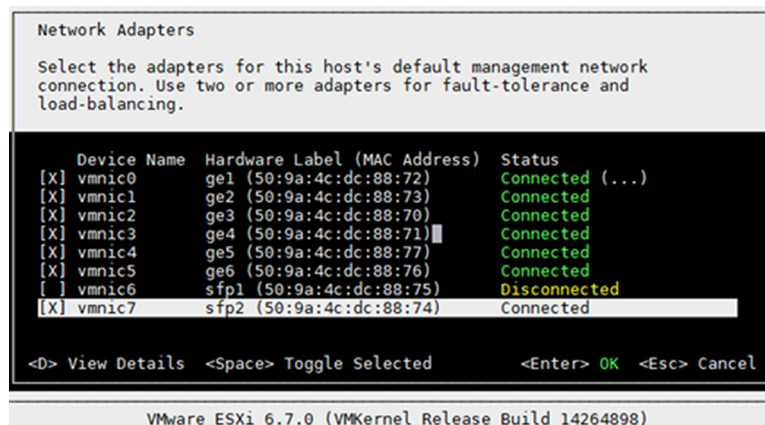


Figure 41. Network adapters

12. From the **Configure Management Network** main screen, select **IPv4 Configuration** and press **Enter**.
13. Within the **IPv4 Configuration** screen, and if you are using static addressing, select the **Set Static IPv4 address and network configuration** option.
14. Using the arrow keys, go to the **IPv4 Address**, **Subnet Mask**, and **Default Gateway** fields and enter the required information.
15. After entering the required information in each field, press **Enter** to save the changes.

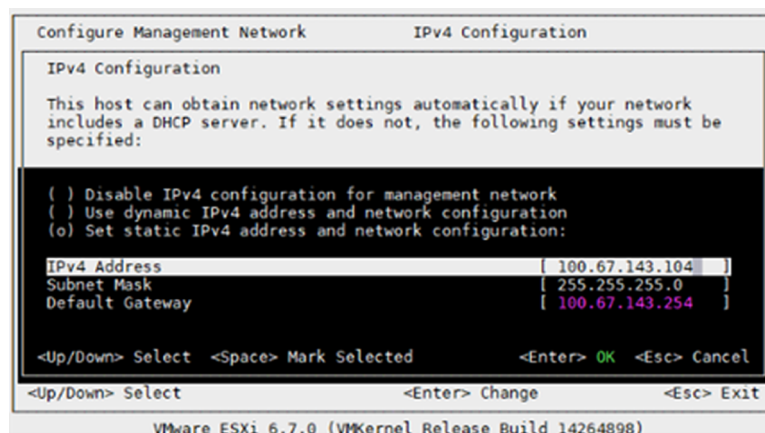


Figure 42. IPv4 configuration screen

16. Press the **Esc** key, then press the **Y** key to confirm the changes you made and to restart the management network.

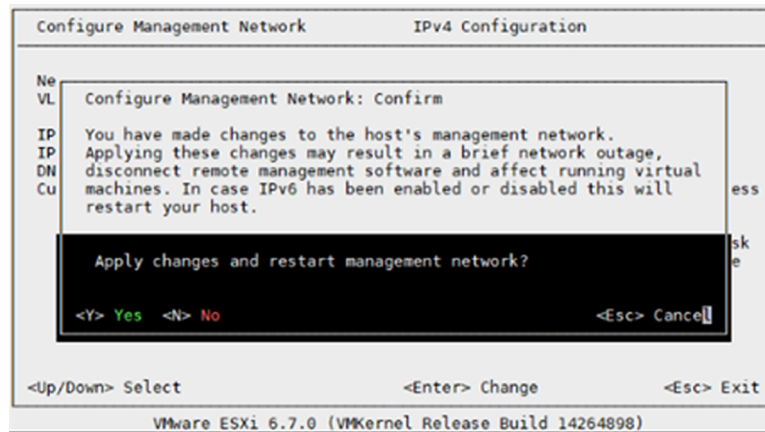


Figure 43. Confirm management network settings screen

LTE modem detection

The information provided in the following sections assists with the connection of an Inseeo external USB LTE modem, purchased separately, to the Virtual Edge Platform (VEP) 1405 or 4600 series of systems using Versa, ADVA, or ESXi.

