

Oracle Talari E50

Hardware Guide



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About This Document

This guide describes the physical characteristics of the Talari E50 Adaptive Private Networking (APN) Appliance. It includes setting up the physical connections on front panel as well as how to mount this appliance in a rack. The intended audience of this document is a Network Administrator or a Network Operator.

Revision History

This section provides a revision history for this document.

Date	Description
October 2019	<ul style="list-style-type: none"><li data-bbox="873 785 1219 814">• Initial Oracle release.
August 2020	<ul style="list-style-type: none"><li data-bbox="873 854 1370 1033">• Adds “Creating a Bootable USB Drive on Linux,” “Creating a Bootable USB Drive on Windows,” and “Reimaging of the E50” sections.

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1. Select 2 for New Service Request.
2. Select 3 for Hardware, Networking, and Solaris Operating System Support.
3. Select one of the following options:
 - For technical issues such as creating a new Service Request (SR), select 1.
 - For non-technical issues such as registration or assistance with My Oracle Support, select 2.

You are connected to a live agent who can assist you with My Oracle Support registration and opening a support ticket.

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A critical situation is defined as a problem with the installed equipment that severely affects service, traffic, or maintenance capabilities, and requires immediate corrective action. Critical situations affect service and/or system operation resulting in one or several of these situations:

- A total system failure that results in loss of all transaction processing capability
- Significant reduction in system capacity or traffic handling capability
- Loss of the system's ability to perform automatic system reconfiguration
- Inability to restart a processor or the system
- Corruption of system databases that requires service affecting corrective actions
- Loss of access for maintenance or recovery operations

- Loss of the system ability to provide any required critical or major trouble notification

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Oracle Communications customer documentation is available on the web at the Oracle Help Center (OHC) site, <http://docs.oracle.com>. You do not have to register to access these documents. Viewing these files requires Adobe Acrobat Reader, which can be downloaded at <http://www.adobe.com>.

1. Access the Oracle Help Center site at <http://docs.oracle.com>.
2. Click Industries.
3. Click the Oracle Communications link.

Under the SD-WAN header, select a product.

4. Select the Release Number.

A list of the entire documentation set for the selected product and release appears.

5. To download a file to your location, right-click the PDF link, select Save target as (or similar command based on your browser), and save to a local folder.

Reference Documents

The following documents are available:

- *Talari APN Glossary*
- *Talari APN Appliance E50 Installation Guide*
- *Talari APN Appliance Quick Start Guide*
- *Talari WAN Implementation Guide*

Hardware and Software Requirements

Talari E50 APN Appliances (APNAs) have the following hardware and software requirements:

Hardware:

E50 appliances are desktop units. Additional hardware must be purchased for rack mounting.

Software:

The Talari Web Console is supported in latest versions of the following web browsers:

- Mozilla Firefox
- Google Chrome

Supported browsers must have cookies enabled.

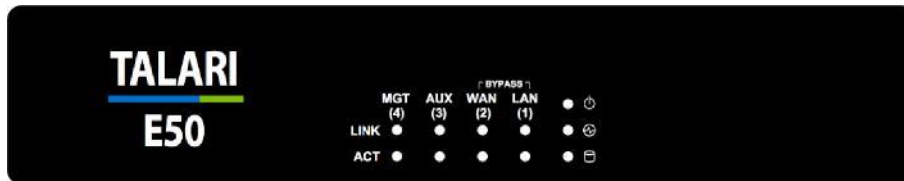
Supported browsers must have JavaScript installed and enabled.

Display:

A minimum screen resolution of 1024 x 960 or greater is recommended.

About the Appliance

The E50 is an extension of the E-series of Talari Appliances and intended for use in small branch retail locations or mobile installations which require reliability in a small footprint. The E50 supports WAN Optimization and Easy 1st Install.



Talari APN Overview

Talari Networks is redefining WAN reliability and application performance with its family of APN Appliances by aggregating and transforming affordable broadband links to deliver business-class performance and reliability at consumer prices. Talari APN Appliances (APNAs) are seamlessly added to existing networks to deliver more bandwidth, reduced WAN operating expenses, and greater reliability than any existing single-provider WAN.

Using our patented Adaptive Private Network technology, Talari's solution combines diverse, abundant, affordable IP bandwidth sources, and provides reliable, resilient and high-quality connectivity between sites, insuring application continuity. Talari APNAs deployed in the main office and remote offices provide a network of Conduits between sites. Each Conduit is made of multiple WAN links and data transmitted across the Conduits is controlled and optimized to use network resources available across all WAN Links.

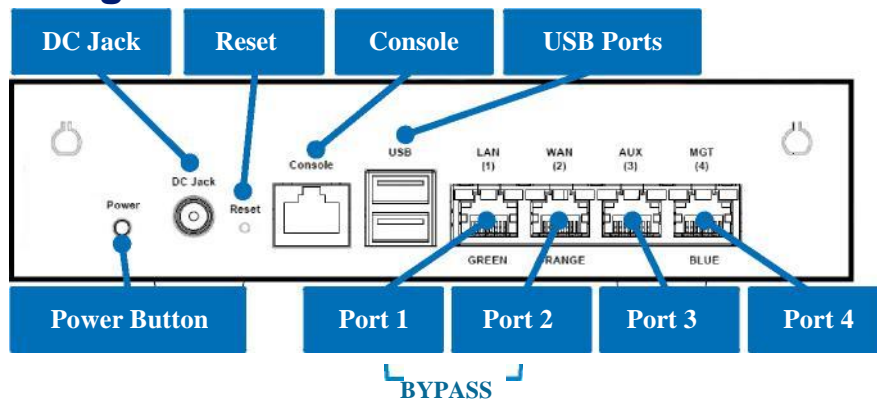
Front Panel Configuration



Front LED Codes

LED	Description
Link/Speed	Green = 100Mbps; Amber = 1000Mbps
Activity	Flashing Amber = Network Activity
Power Status	Green = Power On
Future Option	Reserved for future use
SSD Status	Flashing Amber = Disk Activity

Rear Panel Configuration



Ports

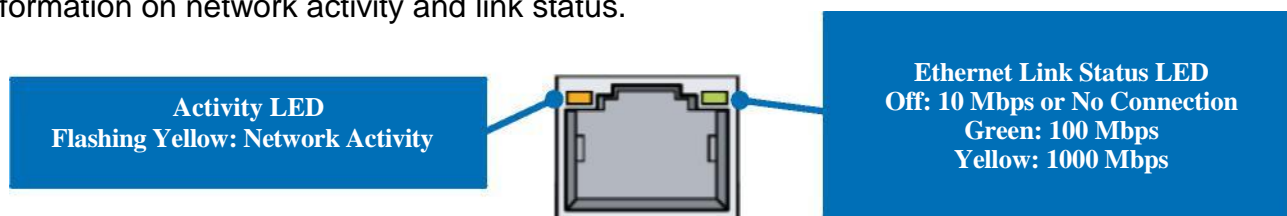
Port	Description
1	Gigabit Ethernet (Bypass pair with Port 2)
2	Gigabit Ethernet (Bypass pair with Port 1)
AUX	Gigabit Ethernet (Non-bypass). Used for Manual Installation.
MGT	Dedicated management port.
Console	RJ45 console port (115200/8-N-1). Used for service and maintenance.
USB (2)	USB 2.0, used for service and maintenance.



The serial number is required for Easy 1st Install, and may be found on the underside of the appliance.

NIC Indicator Codes

All Ethernet ports on the E50 have indicator lights for information on network activity and link status.



Hardware Specifications

The E50 APNA has the following are the hardware specifications.

	Specification
Power	36W Power Adapter; 100-240V, 50-60 Hz
Physical Dimensions	Height 1.73" (44mm) Width 7.3" (185.4mm) Depth 5.4" (137.1mm) Gross Weight 2.2 lbs (1kg)
Mounting Options	Desktop; rack mounting hardware available separately.
System LEDs	Power SSD Additional indicator reserved for future use
Link LEDs	Link activity Link speed

Operating Temperature	32°F to 104°F (0° to 40°C)
Storage Temperature	-40°F to 158°F (-40°C to 70°C)
Humidity Range	5% to 90% (non-condensing) operating environment
Capacity	4 individual Gigabit Ethernet Ports
User interfaces	2 USB 2.0 ports 1 RJ-45 Console Port 4 individual Gigabit Ethernet ports
Mean Time Between Failure (MTBF) in Hours	77,439

Installing the Talari Appliance

Unpacking and Inspection

- Remove E50 appliance and accessories from box.
- Remove E50 from plastic wrapping.
- Inspect appliance for signs of damage.
- Ensure all accessories are included.

Rack Mounting

The E50 **does not ship** with hardware for rack mounting by default. If the appliance needs to be rack mounted, there are two options available:

1. Purchase optional Rack Mount Kit, available from Talari.

- Rack mounting kit includes 2 ear brackets and 6 screws. Ears mount towards the front (faceplate) side of the appliance. To attach the ear brackets, follow the instructions below:
- Each ear bracket has three holes, which align with matching holes on the appliance:



- Align the holes in ear brackets with the holes in the appliance, then secure with screws:
- The appliance may now be rack-mounted in a standard 19-inch rack.

