

Instructions for Astra Linux Common Edition 2.12 OS installation within VMware vSphere infrastructure

The target audience: engineers

- [Creating a Virtual Machine with the New Virtual Machine Wizard.](#)
- [VM launch](#)
- [OS installation](#)



This article is applicable to:

- Astra Linux Common Edition 2.12.



List of sources used

VMware's Product documentation and Technical Articles were used.

<https://docs.vmware.com/en/VMware-vSphere/index.html>.



VMware vSphere hypervisor is needed to create a virtual machine.

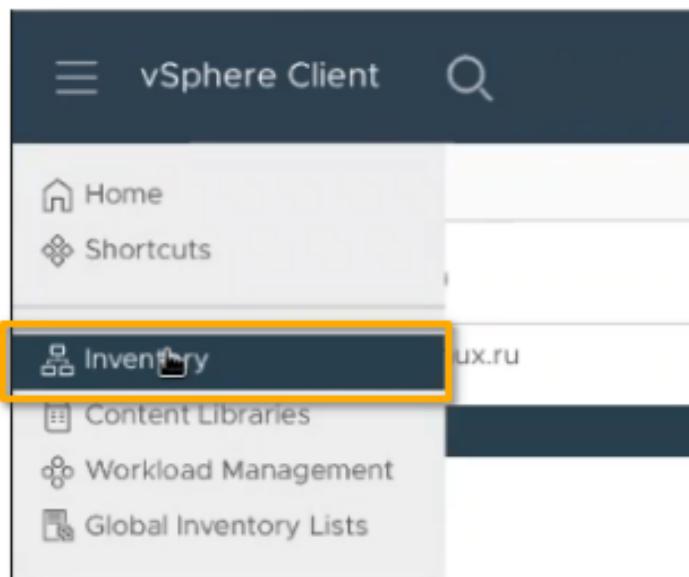
A [hypervisor](#), also known as a virtual machine monitor or VMM, is software that creates and runs virtual machines (VMs). A hypervisor allows one host computer to support multiple guest VMs by virtually sharing its resources, such as memory and processing.

<https://www.vmware.com/products/vsphere.html>

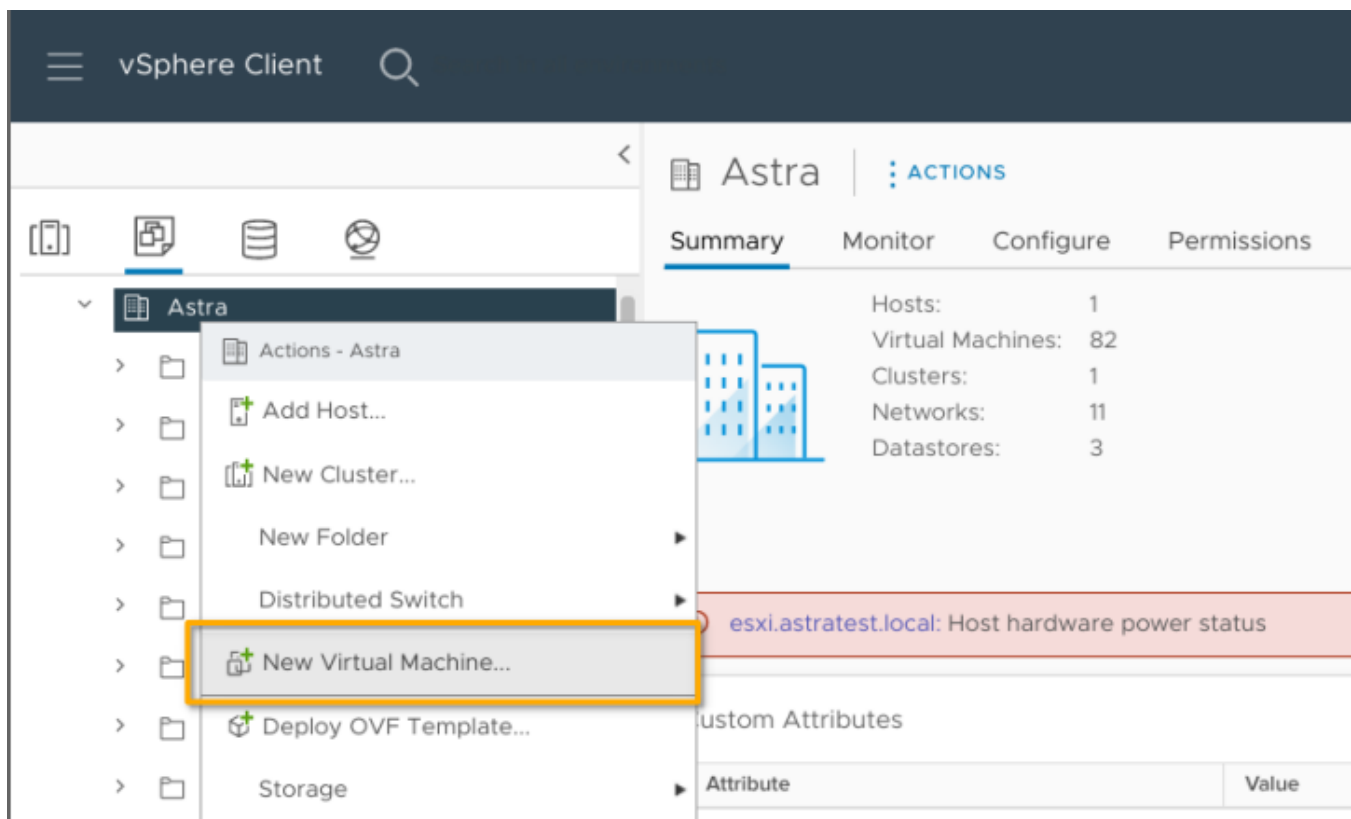
Creating a Virtual Machine with the New Virtual Machine Wizard.

