

Introduction

Ampere® Altra® processors are designed from the ground up to deliver exceptional performance for Cloud Native workloads. With an innovative architecture that delivers high performance, linear scalability, and amazing energy efficiency, Ampere Altra allows workloads to run in a predictable manner with minimal variance under increasing loads. This enables industry leading performance/watt and a smaller carbon footprint for real world workloads.

One of the core tenets of the cloud is multitenancy – the ability to share computing resources among multiple customers with quality. VMware® ESXi is a leader among hypervisors for its efficient architecture, performance, and support. VMware ESXi Fling provides architects the ability to evaluate this technology on AArch64 processors such as the Ampere Altra. This guide outlines the steps required to deploy and configure VMware ESXi on the Ampere Altra family of processors.

Minimum Hardware Requirements

The following hardware is **required**:

- An Ampere Altra-based system
- 1x USB drive for installer ISO
- 1x USB, or NVMe (NVM Express) drive for actual ESXi installation
- 1x USB or PCIe NIC

The following hardware is **supported**:

- USB and NVMe storage
- SB and PCIe networking
- VGA video and USB keyboards
- Serial Console

Installing VMware ESXi-ARM

Depending on the server make and model, there is usually more than one way to install ESXi-ARM.

1. Console access:
 - VGA + USB keyboard
 - BMC (Baseboard Management Controllers) web interface for VGA + USB keyboard
 - BMC serial port redirection via IPMI
2. Booting:
 - ESXi installer on USB key
 - ISO via virtual media redirection

Steps for Installing ESXi-ARM on your Ampere Altra-based Systems

1. Get a working console (via IPMI, BMC KVM, VGA, etc).
2. Power on the system.
3. When prompted, choose the boot option (USB or Virtual Media).

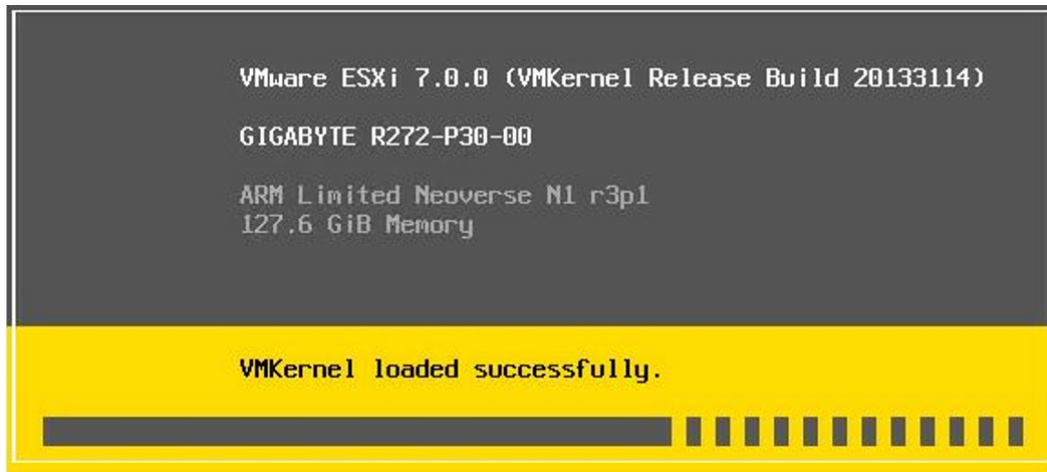


4. Follow the generic installation steps listed below.
 - After the boot option is selected, you will see the “Loading ESXi installer” window.