2. User-provided standard 1U tray designed for rack mounting.

- The Talari E50 is designed to fit a standard 1U tray within a rack. Two E50 devices may be placed in a rack shelf with a divider. Adhere the optional Adhesive Rubber Feet to prevent slippage.

Safety Recommendations

Prior to installing the device, adhere to the following installation guidelines:

- Ensure that there is adequate airflow. Restricted airflow can damage the equipment.
- Cables should be easily identifiable.

LAN/WAN Connections

When connecting each Ethernet cable (LAN, WAN) to the appropriate connector on the E50:

- Position the cables carefully, so that they do not put strain on the connectors.
- Organize cables in bundles such that cables do not intertwine.
- Inspect the cables to make sure that the routing and bend radii are satisfactory. Reposition cables, if necessary.
- Install cable ties in accordance with site requirements.

Important Note About Cabling and Bypass Mode

If your Talari appliance is operating in bypass mode, logic used by the appliance represents the functionality provided by a crossover cable. This may cause a loss of the link between the Talari appliance and older network devices that do not support Auto-MDIX when straight-through cables are used to connect the LAN and WAN ports of the Talari appliance. In such a case, a crossover cable is required from the Talari WAN port to the network device.

If your network devices support Auto-MDIX capability, the link should be automatically established when in bypass mode and there should be no need for crossover cables. Talari recommends testing and verifying this capability with the Talari appliance powered off for proper operation.

For assistance, please contact your Talari representative, or the Talari Support team.

Powering Up the Appliance

When connecting power to the E50:

- Plug the AC power cord into the power adapter. Connect the power adapter to the appliance.
- Plug the AC power cord into an uninterrupted AC power source.
- The appliance will start automatically.

The E50 uses 100-240 VAC.

Network Deployment Options

Before getting started it is important to determine how the E50 will be deployed. When considering deployment options for the E50, please note that **all bypass pairs will default to Fail-To-Block until configured otherwise.**

Example instructions for some of the most common deployment scenarios are provided below:

E50 as a Router (Gateway, Fail to Block)

Description: The E50 is deployed as the WAN gateway for the site, and bypass pairs are configured as Fail-To-Block. Use this design if you plan to use the Talari Appliance as the edge device for the site. Proceed to the pages below based on your installation method:

Easy 1 st Install:	Page Error! Bookmark not defined.
Manual Install:	Page Error! Bookmark not defined.

E50 as Layer 2 Fail-To-Wire (Overlay)

Description: The E50 is deployed on the LAN side of the gateway, and bypass pairs are configured as Fail-To-Wire. Use this design if you prefer to retain existing edge devices or plan to install an alternative edge device on the WAN side of the Talari Appliance. Proceed to the pages below based on your installation method:

Easy 1 st Install:	Page Error! Bookmark not defined.
Manual Install:	Page Error! Bookmark not defined.

E50 with MPLS & Internet Hybrid

Description: The E50 is deployed as an overlay for MPLS while performing routing/firewall capabilities for internet links. Use this design if recommended by your SA, or if you have an MPLS/Internet hybrid network and will not be using the CE Router Replacement functionality of the Talari APN. Proceed to the pages below based on your installation method:

Easy 1 st Install:	Page Error! Bookmark not defined.
Manual Install:	Page Error! Bookmark not defined.

Other Options

There are other deployment options, and our Talari Implementation team members will assist you with planning and deploying your new appliance.

Deploying the E50 APN Appliance

Out of Band ZTP Option

Out of Band Zero Touch Provisioning (ZTP) is a serverless, secure way to provision new SD-WAN Edge devices in your network. This method is used to provision clients without any initial configuration upon start up.

Note: Your appliance must have already be running SD-WAN Edge 9.1 for OOB ZTB to function.

Formatting the USB Drive

Oracle recommends use of a new USB drive to ensure there are no partitions on the device. The SD-WAN appliance expects a single partition with the specified label.

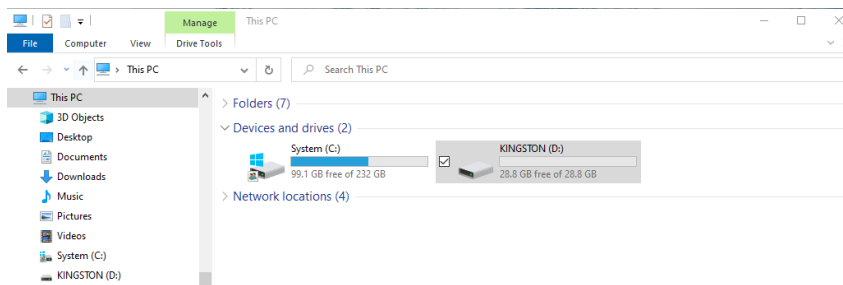
For Windows

1. Insert the USB drive into your computer
2. If asked, do not encrypt your USB drive

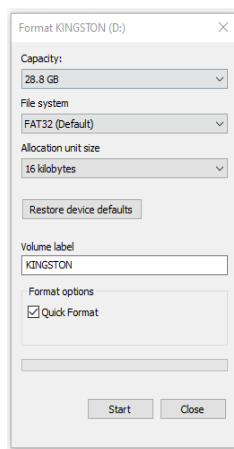


3. Open your Windows or File Explorer to locate the USB drive
4. Ensure the USB drive is at least 100 MB.

5. Select This PC to show the USB drive under the Devices and Devices and drives section.

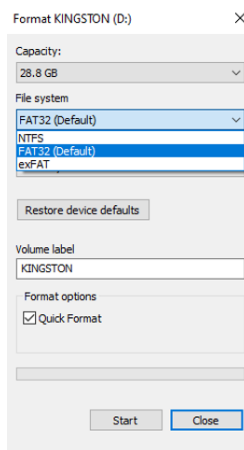


6. Right click on the USB drive and select Format... to display the format menu

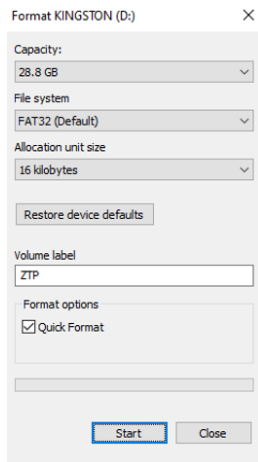


7. In the Format dialog box, do the following:

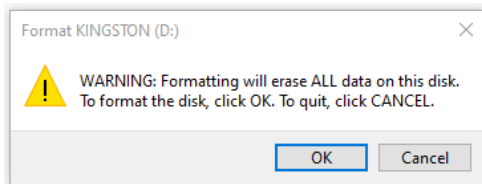
- a. Select FAT32 in the File system field if not already selected. It is often the default option.



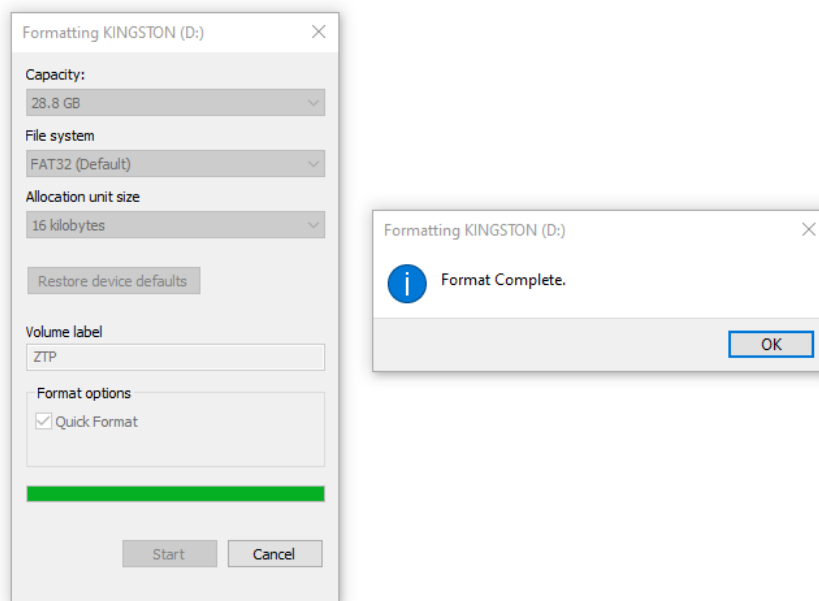
- b. Type ZTP in the Volume label field.
- c. Select Start button to confirm show the confirmation box



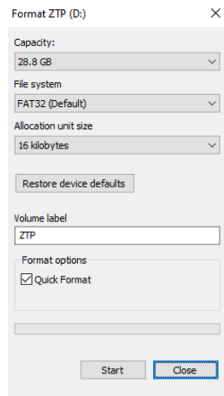
- d. Select OK to confirm and being formatting



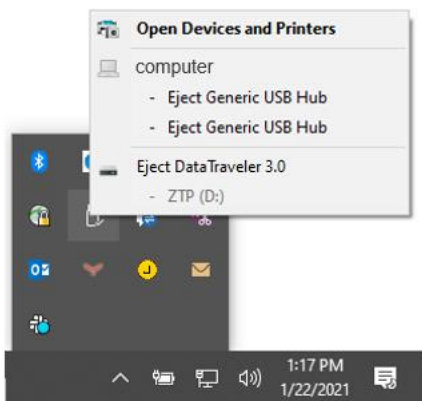
- 8. After formatting completes, click OK.