https://docs.vmware.com/en/VMware-vSphere/7.0/com.vmware.vsphere.vm_admin.doc/GUID-AE8AFBF1-75D1-4172-988C-378C35C9FAF2.html

To create a new VM launch vSphere Client, select **Inventory** in the **Main Menu**.



Right-click any inventory object (such as a data center, folder, cluster, resource pool, or host) to assign it a parent object for VM, and then select New Virtual Machine.



In a **New Virtual Machine** window on the **1 Select a creation type** page, select **Create a new virtual machine** and click **Next**.

New Virtual Machine

1 Select a creation type

2 Select a name and folder

3 Select a compute resource

4 Select storage

5 Select compatibility

6 Select a guest OS

7 Customize hardware

8 Ready to complete

Select a creation type

How would you like to create a virtual machine?

Create a new virtual machine

Deploy from template

Clone an existing virtual machine

Clone virtual machine to template

Clone template to template

Convert template to virtual machine

This option guides you through creating a new virtual machine. You will be able to customize processors, memory, network connections, and storage. You will need to install a guest operating system after creation.

2

CANCEL

BACK

NEXT

On the **2 Select a name and folder** page, enter a unique name and select a deployment location. VM's name can contain any characters, numbers, symbols and spaces. Click **Next**.

New Virtual Machine



1 Select a creation type

2 Select a name and folder

3 Select a compute resource

4 Select storage

5 Select compatibility

6 Select a guest OS

7 Customize hardware

8 Ready to complete

Select a name and folder

Specify a unique name and target location

Virtual machine name:

install-test

Select a location for the virtual machine.

vc:sa01.stand01.astralinux.ru

> Astra

CANCEL

BACK

NEXT

On the **3 Select a compute resource** page, select the host, cluster, resource pool, or vApp where the VM will run and click **Next**. If creating the VM at the selected location causes compatibility problems, an alarm appears in the Compatibility pane.

New Virtual Machine



1 Select a creation type

2 Select a name and folder

3 Select a compute resource

4 Select storage

5 Select compatibility

6 Select a guest OS

7 Customize hardware

8 Ready to complete

Select a compute resource

Select the destination compute resource for this operation

> Astra

1 Stand01

esxi.astratest.local

Compatibility

✓ Compatibility checks succeeded.