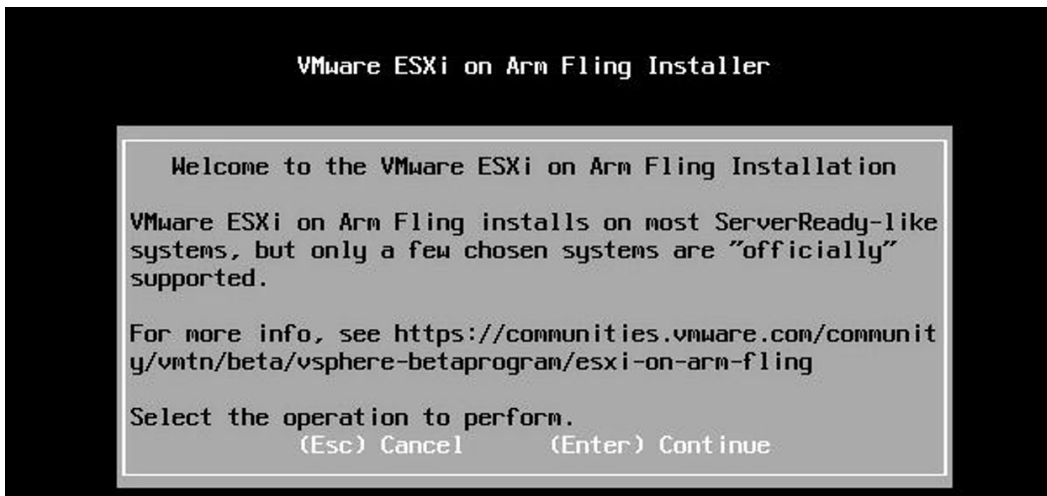
```
Loading ESXi installer
Loading /EFI/BOOT/boot.cfg
Loading /EFI/BOOT/crypto64.efi
Loading /b.b00
Loading /jumpstrt.gz
Loading /useropts.gz
Loading /features.gz
Loading /k.b00
Loading /procf.s.b00
Loading /vmx.v00
```

```
Loading ESXi installer
Loading /nvme3net.v00
Loading /nvme3net.v01
Loading /pvscsi.v00
Loading /qcnic.v00
Loading /qedentv.v00
Loading /qedrntv.v00
Loading /qfle3.v00
Loading /qfle3f.v00
Loading /qfle3i.v00
Loading /qfle3e.v00
Loading /rste.v00
Loading /sfvnc.v00
Loading /smartpqi.v00
Loading /vmkata.v00
Loading /vmkfc0e.v00
Loading /vmkusb.v00
Loading /vmw_ahci.v00
Loading /elx_esx.v00
Loading /btldr.v00
Loading /esx_dvfi.v00
Loading /esx_ui.v00
Loading /esxupdt.v00
Loading /tpmesxup.v00
Loading /weasel.in.v00
Loading /loadesx.v00
Loading /lsuv2_hp.v00
Loading /lsuv2_in.v00
Loading /lsuv2_ls.v00
Loading /lsuv2_nv.v00
Loading /lsuv2_oe.v00
Loading /lsuv2_oe.v01
Loading /lsuv2_oe.v02
Loading /lsuv2_sm.v00
Loading /native_m.v00
Loading /qlnative.v00
Loading /vmware_e.v00
Loading /vsan.v00
```

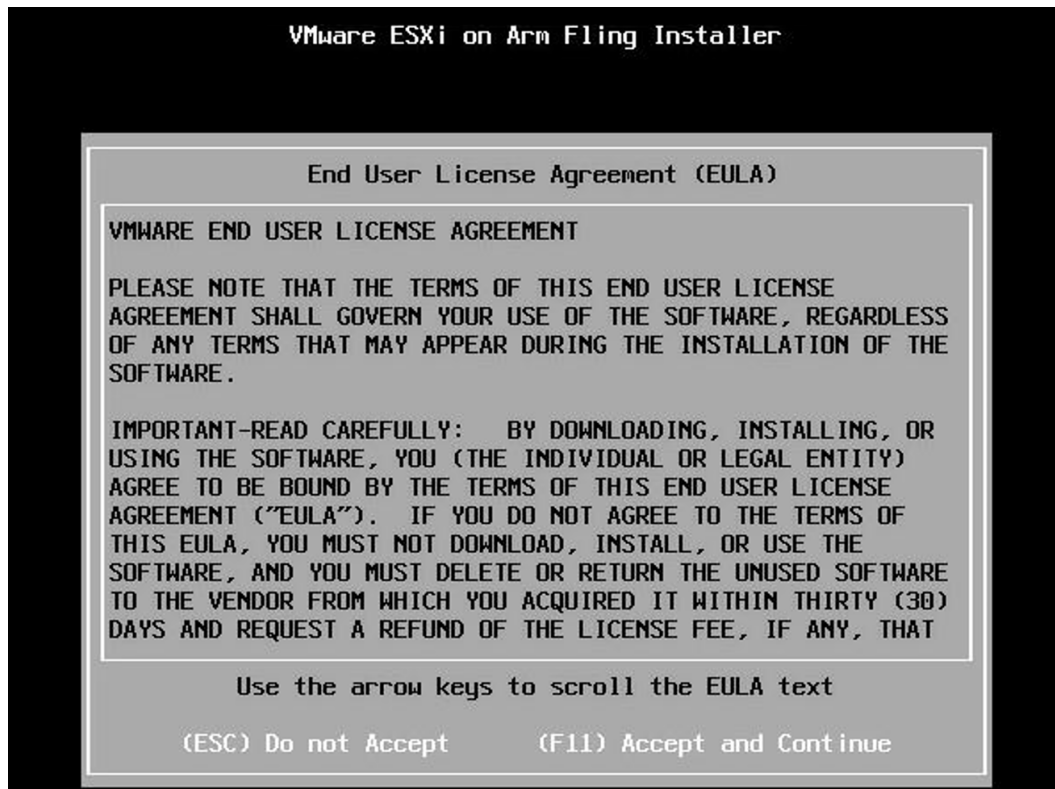
- While the installer is loading all the necessary modules, it will display the server configuration information at the top as shown below.



- Since this is a new installation of ESXi-ARM, press “Enter” to continue.



- Read and accept the EULA by pressing F11.



- VMware ESXi-ARM will display all the available disk groups. Choose the Disk where you would like to install the ESXi-ARM.