9. Confirm the Format dialog box by doing the following:
 - a. The Volume label field and dialog box name shows ZTP.
 - b. The File system type is FAT32
 - c. After above is confirmed, select the Close button at the bottom.



10. Locate the downloaded software package (.zip file) on your computer. (ex. Package name: <ApplianceName>-A-R9_1_0_0_0_GA_<date>.zip)
11. Copy the file over to the ZTP USB drive. You should have a single software package on the drive in the top directory. Do not create any folders for the file.
12. Eject the ZTP USB drive.



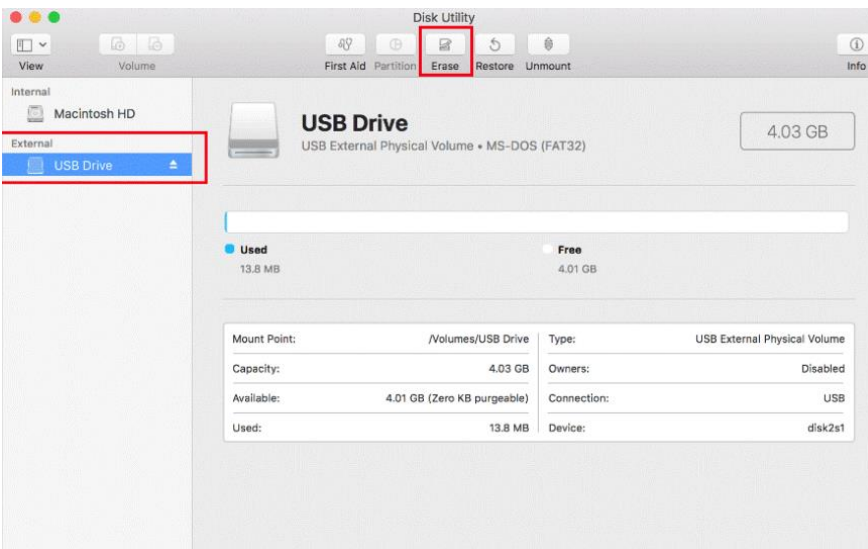
13. Continue to the instructions to Configure SD-WAN using out-of-band ZTP.

For Linux

1. Insert the USB drive into the computer
2. Ensure the USB drive is at least 100 MB.
3. Check the device name. These instructions assume it is /dev/sdb.
4. Clear the USB using command `sgdisk -Z /dev/sdb`
5. Create a single partition using command `sgdisk /dev/sdb -n 1::0 -t 1:ef00`
6. Format the partition as FAT32 format using command `mkfs.vfat -F32 /dev/sdb1`
7. Format the USB drive for NTFS, naming the volume ZTP
8. Copy the downloaded software package (.zip file) onto the USB drive. It should be the ONLY software package on the USB drive. (ex. Package name: <ApplianceName>-A-R9_1_0_0_0_GA_<date>.zip)
9. Eject the ZTP USB drive
10. Continue to the instructions to Configure SD-WAN using out-of-band ZTP

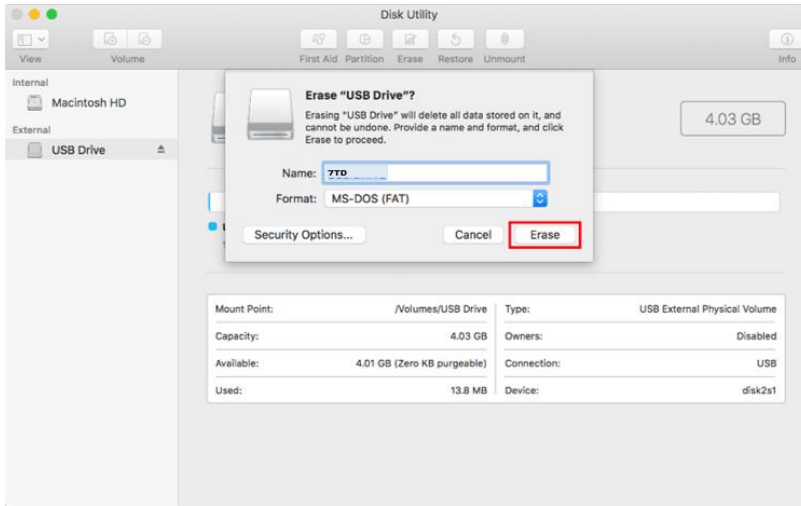
For Mac

1. Insert the USB drive into the Mac
2. Launch Disk Utility, located in Applications > Utilities
3. Locate the USB drive name on the left hand side of Disk Utility window and select it



4. Ensure the USB drive is at least 100 MB.

5. In the Disk Utility window for your USB drive, do the following:
 - a. Select FAT if it is not already the default option in the Format field
 - b. Type ZTP in the Name field
 - c. Select Erase to begin formatting



6. Once Erasing is complete, select the Done button in the Erasing and creating dialog box
7. Locate the downloaded software package (.zip file) on your computer. (ex. Package name: <ApplianceName>-A-R9_1_0_0_0_GA_<date>.zip)
8. Copy the file over to the ZTP USB drive. You should have a single software package on the drive in the top directory. Do not create any folders for the file
9. Eject the ZTP USB drive.
10. Continue to the instructions to Configure SD-WAN using out-of-band ZTP

Configure SD-WAN Using Out-of-Band ZTP

1. If not powered, plug in your appliance without a USB drive.
2. After it starts, insert the formatted USB drive with single software package for this appliance into the USB port of your SD-WAN appliance/hypervisor.
3. After installation, remove the USB drive from your SD-WAN appliance/hypervisor.

Manual Install

Site Deployment Criteria:

Manual (Legacy) Install requires physical access to the appliance. The end user will require a PC which can be connected directly to the AUX port of the Talari Appliance via an Ethernet cable.

Cable the LAN and WAN ports in accordance with the Talari configuration for the

site. **Pre-Deployment Requirements:**

The network administrator must have an active configuration which includes a client package for this site running on the NCN. An appropriate IP address, subnet mask, and gateway for the management interface should be provided for the on-site user to configure.

If the network administrator will have access to the new appliance once an on-site user configures the management interface, proceed to step 4 of Deploying the Talari Appliance. If not, the on-site user will require the client package from the running configuration:

1. From the Web Console of the NCN, navigate to **Manage Network > Change Management**.
2. Download the active package for the new client site.
3. Send the zipped client package to the on-site user who will be deploying the appliance.

Deploying the Talari Appliance:

1. Connect the power cord to the E50. Connect the other end to an appropriately grounded power source. The E50 will power on automatically.
2. Connect your PC directly to the AUX Port of the E50.
3. From the PC connected to the Talari:
 - a. Change the IP address of your PC to 192.168.0.1.
 - b. Change the Subnet Mask of your PC to 255.255.255.252.
 - c. Open a web browser and go to the Talari web console at 192.168.0.2. The username is *talariuser* and the default password is *talari*. **We strongly recommend changing the default password as soon as possible.**
 - d. Select **Manage Appliance > Local Network Settings** from the pull-down menu.
 - e. Set the IP Address, Subnet Mask, and Gateway IP Address for the Talari as provided by your network administrator.
 - f. Click Change Settings. If your network administrator will be applying the configuration package, you may now restore the original network settings on your PC.
4. To apply the configuration package, navigate to **Manage Appliance > Local Change Management**.
5. Click Browse and select the .zip package provided by your network administrator, then click Upload.
6. When the upload is complete, click Next to proceed to activation.

7. Click **Activate Staged** to complete the process. You may now restore the original network settings on your PC.

Creating a Bootable USB Drive on Linux

Ensure that the capacity of your USB drive is at least 4 GB.