LTE modem detection on Versa

To initiate the detection of an LTE modem on the Virtual Edge Platform (VEP) 1405 or 4600 series of systems running the Versa operating system, perform the following steps:

1. Connect the LTE modem to the VEP series system.
The Versa operating system automatically detects the LTE modem.
2. To verify that the LTE modem is attached, enter the following command:

```
lsusb:

[admin@versa-flexvnf: ~] $ lsusb
Bus 002 Device 001: ID 1d6b:0003 Linux Foundation 3.0 root hub
Bus 001 Device 004: ID 046b:ff20 American Megatrends, Inc.
Bus 001 Device 003: ID 046b:ff01 American Megatrends, Inc.
Bus 001 Device 005: ID 1199:9071 Sierra Wireless, Inc.
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
```

3. Enter the following command to list the modem port that is assigned to the Sierra Wireless modem:

```
[admin@versa-flexvnf: ~] $ mmcli -L
Found 1 modems:
    /org/freedesktop/ModemManager1/Modem/0 [Sierra Wireless, Incorporated] MC7455
```

4. Verify the WAN interface status of the modem by running the following Versa CLI command:

```
[admin@versa-flexvnf: ~]cli
admin@versa-flexvnf-cli> show interfaces wwan status brief
interfaces wwan status brief vni-0/100
interface-status    Configured
hw-status            "Modem Detected"
connection-status    Connected
vendor-id            1199
product-id           9071
hw-vendor-name       "Sierra Wireless, Inc."
hw-model-name        "Sierra_Wireless_MC7455_Qualco"
imei                 359072061219297
```

LTE modem detection on ADVA

To initiate the detection of an LTE modem on the Virtual Edge Platform (VEP) 1405 or 4600 series of systems running the ADVA operating system, perform the following steps:

NOTE: The LTE modem will be automatically detected if ADVA v18.4 or later is installed. If the LTE modem is not detected automatically, the APN value based on the carrier may need to be set.

1. Install the ADVA image on the VEP system.
2. Connect the LTE modem to the VEP system.
3. From the **Network Manager**, run the `lsusb` command on the terminal to verify that the LTE device is connected.
4. If necessary, download and install the latest LTE modem drivers.

NOTE: To access the latest LTE modem drivers for your VEP system running ADVA, go to <https://source.sierrawireless.com/resources/airprime/software/usb-drivers-linux-qmi-software-s2,-d-,41n2,-d-,61/#sthash.KM7k2ze1.PrDDHhcE.dpbs>.

- From the **Network Manager**, verify that the LTE connection is listed.

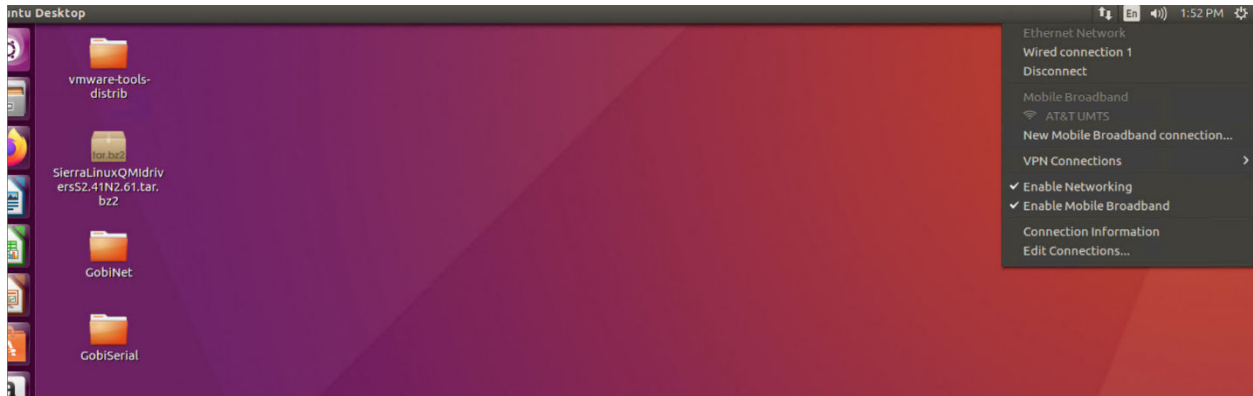


Figure 44. LTE connection listing within ADVA Network Manager

- From the **Network** icon in the toolbar, select the **Mobile Broadband** listing.