- Confirm that you are ready to start the installation process.



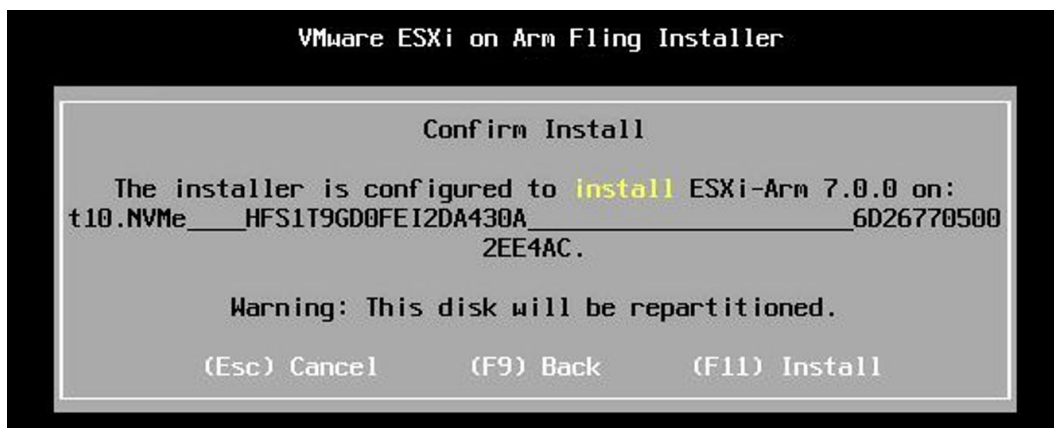
- Select the keyboard layout and continue.



- Enter a root password which fulfills the ESXi-ARM password criteria.



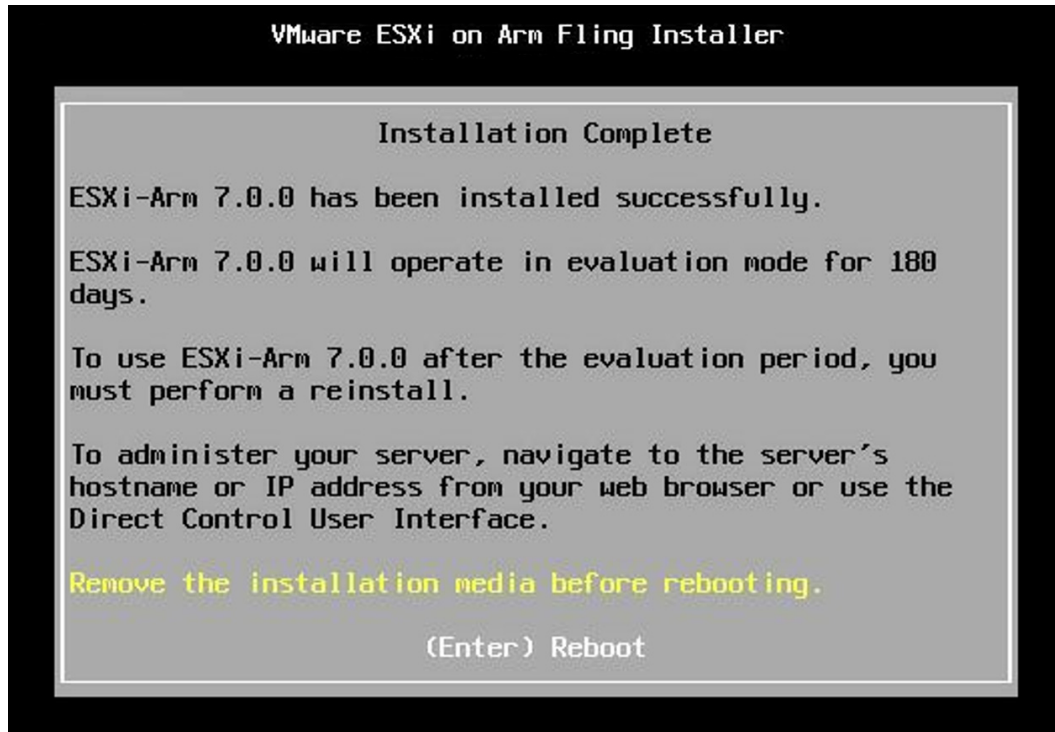
- Confirm that you are ready to start the installation process on the disk selected above.