To create a bootable USB drive on Linux:

1. Download the E50 or E100 image from MOS.
2. Copy the image on the USB drive.
Doing this destroys all existing data on the USB drive.
3. Insert the USB drive into the computer and run the `dmesg|tail` command.

```
[4317966.832947] usb 4-1: new SuperSpeed USB device number 39 using
xhci_hcd
[4317966.845892] usb 4-1: New USB device found, idVendor=0951,
idProduct=1666
[4317966.845893] usb 4-1: New USB device strings: Mfr=1, Product=2,
SerialNumber=3
[4317966.845894] usb 4-1: Product: DataTraveler 3.0
[4317966.845895] usb 4-1: Manufacturer: Kingston
[4317966.845896] usb 4-1: SerialNumber: E0D55EA57419E3C139680956
[4317966.848319] usb-storage 4-1:1.0: USB Mass Storage device detected
[4317966.848421] scsi host6: usb-storage 4-1:1.0
[4317967.863955] scsi 6:0:0:0: Direct-Access    Kingston DataTraveler
3.0 PMAP PQ: 0 ANSI: 6
[4317967.864524] sd 6:0:0:0: Attached scsi generic sg4 type 0
[4317967.864606] sd 6:0:0:0: [sdd] 60604416 512-byte logical blocks:
(31.0 GB/28.9 GiB)
[4317967.864790] sd 6:0:0:0: [sdd] Write Protect is off
[4317967.864792] sd 6:0:0:0: [sdd] Mode Sense: 45 00 00 00
[4317967.864972] sd 6:0:0:0: [sdd] Write cache: disabled, read cache:
enabled, doesn't support DPO or FUA
```

In this case, the device name is "sdd", and will be referenced by Linux as "/dev/sdd".

If Linux has been configured to auto-mount USB devices, unmount the partitions on the drive. Run the "df" command to detect the status of the partitions of the drive:

```
df
Filesystem                1K-blocks      Used Available Use% Mounted on
devtmpfs                   16416036         0  16416036   0% /dev
/dev/mapper/ol_lobi7u6-root 52403200  37842328  14560872  73% /
/dev/sda1                   1038336      427060     611276  42% /boot
/dev/mapper/ol_lobi7u6-home 164415040  112140980  52274060  69% /home
/dev/sdd2                   2755604      2389404     222896  92% /run/media/oracle/USBBoot
```

In this example, the second partition of /dev/sdd is mounted and must be unmounted. In your case there may be no mounts on the USB or more.

4. To unmount the partition on the drive, run the command: `umount /run/media/oracle/USBBoot.`
5. Run the `df` command again to make sure that there are no mounts matching your USB device name (/dev/sdd in the example.)
6. Insert the USB drive. At this point, the USB drive is ready to receive the image.
7. `gunzip` the downloaded USB raw image file.
`gunzip`
`d6000v1_OS_7_0_1_0_0_GA_02282020_OS_52_GA_05022019_R8_2_1_0_0_GA_01282020`
`.raw.gz`
8. Burn the image, copy the USB raw image file to the USB device. In the example, the USB device is identified as `dev/sdd`. This command requires root access and is prefixed with "sudo".

```
sudo cp  
d6000v1_OS_7_0_1_0_0_GA_02282020_OS_52_GA_05022019_R8_2_1_0_0_GA_01282020  
.raw /dev/sdd
```

9. The USB burn process on a USB3 device can take 15 minutes. It may take a longer time if the device or port is USB2. After the process is complete, you can remove the USB. It is ready for use.

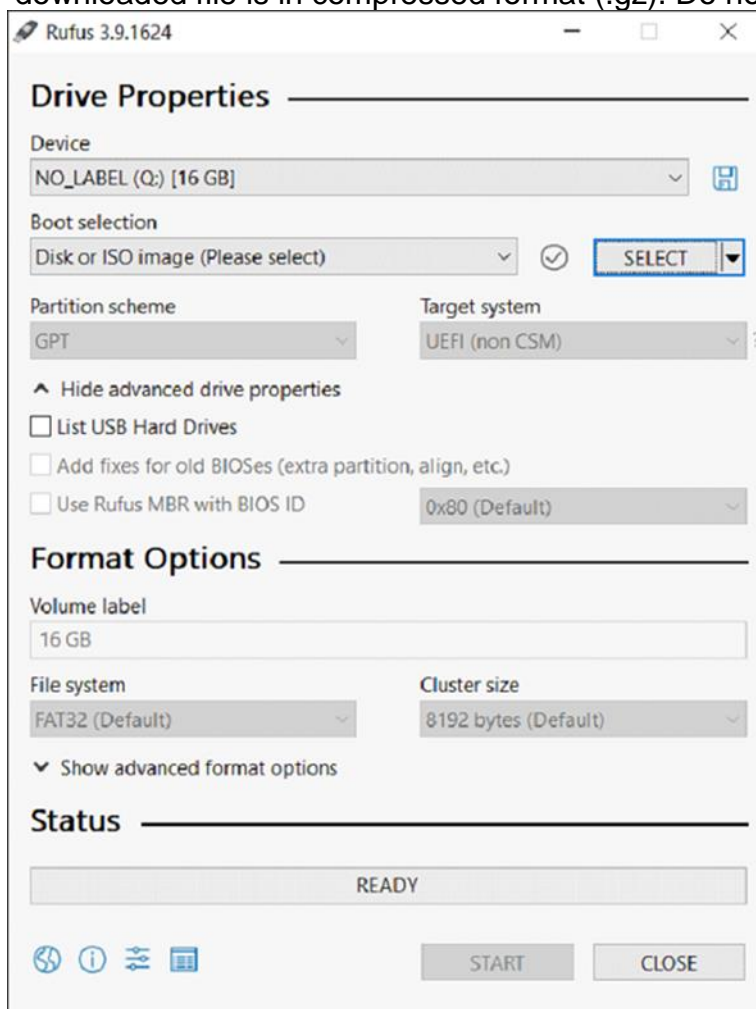
Creating a Bootable USB Drive on Windows

Before starting this process, ensure that the capacity of your USB drive is at least 4 GB.

To create a bootable USB drive on Windows:

1. Download the E50 or E100 image from MOS.
2. Download the Rufus tool. It is a standalone program and requires no installation <https://rufus.ie/>.
3. Place the image on the USB drive. Doing this destroys all existing data on the USB drive.
4. Run Rufus.
You will be prompted to allow administrator access.
5. Click **Yes**.

Click **SELECT** and choose the file that you downloaded from MOS. The downloaded file is in compressed format (.gz). Do not uncompress it.



6. Click **Start**.
You will be asked if it is OK to destroy all the data in the device.
7. Click **Yes**.

The USB burn process on a USB3 device can take 15 minutes. It may take longer if the device or port is USB2. After the process is complete, you can remove the USB. It is ready for use.

Reimaging of the E50

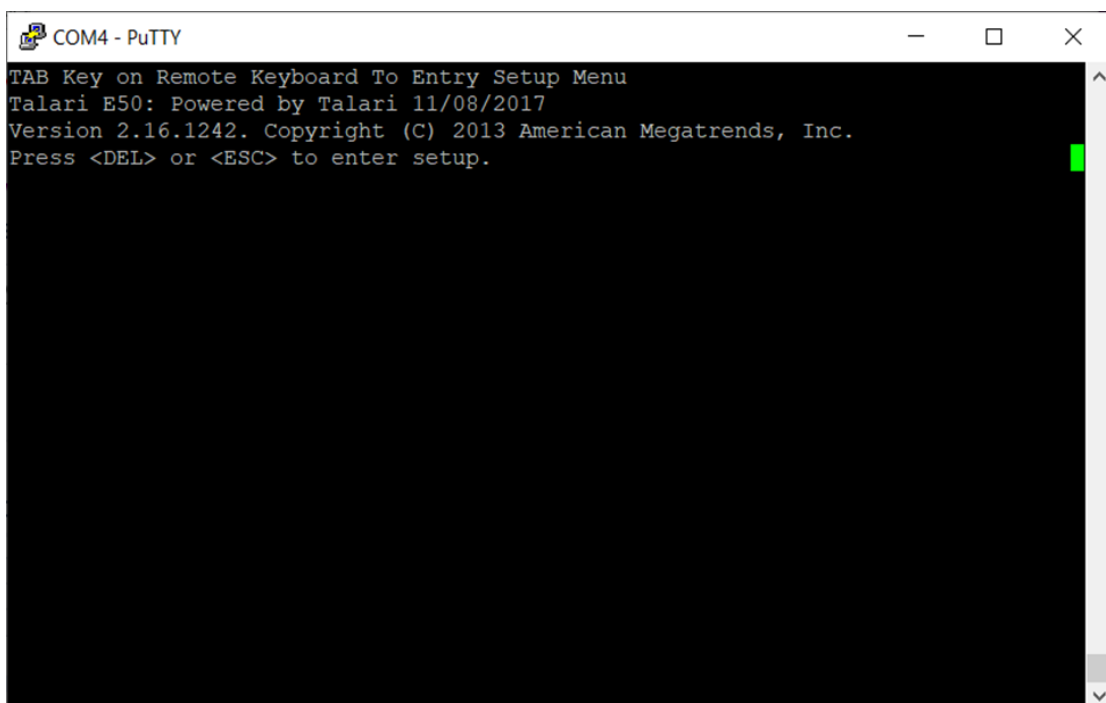
1. Connect a serial cable to the Console port. It will be configured at 115200 baud.
2. Insert the USB flash drive into the USB port and power cycle the unit.



The E50 in the image above also has the management port connected in the LAN4 port.