CANCEL

BACK

NEXT

On the **4 Select storage** page, choose next:

- **VM storage type**, by default – **Standard**

- **VM Storage Policy**, by default – **Datastore Default**.
- a datastore or datastore cluster where VM's files should be stored in

Click **Next**.

New Virtual Machine

1 Select a creation type

2 Select a name and folder

3 Select a compute resource

4 Select storage

5 Select compatibility

6 Select a guest OS

7 Customize hardware

8 Ready to complete

Select storage

Select the storage for the configuration and disk files

VM storage type

Standard

Encrypt this virtual machine (Requires Key Management Server)

☐

VM Storage Policy

Datastore Default

☐

Disable Storage DRS for this virtual machine

Name	Storage Compatibility	Capacity	Provisioned	Free	Type	Cluster	Storage DRS
storage	--	10.79 TB	0	7.69 TB	VMFS 6		

1 item

Compatibility

✓

Compatibility checks succeeded.

CANCEL

BACK

NEXT

On the 5 Select compatibility page, select the VM compatibility with ESXi host versions and click **Next**. To have an access to latest hardware features, select the latest ESXi host version.

New Virtual Machine

1 Select a creation type

2 Select a name and folder

3 Select a compute resource

4 Select storage

5 Select compatibility

6 Select a guest OS

7 Customize hardware

8 Ready to complete

Select compatibility

Select compatibility for this virtual machine depending on the hosts in your environment

The host or cluster supports more than one VMware virtual machine version. Select a compatibility for the virtual machine.

Compatible with:

ESXi 7.0 U2 and later

ESX/ESXi 3.5 and later

ESX/ESXi 4.0 and later

ESXi 5.0 and later

ESXi 5.1 and later

ESXi 5.5 and later

ESXi 6.0 and later

Workstation 12 and later

ESXi 6.5 and later

ESXi 6.7 and later

ESXi 6.7 U2 and later

Workstation 15 and later

ESXi 7.0 and later

ESXi 7.0 U1 and later

ESXi 7.0 U2 and later

This virtual machine is compatible with ESXi 7.0 U2 and later, which provides the best performance and latest features available in ESXi 7.0 U2.

CANCEL

BACK

NEXT

On the **6 Select a guest OS** page specify:

- **Guest OS Family – Linux**
- **Guest OS Version – Other 4.x or later Linux (64-bit) or Other 5.x or later Linux (64-bit).**

Click **Next**.

New Virtual Machine

1 Select a creation type
2 Select a name and folder
3 Select a compute resource
4 Select storage
5 Select compatibility
6 Select a guest OS
7 Customize hardware
8 Ready to complete

Select a guest OS
Choose the guest OS that will be installed on the virtual machine

Identifying the best operating system here allows the wizard to provide the appropriate defaults for the operating system installation.

Guest OS Family: Linux

Guest OS Version: Amazon Linux 2 (64-bit)
Asianux 3 (64-bit)
Asianux 3 (32-bit)
Red Hat Fedora (64-bit)
Red Hat Fedora (32-bit)
Oracle Linux 8 (64-bit)
Oracle Linux 7 (64-bit)
Oracle Linux 6 (64-bit)
Oracle Linux 6 (32-bit)
Oracle Linux 4/5 (64-bit)
Oracle Linux 4/5 (32-bit)
Ubuntu Linux (64-bit)
Ubuntu Linux (32-bit)
Other 5.x or later Linux (64-bit)
Other 5.x or later Linux (32-bit)
Other 4.x Linux (64-bit)
Other 4.x Linux (32-bit)
Other 3.x Linux (64-bit)
Other 3.x Linux (32-bit)
Other 2.6.x Linux (64-bit)
Other 2.6.x Linux (32-bit)

Compatibility: ESXi 7.0 U2 and later (version 19)

CANCEL BACK NEXT



Warning!

Important: Do not change the firmware after OS is installed. Operating system installer partitions the disk in a particular format, depending on the firmware version. If the firmware be changed, it will not be able to boot the guest OS.