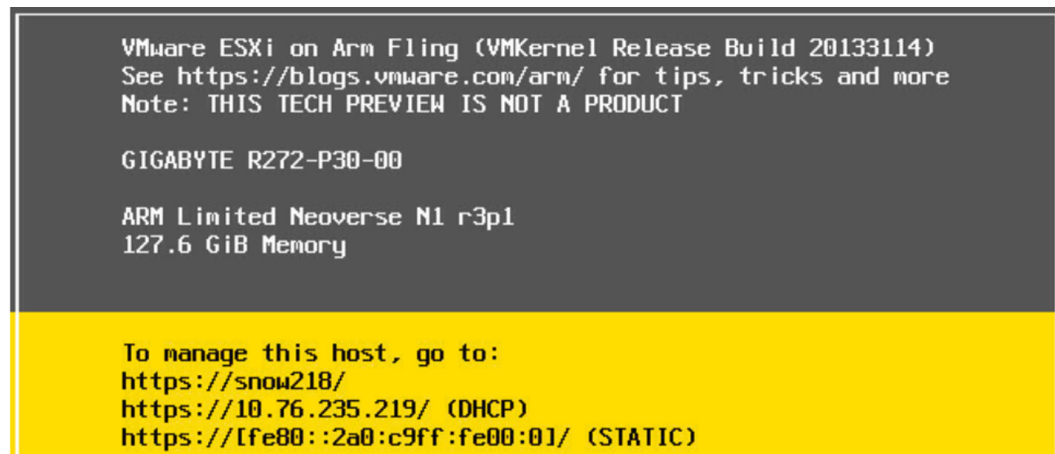
- The installation process takes a few minutes. While the ESXi-ARM is getting installed, it will display a progress bar as shown below.



- Once the installation is complete, you will get the following message that will prompt you to remove the installation media and then reboot.



- After the reboot you will see the screen below. This screen shows that the ESXi-ARM has been successfully installed on your Ampere Altra server and is now ready to be configured.





- VMware ESXi on Arm Fling (VMKernel Release Build 20133114)
See <https://blogs.vmware.com/arm/> for tips, tricks and more
Note: THIS TECH PREVIEW IS NOT A PRODUCT
- GIGABYTE R272-P30-00
- ARM Limited Neoverse N1 r3p1
127.6 GiB Memory
- To manage this host, go to
<https://snow218/>
<https://10.76.235.219/> (DHCP)
[https://\[fe80::2a0:c9ff:fe00:0000\]:443/](https://[fe80::2a0:c9ff:fe00:0000]:443/)
- Authentication Required**

Enter an authorized login name and password for snow218.scc-lab.anperecomputing.com.

Configured Keyboard (US Default)

Login Name: [root]

Password: []

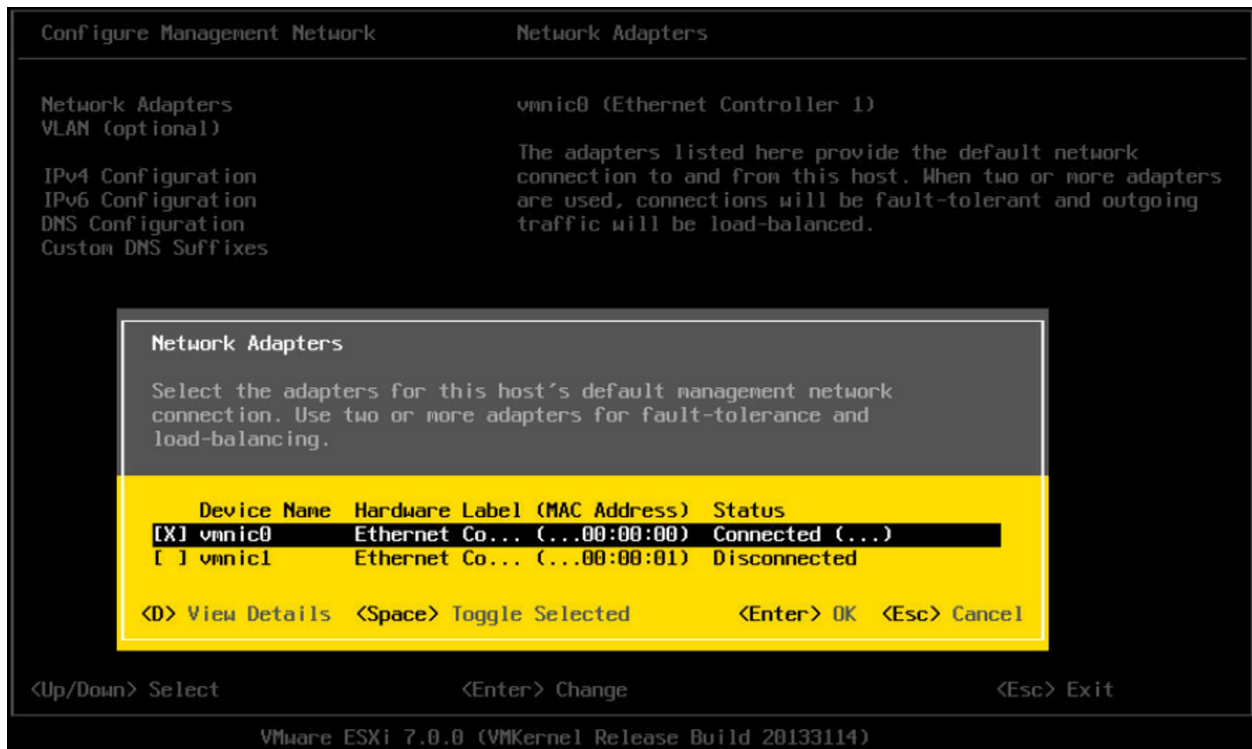
<Enter> OK <Esc> Cancel
- <F2> Customize System/View Logs <F12> Shut Down/Restart