3. Enter the BIOS to set the USB stick to first in the boot order.

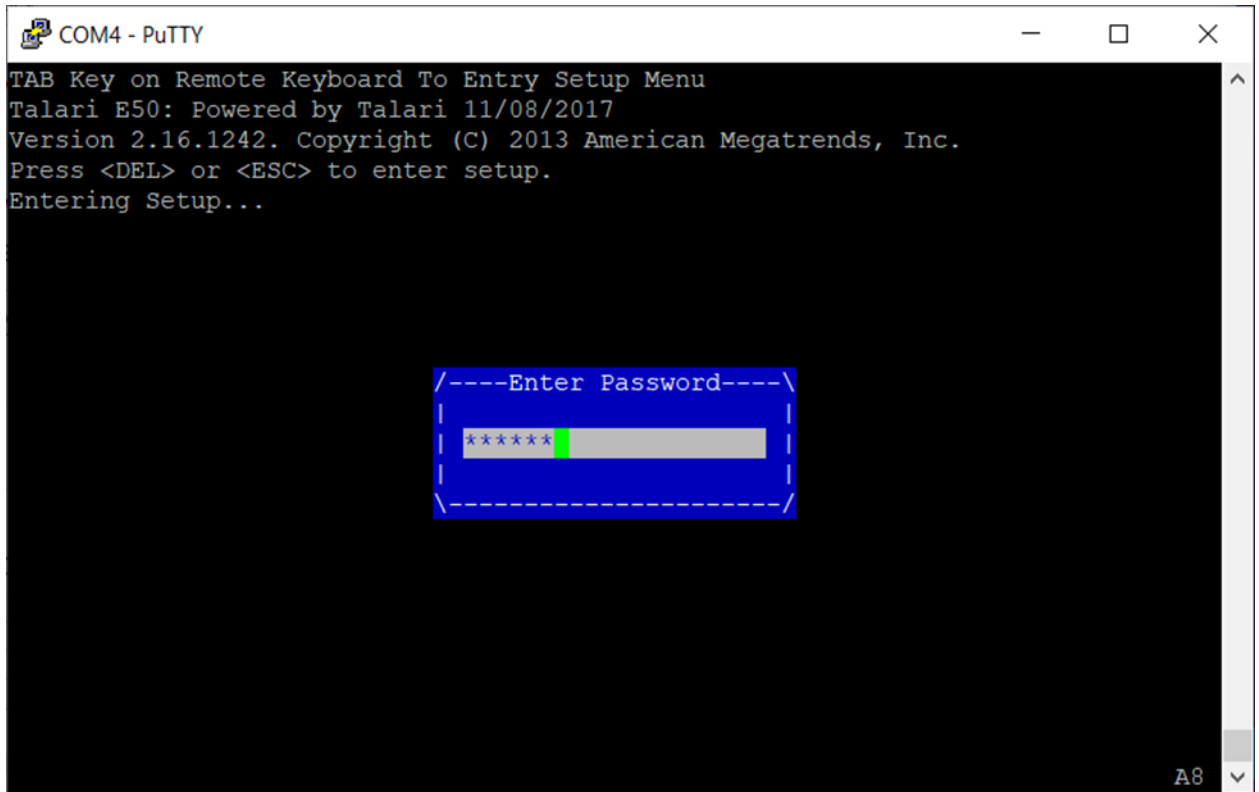
About 30 seconds after the appliance is power cycled, the following screen appears.



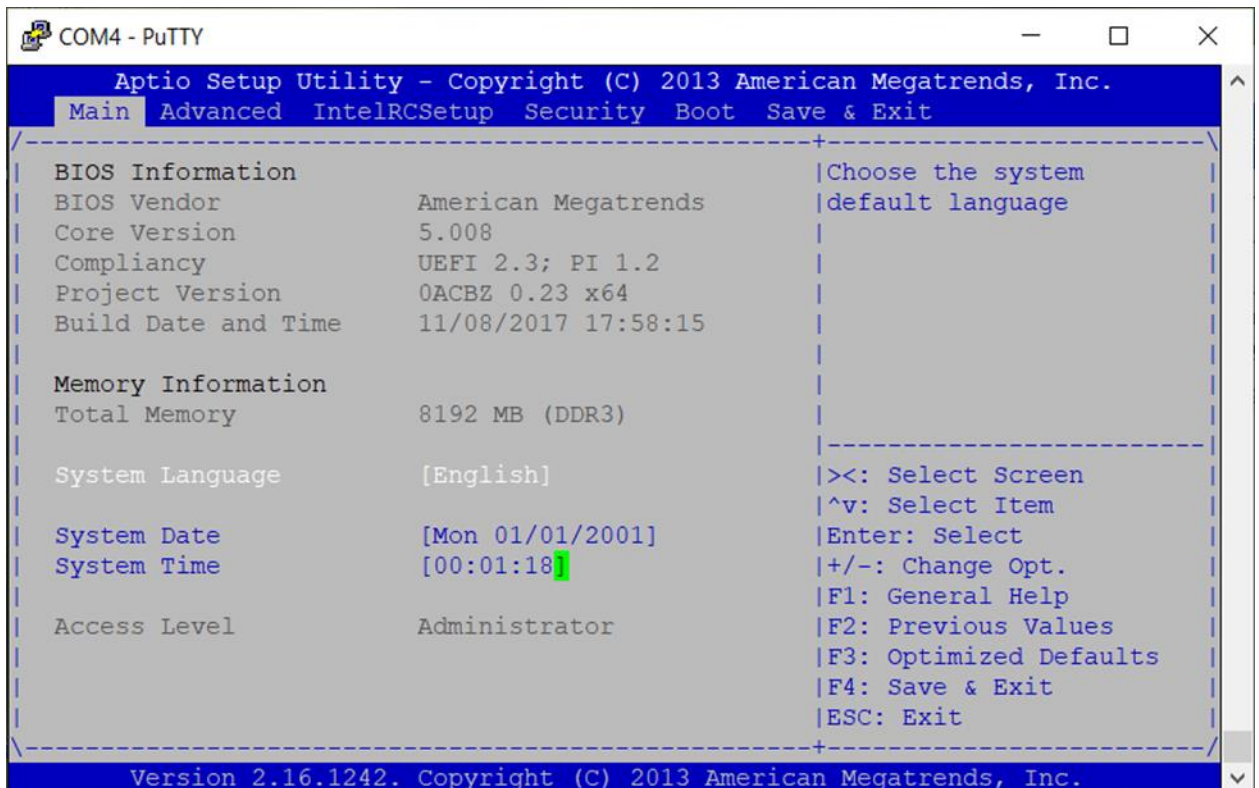
Press DEL a few times until the password prompt appears.

Note: For the E100, use the ESC key instead.

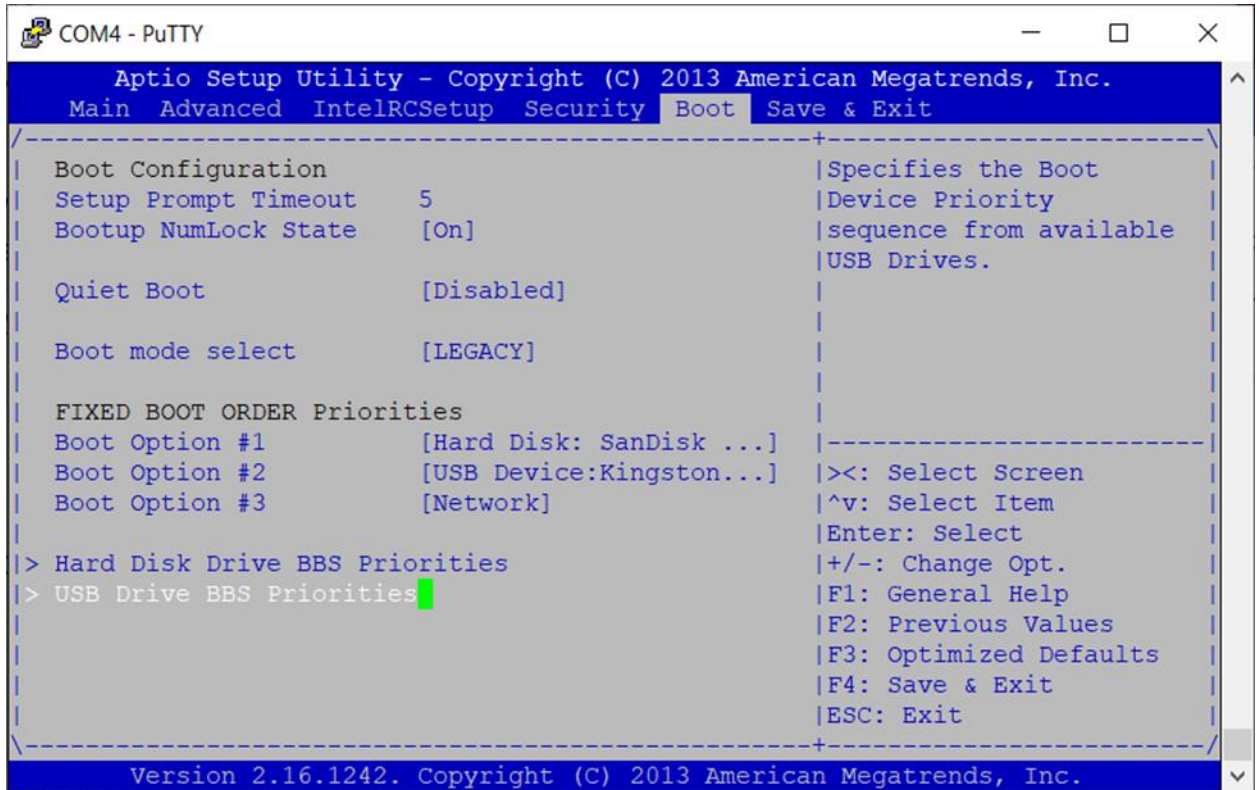
4. Type the password and press Enter. The E50 BIOS password is "talari".