On the **7 Customize hardware** page, configure the VM hardware and options.



Note.

You can leave the defaults and configure VM hardware and options later. Some actions require VM to be powered off for changes to take effect.

Configuring VM Hardware:

- **CPU** – Configuring Virtual CPU allows to add, change, or configure CPU resources to improve VM performance.
- **Memory** – Configuring Virtual Memory allows to add, change, or configure VM memory resources or options to enhance VM performance.
- **New Hard disk*** – Configuring Virtual Disk allows to add large-capacity virtual disks to VMs and add more space to existing disks, even when the VM is running.
- **New SCSI controller*** – This setting allows to tweak SCSI, SATA, and NVMe Storage Controller conditions, limitations, and compatibility. To access virtual disks and SCSI devices, a VM uses storage controllers, which are added by default when you create the VM. You can add additional controllers or change the controller type after VM creation.
- **New Network*** – Configuring VM Network. vSphere networking features provide communication between VMs on the same host, on different hosts, and between other virtual and physical machines. It is possible to select or change an adapter type, a network connection, and network connection if needed at VM startup.
- **New CD/DVD Drive*** – It is necessary to select the device from which the OS will be installed (please use a Select File form to specify **Datastore ISO File**). Set the **Connect At Power On** status, to initialize CD/DVD-Drive at VM startup.

New Virtual Machine

1 Select a creation type
2 Select a name and folder
3 Select a compute resource
4 Select storage
5 Select compatibility
6 Select a guest OS
7 Customize hardware
8 Ready to complete

Customize hardware
Configure the virtual machine hardware

Virtual Hardware VM Options

ADD NEW DEVICE

> CPU * 1 2 1

> Memory * 2 2 GB

> New Hard disk * 3 16 GB

> New SCSI controller * VMware Paravirtual

> New Network * 4 VM Network Connect...

> New CD/DVD Drive * Client Device Connect...

> Video card * 5 Datastore ISO File

> Security Devices Not Configured

VMCI device

> Other Additional Hardware

CANCEL BACK NEXT

Select File

Datstores	Contents	Information
> horizon-orel-5.10-2.4.43-vm1	1.7.0-29.03.2021_07.02.iso	Name: orel-current-2-12-43.iso
> horizon-orel-ataatin	alse-1.7-packer-netinst.iso	Size: 4.35 GB
> horizon-orel-atodinov	orel-current-2-12-43.iso	Modified: 11/08/2021, 11:20:30 AM
> horizon-orel-support2	orel-current.iso	Encrypted: No
> horizon-orel-template	orel-current_18_01_21.iso	
> horizon-orel-vtkhonov	smolensk-1.6-20.06.2018_15.56.iso	
> ISO	ubuntu-16.04.7-desktop-amd64.iso	
> Orel-2-12-41-Horizon	ubuntu-18.04.5-desktop-amd64.iso	
> Orel-2-12-42-Clear	ubuntu-20.04.3-desktop-amd64.iso	
> Orel-2-12-42-clear-uefi-secureb...	VMware-vCenter-Server-Appliance-7.0.2.00200-17958471-patch-FP.iso	
> Orel-2-12-42-test	VMware-vCenter-Server-Appliance-7.0.2.00500-18455184-patch-FP.iso	
> Orel-2.12.40	Win10_21H1_Russian_x64.iso	
> Orel-Horizon-SUP2239		
> Orel-New		

File Type: ISO Image (*.iso)

CANCEL OK

> New Network * VM Network Connect...

> New CD/DVD Drive * Datastore ISO File

Status

Connect At Power On

- **Security Devices** – Securing VMs with Virtual Trusted Platform Module.
- **Other** – Configuring other VM Device. Not all devices are available to add and configure.

Configuring VM Options:

- **General Options** – in this section, it's possible to view following settings:
 - VM name
 - VM configuration file location
 - VM working location
 - Guest operating system and OS version

Currently, it's allowed only to edit the VM name.