- | | |
|--|---|
| System Customization | Configure Management Network |
| Configure Password
Configure Lockdown Mode | Hostname:
snow218 |
| Configure Management Network | IPv4 Address:
10.76.235.219 |
| Restart Management Network
Test Management Network
Network Restore Options | Network identity acquired from DHCP server 10.76.100.36 |
| Configure Keyboard
Troubleshooting Options | IPv6 Addresses:
fe80::2a0:c9ff:fe00:0/64 |
| View System Logs | To view or modify this host's management network settings in detail, press <Enter>. |
| View Support Information | |
| Reset System Configuration | <Enter> More <Esc> Log Out |
| VMware ESXi 7.0.0 (VMKernel Release Build 20133114) | |

- Press “Enter” on “Network Adapters” to select the NIC you want to use for your Management Network.



- Select the NIC you want to use by pressing space (which toggles the selection), and press “Enter”.



- Configure the Management Network as per your requirements. You can set either a static IP address or a dynamic IP address for your ESXi-ARM host. Press “Enter” after you have completed the selection.

Configure Management Network	IPv4 Configuration
Network Adapters VLAN (optional)	Automatic
IPv4 Configuration	IPv4 Address: 10.76.235.219
IPv6 Configuration	Subnet Mask: 255.255.255.0
DNS Configuration	Default Gateway: 10.76.235.1
Custom DNS Suffixes	This host can obtain an IPv4 address and other networking parameters automatically if your network includes a DHCP server. If not, ask your network administrator for the appropriate settings.

IPv4 Configuration

This host can obtain network settings automatically if your network includes a DHCP server. If it does not, the following settings must be specified:

☐ Disable IPv4 configuration for management network

☒ Use dynamic IPv4 address and network configuration

☐ Set static IPv4 address and network configuration:

IPv4 Address	[10.76.235.219]
Subnet Mask	[255.255.255.0]
Default Gateway	[10.76.235.1]

<Up/Down> Select <Space> Mark Selected <Enter> OK <Esc> Cancel

<Up/Down> Select <Enter> Change <Esc> Exit

VMware ESXi 7.0.0 (VMKernel Release Build 20133114)

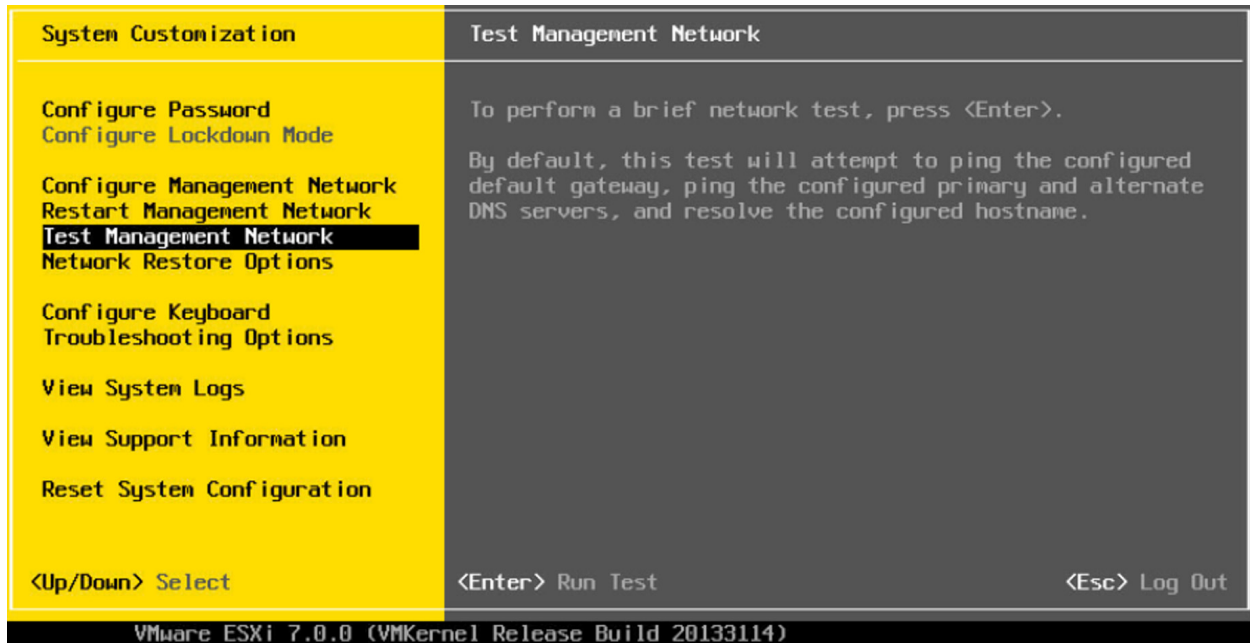
- There are other options you have on the Network Configuration page; depending on how your network is provisioned you can configure your server’s network accordingly. ESXi-ARM also has support for IPv6. You can also set up up your vLAN tag, DNS configuration (commonly, it is automatically filled when you select the DHCP (Dynamic Host Control Protocol) option).