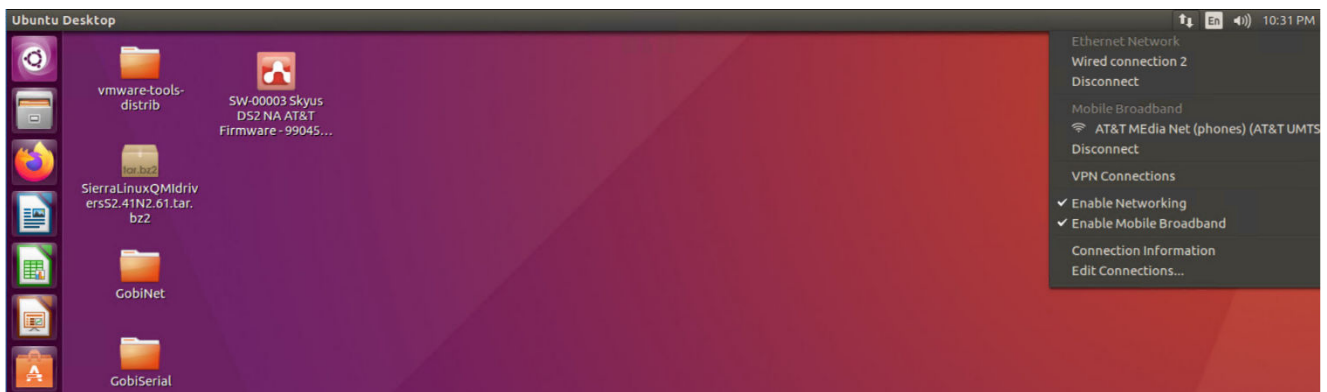


Figure 45. ADVA Network Manager

- Select the **Configure Network Settings** option to configure the broadband network settings for the LTE modem.

LTE modem detection on ESXi

To initiate the detection of an LTE modem on the Virtual Edge Platform (VEP) 1405 or 4600 series of systems running ESXi, perform the following steps:

- To enable the LTE card, select **Enable ESXi Shell** from the **Troubleshooting Mode Options** menu.
- Select **Enable SSH** and then press **Enter** to enable the service.
- Log in to the ESXi shell and add the following entries in the `passthru.map` file at `/etc/vmware/passthru.map`:

```
168c 003c d3d0 false
```
- Connect the LTE modem to the VEP system.
ESXi automatically detects the LTE modem.
- To verify that the LTE modem is attached, enter the following command:

```
lsusb:
[root@localhost:~] lsusb
Bus 001 Device 004: ID 1199:9071 Sierra Wireless, Inc.
Bus 001 Device 003: ID 046b:ff20 American Megatrends, Inc.
Bus 001 Device 002: ID 046b:ff01 American Megatrends, Inc.
Bus 001 Device 001: ID 0e0f:8003 VMware, Inc. Root Hub
```

- From the ESXi server, create a Microsoft Windows VM so that the LTE modem can be used.

NOTE: If using the LTE modem with a Microsoft Windows operating system, note that the drivers only work with the Microsoft Windows XP, Windows 7, Windows 8, and Windows 10 operating systems. Microsoft Windows 2000 is not supported.