5. Use the Right Arrow to position to the Boot screen/page once you are on the Main BIOS screen



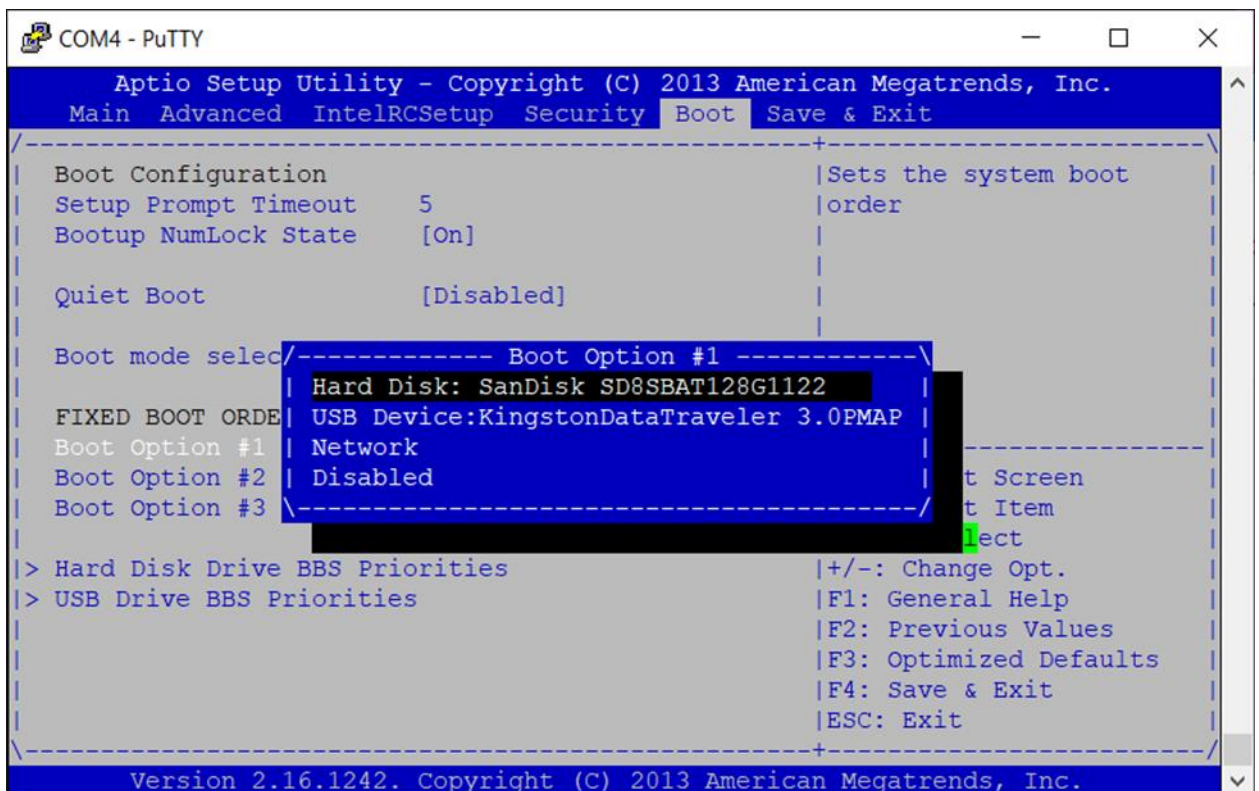
In the middle of the Boot screen is “FIXED BOOT ORDER Priorities”. In the following example, “Boot Option #1” is set to “Hard Drive” and must be changed to USB. If the USB is already first, you may proceed to Step 7.



```
COM4 - PuTTY
Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
Main Advanced IntelRCSetup Security Boot Save & Exit

-----
| Boot Configuration                               | Specifies the Boot |
| Setup Prompt Timeout      5                     | Device Priority   |
| Bootup NumLock State     [On]                   | sequence from available |
|                               | USB Drives.      |
| Quiet Boot                [Disabled]            |                   |
|                               |                   |
| Boot mode select          [LEGACY]              |                   |
|                               |                   |
| FIXED BOOT ORDER Priorities                    |                   |
| Boot Option #1           [Hard Disk: SanDisk ...] |                   |
| Boot Option #2           [USB Device:Kingston...] | ><: Select Screen  |
| Boot Option #3           [Network]              | ^v: Select Item   |
|                               | Enter: Select     |
| > Hard Disk Drive BBS Priorities                | +/ -: Change Opt. |
| > USB Drive BBS Priorities                      | F1: General Help  |
|                               | F2: Previous Values |
|                               | F3: Optimized Defaults |
|                               | F4: Save & Exit    |
|                               | ESC: Exit          |
|                               |                   |
|-----
Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

6. Use the Up and Down keys to select Boot Option #1 and press Enter. You are presented with a pop-up of available boot devices



```
COM4 - PuTTY
Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
Main Advanced IntelRCSetup Security Boot Save & Exit

-----
| Boot Configuration                               | Sets the system boot |
| Setup Prompt Timeout      5                     | order                |
| Bootup NumLock State     [On]                   |                       |
|                               |                       |
| Quiet Boot                [Disabled]            |                       |
|                               |                       |
| Boot mode select          [LEGACY]              |                       |
|                               |                       |
| FIXED BOOT ORDER Priorities                    |                       |
| Boot Option #1           [Hard Disk: SanDisk ...] |                       |
| Boot Option #2           [USB Device:Kingston...] |                       |
| Boot Option #3           [Network]              |                       |
|                               |                       |
| > Hard Disk Drive BBS Priorities                | +/ -: Change Opt.  |
| > USB Drive BBS Priorities                      | F1: General Help   |
|                               | F2: Previous Values |
|                               | F3: Optimized Defaults |
|                               | F4: Save & Exit    |
|                               | ESC: Exit          |
|                               |                   |
|-----
Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

Pop-up menu for Boot Option #1:

```
----- Boot Option #1 -----
| Hard Disk: SanDisk SD8SBAT128G1122 |
| USB Device:KingstonDataTraveler 3.0PMAP |
| Network |
| Disabled |
|-----
```