Configure Management Network	IPv6 Configuration
Network Adapters VLAN (optional)	IPv6 is enabled.
IPv4 Configuration	Automatic
IPv6 Configuration	IPv6 Addresses: fe80::2a0:c9ff:fe00:0/64
DNS Configuration	Default Gateway: Not set
Custom DNS Suffixes	This host can obtain IPv6 addresses and other networking parameters automatically if your network includes a DHCPv6 server or supports Router Advertisement.

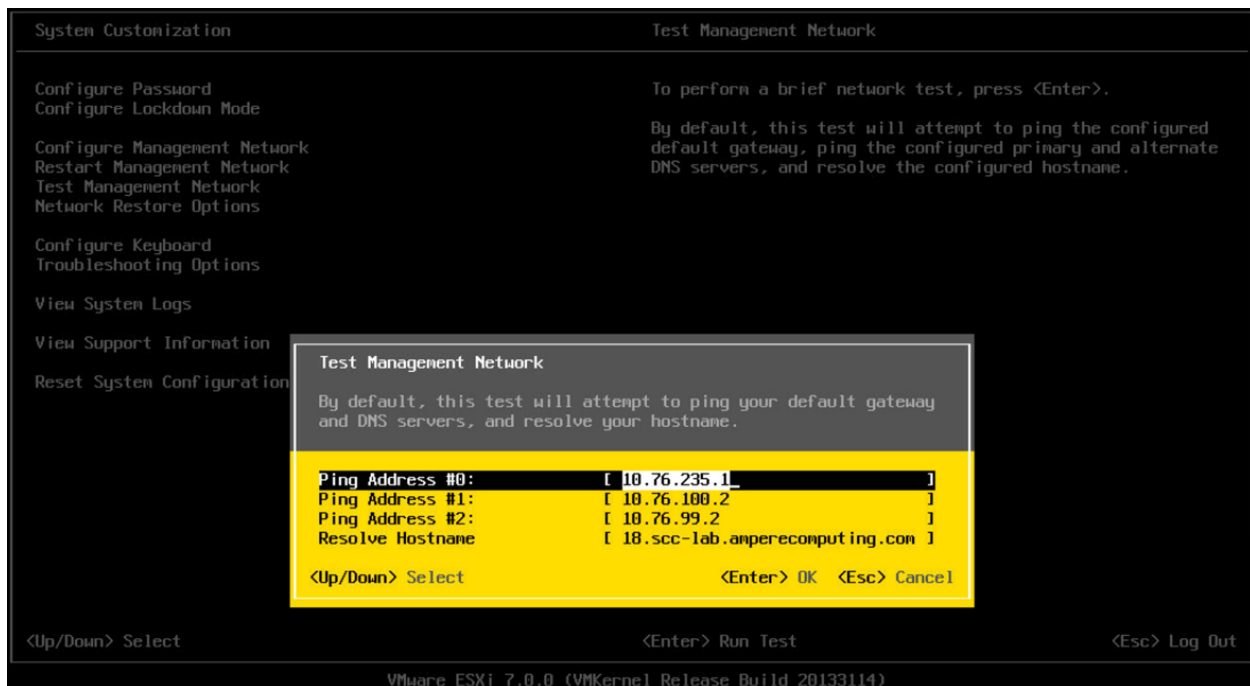
<Up/Down> Select <Enter> Change <Esc> Exit

VMware ESXi 7.0.0 (VMKernel Release Build 20133114)