7. Within the newly created VM, edit the VM configuration to add a USB device and selecting the LTE modem.

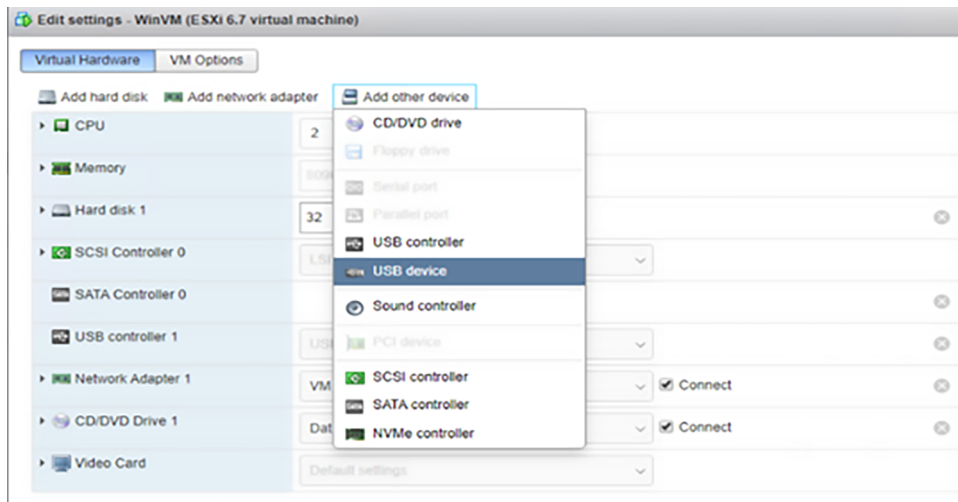


Figure 46. Microsoft Windows WinVM settings screen

8. After the LTE modem has been added to the VM configuration, power on the VM.
9. Download and install the LTE USB modem drivers and carrier firmware on the WinVM.

NOTE: To obtain the latest modem drivers and carrier firmware, go to <https://www.inseego.com/software-downloads/>.
10. Connect the modem to the network by performing the following steps:
 - a. From the taskbar, click the **Windows** icon.
 - b. Within the application screen, click the **Settings** icon. The **Windows Settings** screen displays.
 - c. From the **Windows Settings** screen, click the **Network & Internet** icon. The **Network & Internet** screen displays.
 - d. Click the **Cellular** listing, verify that the **Connect automatically** option is selected, and then click **Connect**.

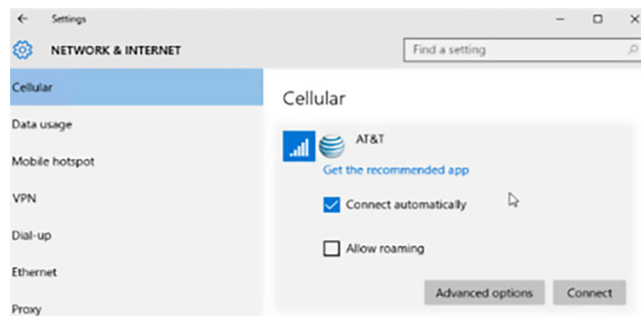


Figure 47. Cellular options within Network and Internet screen

11. From the **Network Connections** screen, verify that the **Cellular** connection is shown.

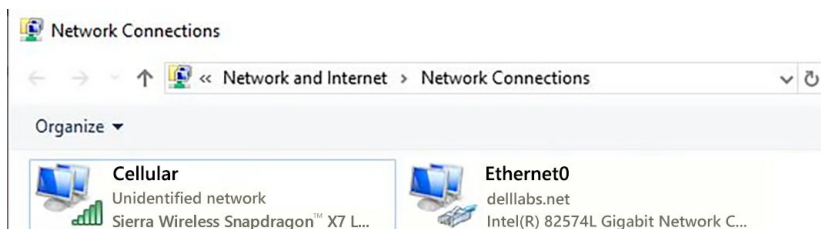


Figure 48. Network Connections screen with Cellular listing

12. After the Cellular listing shows a connection, run the `ipconfig/all` command to confirm the modem connection.

 Command Prompt
NetBIOS over Tcpip : Disabled
Mobile Broadband adapter Cellular:
Connection-specific DNS Suffix . :
Description. : Sierra Wireless Snapdragon™ X7 LTE-A WWAN Network Adapter
Physical Address : 00-A0-C6-00-00-04
DHCP Enabled : No
Autoconfiguration Enabled. . . : Yes
IPv4 Address : 10.154.46.17(Preferred)
Subnet Mask. : 255.255.255.252
Default Gateway. : 10.154.46.18
DHCPv6 IAID. : 151036102
DHCPv6 Client DUID : 00-01-00-01-26-46-B4-05-00-50-56-BB-B7-2D
DNS Servers. : 172.26.38.1
NetBIOS over Tcpip : Enabled

Figure 49. Command Prompt screen