7. Use the UP and DOWN keys to select the USB Device and press ENTER.

```
COM4 - PuTTY
Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
Main Advanced IntelRCSetup Security Boot Save & Exit

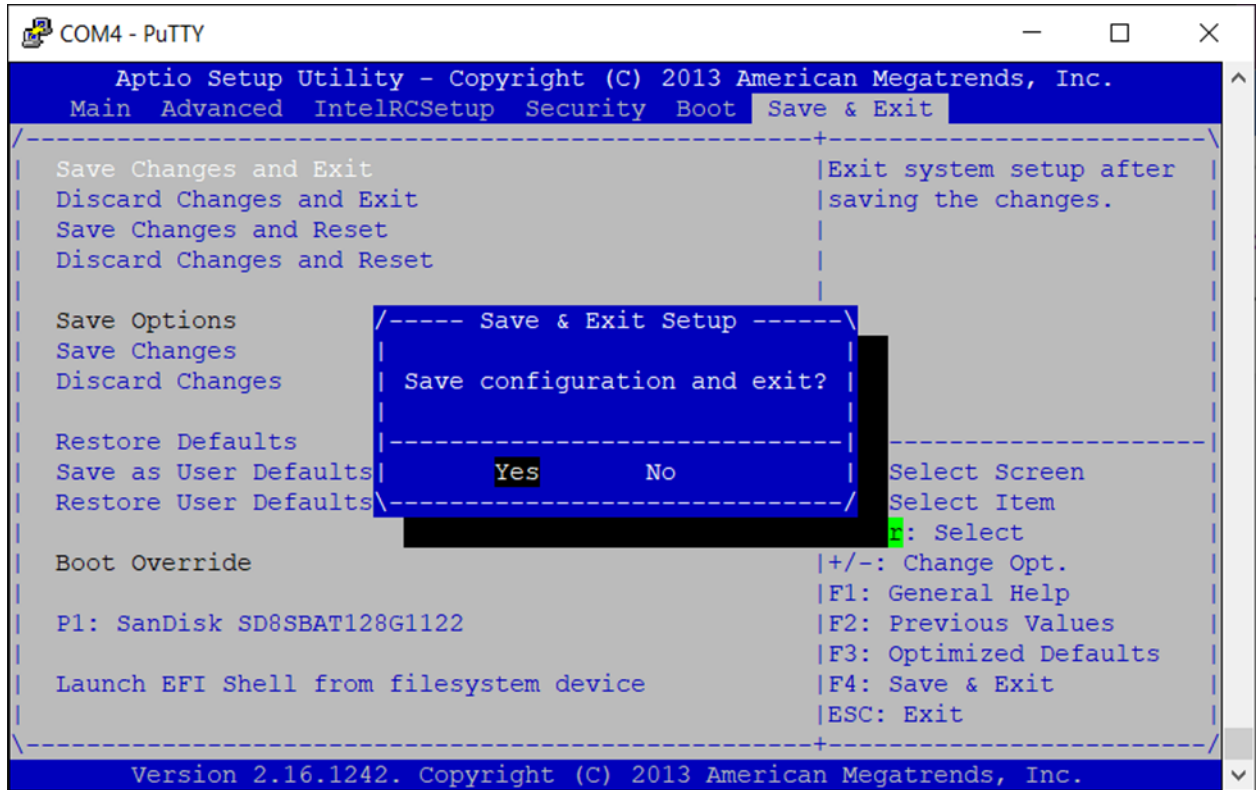
-----+-----
Boot Configuration                               |Sets the system boot
Setup Prompt Timeout      5                       |order
Bootup NumLock State     [On]                      |
Quiet Boot                [Disabled]                |
Boot mode select         [LEGACY]                   |
-----+-----
FIXED BOOT ORDER Priorities
Boot Option #1           [USB Device:KingstonDataTraveler 3.0PMAP]
Boot Option #2           [Disabled]                 |t Screen
Boot Option #3           [Network]                  |t Item
-----+-----
> Hard Disk Drive BBS Priorities                   |+/-: Change Opt.
> USB Drive BBS Priorities                         |F1: General Help
                                                    |F2: Previous Values
                                                    |F3: Optimized Defaults
                                                    |F4: Save & Exit
                                                    |ESC: Exit
-----+-----
Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

Your screen should appear as below, with Boot Option #1 as the USB Device. If Boot Option #2 is not the "Hard Disk", repeat the process on Boot Option #2, to set it to "Hard Disk"

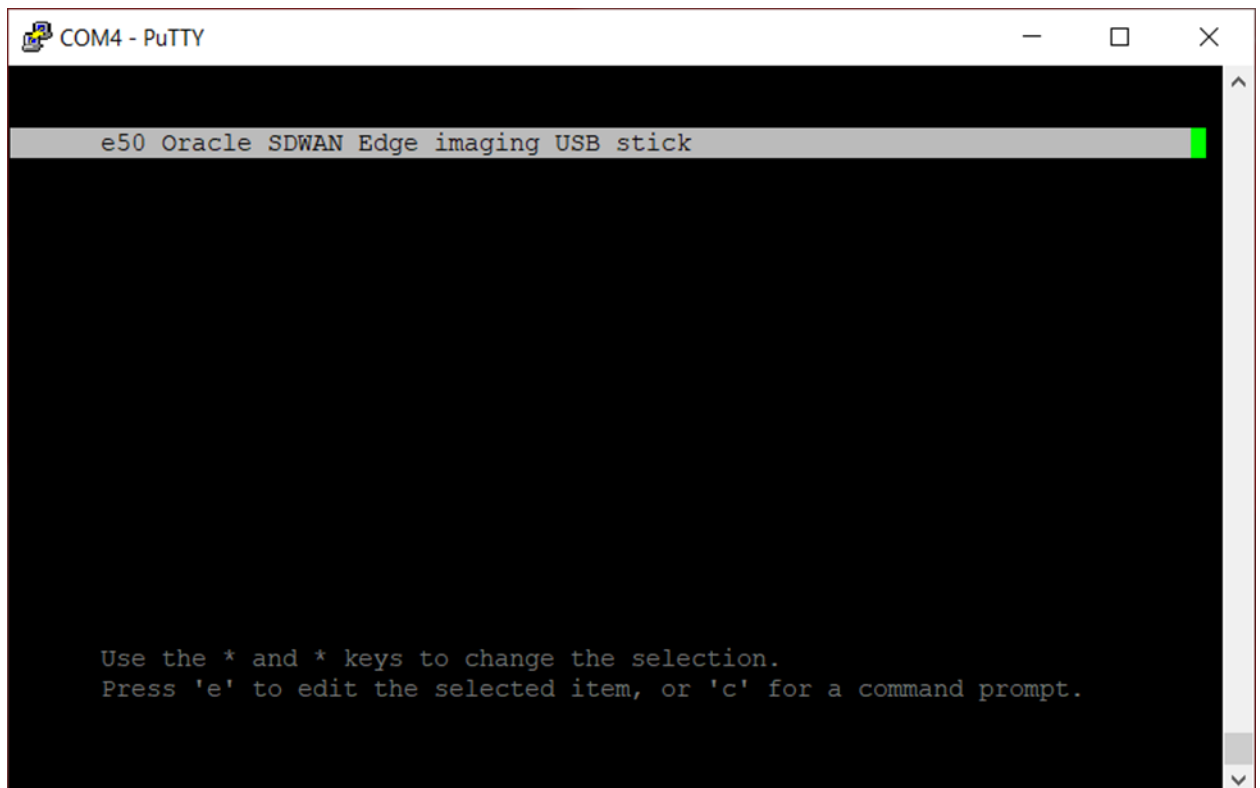
```
COM4 - PuTTY
Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
Main Advanced IntelRCSetup Security Boot Save & Exit

-----+-----
Boot Configuration                               |Number of seconds to
Setup Prompt Timeout      5                       |wait for setup
Bootup NumLock State     [On]                      |activation key.
Quiet Boot                [Disabled]                |65535 (0xFFFF) means
Boot mode select         [LEGACY]                   |indefinite waiting.
-----+-----
FIXED BOOT ORDER Priorities
Boot Option #1           [USB Device:Kingston...]
Boot Option #2           [Hard Disk: SanDisk ...]
Boot Option #3           [Network]
-----+-----
> Hard Disk Drive BBS Priorities                   |+/-: Change Opt.
> USB Drive BBS Priorities                         |><: Select Screen
                                                    |^v: Select Item
                                                    |Enter: Select
                                                    |+/-: Change Opt.
                                                    |F1: General Help
                                                    |F2: Previous Values
                                                    |F3: Optimized Defaults
                                                    |F4: Save & Exit
                                                    |ESC: Exit
-----+-----
Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```


- Use the RIGHT arrow key and select the Save and Exit screen. Select Save Changes and Exit, press Enter, and press Enter again at the pop-up screen.



The appliance will now boot up from the USB flash device. You will see the following GRUB screen, press ENTER to continue.



- At the login prompt, login as root when you see the standard Linux boot; there is no password. The Linux boot should take less than 1 minute.

```
COM4 - PuTTY
ue(s)
[ 11.220434] sd 6:0:0:0: [sdb] 250069680 512-byte logical blocks: (128 GB/119 GiB)
[ 11.220455] sd 6:0:0:0: Attached scsi generic sgl type 0
[ 11.234947] sd 6:0:0:0: [sdb] Write Protect is off
[ 11.240375] sd 6:0:0:0: [sdb] Write cache: enabled, read cache: enabled, does n't support DPO or FUA
[ 11.251478] sdb: sdb1 sdb2 sdb3 sdb4 < sdb5 sdb6 >
[ 11.258102] sd 6:0:0:0: [sdb] Attached SCSI disk
[ 11.532212] igb 0000:00:14.2: added PHC on eth2
[ 11.537287] igb 0000:00:14.2: Intel(R) Gigabit Ethernet Network Connection
[ 11.545050] igb 0000:00:14.2: eth2: PBA No: 001800-000
[ 11.550797] igb 0000:00:14.2: Using MSI-X interrupts. 4 rx queue(s), 4 tx queue(s)
[ 11.909199] igb 0000:00:14.3: added PHC on eth3
[ 11.914270] igb 0000:00:14.3: Intel(R) Gigabit Ethernet Network Connection
[ 11.922034] igb 0000:00:14.3: eth3: PBA No: 001800-000
[ 11.927783] igb 0000:00:14.3: Using MSI-X interrupts. 4 rx queue(s), 4 tx queue(s)

Oracle Linux Server 7.8
Kernel 3.10.0-1127.13.1.el7.x86_64 on an x86_64

localhost login: root
```