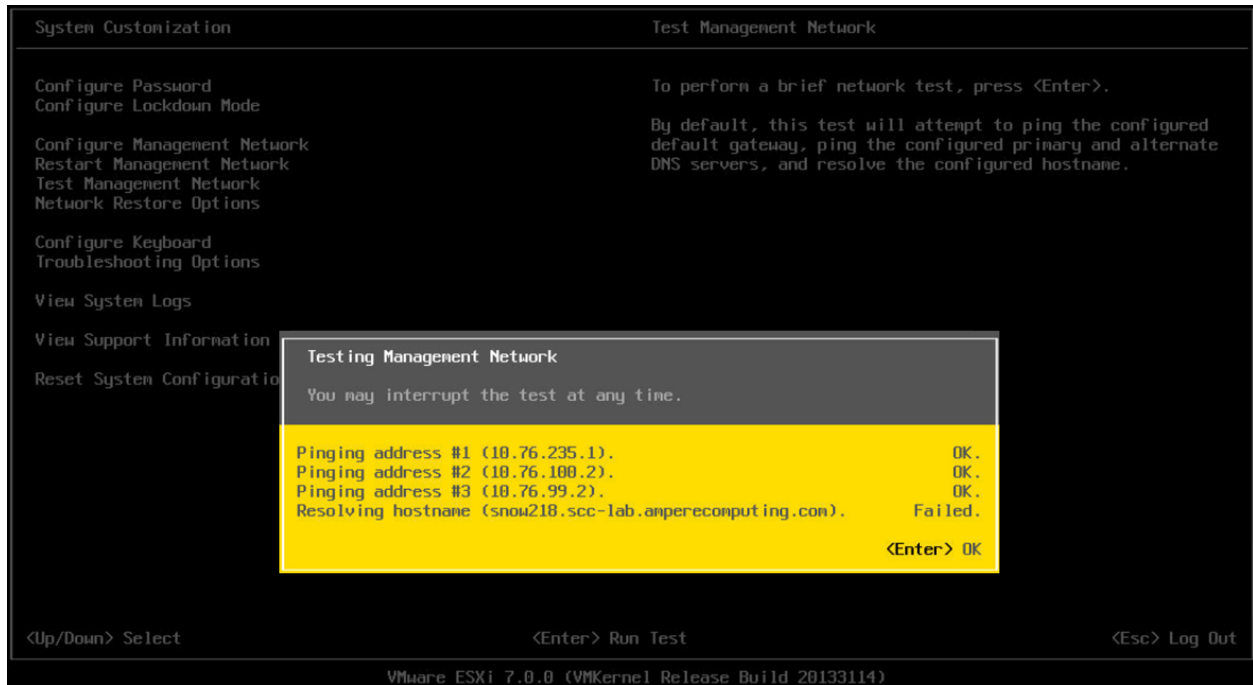
- To Test the network configuration of your ESXi-ARM server, choose the “Test Management Network” option and press “Enter”.



- You might get IP values pre-populated in the pop-up windows, on which you can run a ping test again. It is recommended that you use your vLAN Gateway IP address, DHCP server IP address, and an external IP address (if you have Internet access to the server).



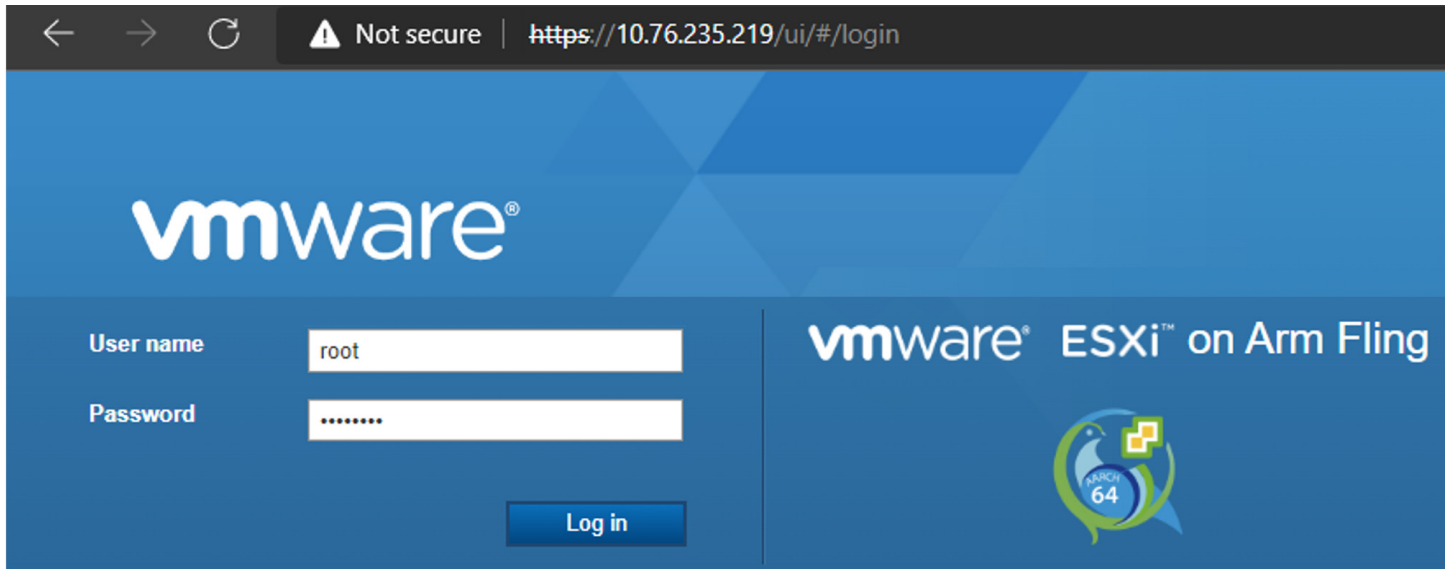
- Press “Enter” to run the test. All the outputs should come as “OK”.



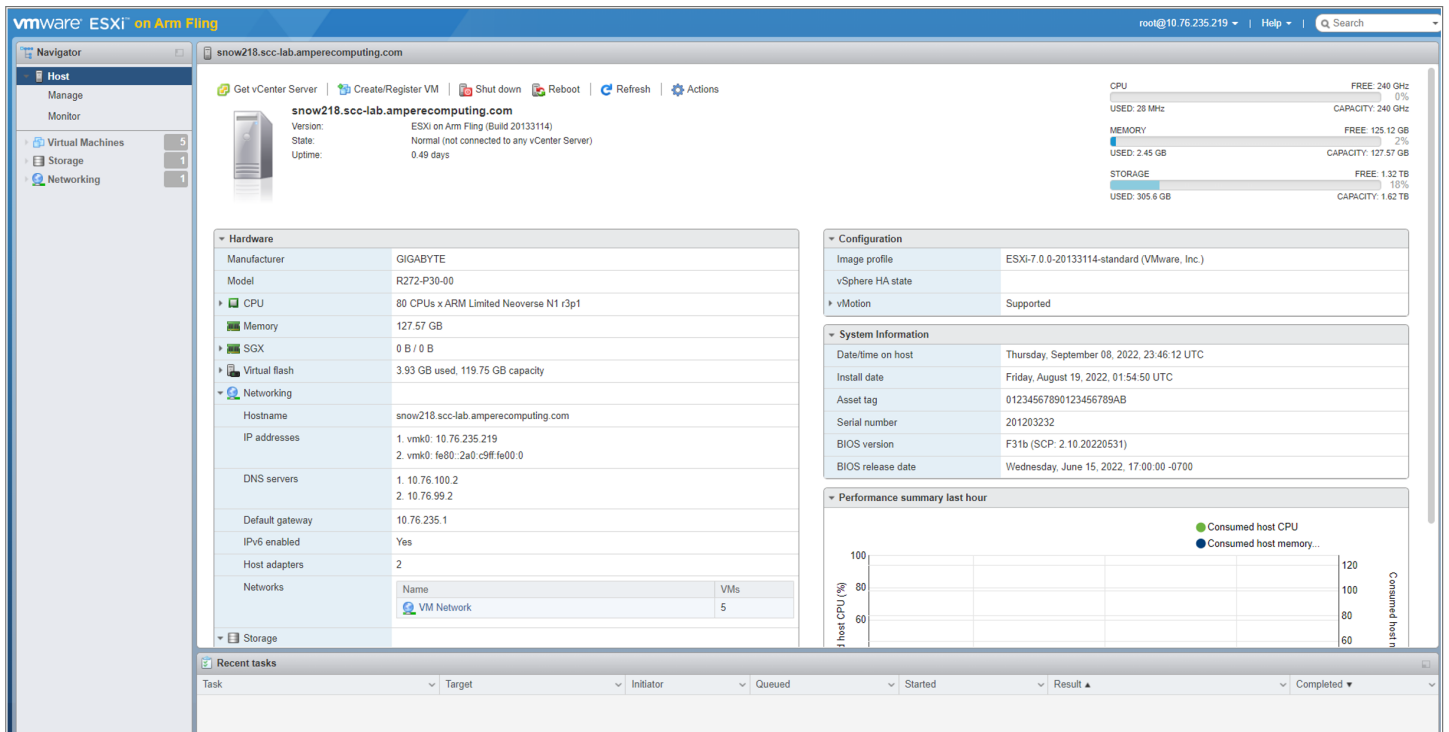
- There are other administrative options available for managing the ESXi-ARM server which we will not discuss here. For more information, refer to the VMware ESXi Guide.

Launching ESXi-ARM Server UI

Launch any browser and connect to the `https://<IP address>` of your ESXi-ARM server. Upon landing on to the login page, enter your ESXi-ARM server credentials to login.



Congratulations! You now can create VMs (Virtual Machines) and configure your ESXi-ARM host via the UI.



You can now add your ESXi-ARM server to your VMware Virtual Center Server.

Supported vCenter Servers

vCenter Server currently cannot be hosted on ARM based servers. Customers who wish to manage their ESXi-ARM server can use vCenter Server running on a x86 Server to manage their ESXi-ARM host. Refer to the [VMware ARM Flings website](#) for supported vCenter Servers versions.

VMware Supported ESXi-ARM Hardware

- [Systems available from multiple retailers](#) (official Ampere distributors' link)
- [Avantek Ampere Altra Mt. Snow 2U Server](#) (online store link)
- [Avantek Ampere Altra Workstation](#) (online store link)
- Ampere Computing eMAG-based systems from [Avantek](#) and Lenovo (HR330A, HR350A)
- [Arm Neoverse N1 System Development Platform](#)
- Ampere Computing Altra-based shapes from Oracle Cloud Infrastructure (experimental)

Note: Links to the supported hardware mentioned above are from the VMware Flings Supported Hardware page at the time of this writing. Visit the [VMware Flings Supported Hardware page](#) for the latest update.

Document Revision History

ISSUE	DATE	DESCRIPTION
1.00	October 7, 2022	Initial release.

October 7, 2022

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