Immediately upon login, the checksums of each script and data file on the USB are verified. If this validation fails, the files on the stick were corrupted and you cannot continue. The verification will take less than 1 minute.

```
COM4 - PuTTY
[ 11.532212] igb 0000:00:14.2: added PHC on eth2
[ 11.537287] igb 0000:00:14.2: Intel(R) Gigabit Ethernet Network Connection
[ 11.545050] igb 0000:00:14.2: eth2: PBA No: 001800-000
[ 11.550797] igb 0000:00:14.2: Using MSI-X interrupts. 4 rx queue(s), 4 tx queue(s)
[ 11.909199] igb 0000:00:14.3: added PHC on eth3
[ 11.914270] igb 0000:00:14.3: Intel(R) Gigabit Ethernet Network Connection
[ 11.922034] igb 0000:00:14.3: eth3: PBA No: 001800-000
[ 11.927783] igb 0000:00:14.3: Using MSI-X interrupts. 4 rx queue(s), 4 tx queue(s)

Oracle Linux Server 7.8
Kernel 3.10.0-1127.13.1.el7.x86_64

localhost login: root

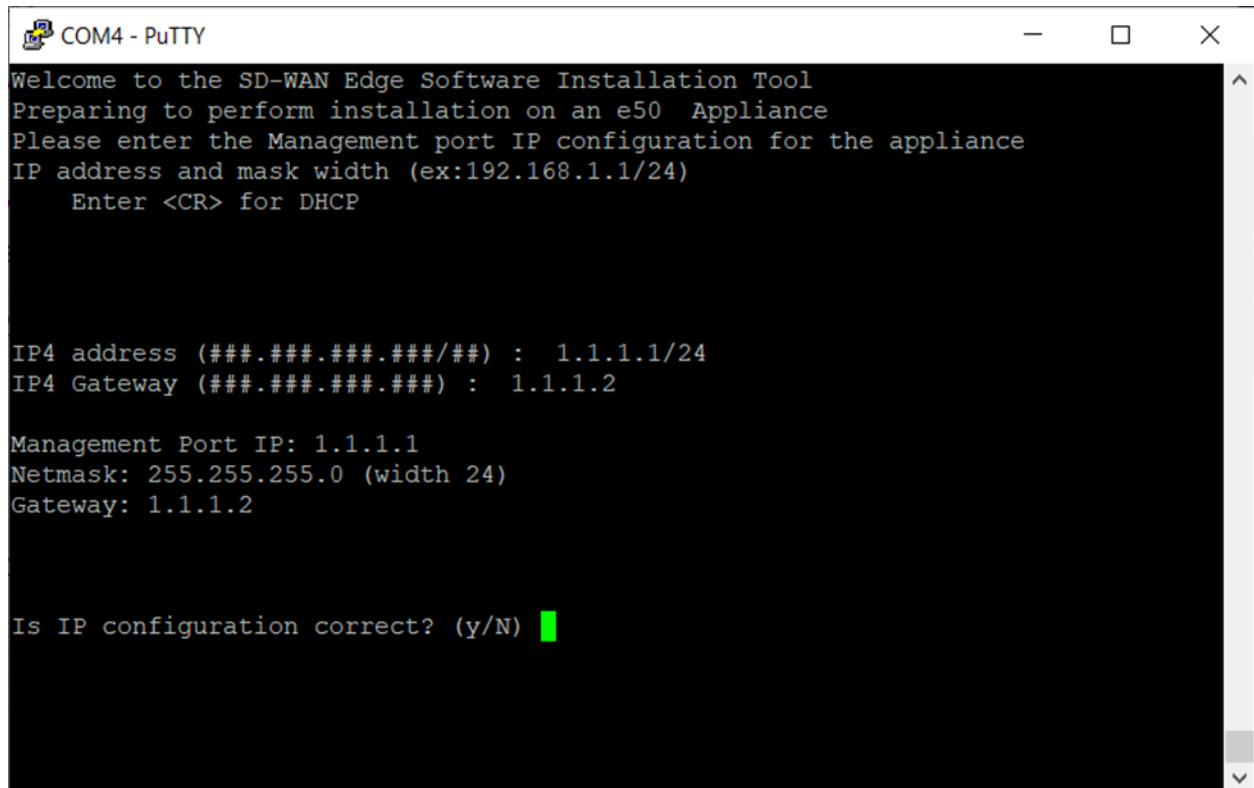
Validating USB file checksums: /install_data/sw/
cc5510dc8d990c3310c7c0fdd4b33442458348aff6d050b1bd76cb6a3bd16488 /install_data/sw//e50.tar
[ 57.835115] random: crng init done
.....
.
```

After validation, the appliance will be identified, and its model is verified against the files on the USB. Then, you will be asked if you are ready to install.

```
COM4 - PuTTY  
Current platform e50 Cpu Model: 77 CPUs: 4  
Base Board: To be filled by O.E.M.  
Ready to install (y/N) █
```

Setting the IP Address

You have the option to set the IP address of the appliance now, as opposed to setting it after installation. If you want to defer this setup, hit Enter when asked for “IP4 address” and ‘y’ that the configuration is correct; this will configure DHCP on the MGT port. Otherwise, enter the IP4 address with mask width and optionally the gateway. When these are to your satisfaction, enter ‘y’ that the configuration is correct.

A screenshot of a PuTTY terminal window titled "COM4 - PuTTY". The terminal displays the following text:

```
Welcome to the SD-WAN Edge Software Installation Tool
Preparing to perform installation on an e50 Appliance
Please enter the Management port IP configuration for the appliance
IP address and mask width (ex:192.168.1.1/24)
  Enter <CR> for DHCP

IP4 address (###.###.###.###/##) : 1.1.1.1/24
IP4 Gateway (###.###.###.###) : 1.1.1.2

Management Port IP: 1.1.1.1
Netmask: 255.255.255.0 (width 24)
Gateway: 1.1.1.2

Is IP configuration correct? (y/N) █
```

Once you accept the IP4 configuration, the installation script creates the partitions, formats them and loads the SDWAN OS and application software on the system. When complete, remove the USB and type “reboot”. The appliance will boot from the hard disk. It will take a few minutes to complete the Edge Software installation and configure the IP address. The software installation will take less than 2 minutes.

```
COM4 - PuTTY
m
[ 180.121418] EXT4-fs (sdb6): mounted filesystem with ordered data mode. Opts:
(null)
Tue Jul 14 16:04:39 EDT 2020 - Unpack Primary OS files
Tue Jul 14 16:05:09 EDT 2020 - Unpack Secondary OS files
Tue Jul 14 16:05:40 EDT 2020 - Unpack Home partition files
Tue Jul 14 16:05:41 EDT 2020 - Preparing Talari Software package for installatio
n
Tue Jul 14 16:05:43 EDT 2020 - Setup grub on device /dev/sdb
Tue Jul 14 16:05:43 EDT 2020 - grub-install --no-floppy --root-directory=/new/pr
imary_os /dev/sdb
Tue Jul 14 16:05:47 EDT 2020 - Install grub directory
Tue Jul 14 16:05:47 EDT 2020 - Setting up /etc/network/interfaces on E50
Tue Jul 14 16:05:47 EDT 2020 - Creating a default /home/talariuser/os_config/net
work_interfaces/tn-mgt0
Tue Jul 14 16:05:47 EDT 2020 - Installing menu.lst
Tue Jul 14 16:05:49 EDT 2020 - Using default menu.lst
Tue Jul 14 16:05:49 EDT 2020 - Talari OS Installation complete
Tue Jul 14 16:05:49 EDT 2020 - Unmounting filesystems
Tue Jul 14 16:05:51 EDT 2020 - Filesystem unmounted, please remove USB stick and
reboot

Installation completed without error
[root@localhost ~]#
```

When the reboot and second stage install is complete (which may take around 5 minutes) you can login to the appliance. The appliance is ready for use.

Troubleshooting

Appliance Troubleshooting Basics

Problem	Resolution
Cannot ping the E50 APN appliance	Make sure the appliance has power. Confirm the device has a Management IP address assigned. Verify the Management port has link on the Talari and switch.
Ethernet port not forwarding traffic	Verify the switch has auto-negotiation enabled. Verify the switch has the port enabled. Confirm you connected to the correct port on the Talari.
Cannot access the Talari APNA Web Console	Confirm you are using the correct IP address. Confirm the management port of the E50 APNA is connected to a switch and there is activity.

Troubleshooting Inline Mode (Fail-to-Wire)

The E50 APNA is equipped with a capability known as Inline mode with the interfaces in Fail-to-Wire. This capability is designed to prevent a single point of failure. If there is a serious problem with the E50 APNA, the bypass pair goes into bypass mode and forwards traffic through as though the appliance were a wire.

Interfaces may be configured as either Fail-to-Wire or Fail-to-Block. If a bypass pair is configured for Fail-to-Block, bypass mode will never be activated, even if power is lost.

If configured, bypass mode is used when the APNA is not powered on or when the Talari Service is disabled.

Please also see the section above, “**Error! Reference source not found.**”.

Problem	Resolution
Bypass mode blocking traffic	Verify that the E50 APN appliance has connectivity to the L2/L3 devices on its LAN/WAN ports. Verify that the correct cables are used and that the networking devices have auto-negotiate set for their ports.
E50 stays in bypass mode	Confirm that the E50 is configured properly and that the Talari Service is enabled.

Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