- **VMware Remote Console Options** – VM lock settings and simultaneous connections settings.
- **Encryption** – VM encryption settings.
- **Power management** – VM suspend behavior.
- **VMware Tools** – VMware Tools scripts. It is possible to set up automatic VMware Tools update, automatic time synchronization between VM /guest and hypervisor at startup or resume, and periodical time synchronization .

- **Boot Options** – VM boot options. By default, the Firmware field is set to EFI. Secure Boot option needs to be disabled because it's not supported by FPP (Full Product Package) Astra Linux Common Edition 2.12..

New Virtual Machine

- ✓ 1 Select a creation type
- ✓ 2 Select a name and folder
- ✓ 3 Select a compute resource
- ✓ 4 Select storage
- ✓ 5 Select compatibility
- ✓ 6 Select a guest OS
- 7 Customize hardware
- 8 Ready to complete

Synchronize Time with Host ⓘ

Run VMware Tools Scripts

☒ Synchronize at startup and resume (recommended)

☐ Synchronize time periodically

☒ After powering on

☒ After resuming

☒ Before suspending


☒ Before shutting down guest

▼ Boot Options

Firmware	EFI (recommended) ▼
Secure Boot	<input type="checkbox"/> Enabled
Boot Delay	When powering on or resetting, delay boot order by 0 milliseconds
Force EFI setup	<input type="checkbox"/> During the next boot, force entry into the EFI setup screen
Failed Boot Recovery	<input type="checkbox"/> If the VM fails to find boot device, automatically retry after 10 seconds
> Advanced	Expand for advanced settings
> Fibre Channel NPIV	Expand for Fibre Channel NPIV settings

CANCEL
BACK
NEXT


- **Advanced** – advanced VM options:
 - Acceleration and logging settings
 - Debugging and statistics
 - Swap file location
 - Latency sensitivity
- **Fibre Channel NPIV** – allows to change the virtual node and port World Wide Names (WWNs).





 You can view or change VM settings within vSphere client. Not every setting is available for either VM, defaults are preferable for some of them. Read more [here](#).

After completing hardware and VM settings, click **Next**.

On the **8 Ready to complete** page, review details and click **Finish**. Creation and configuration complete.

VM launch

In the vSphere Client, select the VM and start it by clicking the **Power On** button  at the top of the window. Wherein the **Power Status** parameter will be displayed as **Powered On**.

install-test qweqwe !@)(*#&!)(*#&!)# |     | ACTIONS

Summary Monitor Configure Permissions Datastores Networks Snapshots Updates


Guest OS

Powered Off


LAUNCH REMOTE CONSOLE ⓘ

LAUNCH WEB CONSOLE

Power Status

 Powered Off

Guest OS

 Other 5.x or later Linux (64-bit)

VMware Tools

Not running, not installed ⓘ

DNS Name

IP Addresses

Encryption

Not encrypted

Capacity and Usage

Last updated at 4:20 PM

CPU

0 MHz used 2 CPUs allocated

Memory

0 MB used 2 GB allocated

Storage

16 GB used 19.69 GB allocated

[VIEW STATS](#)

VM Hardware


CPU 2 CPU(s), 0 MHz used

Related Objects

Cluster

Tags

OS installation

Select the VM to install OS, and launch console with the **Launch Console** button . In the OS launch window, specify an installation mode and then follow the standard instructions (PDF to download – [here](#)). Setup and Maintenance Instructions for Astra Linux Common Edition 2.12. – [here](#).



After OS installed and configured, VMware Tools should be installed by entering following string in a Fly terminal (<Alt+T>)

```
apt install open-vm-tools open-vm-tools-desktop
```


VMware Tools improves the interaction between VM and hypervisor, increases the performance of VM's operating system.

Please note that VMware Tools set is only available for Astra Linux Common Edition 2.12.43 and later.

Correct OS and VMware Tools installation and launch are indicated by the **Running** state and **VMware Tools** version displayed.

[Summary](#) [Monitor](#) [Configure](#) [Permissions](#) [Datastores](#) [Networks](#) [Snapshots](#) [Updates](#)

Guest OS



LAUNCH REMOTE CONSOLE

LAUNCH WEB CONSOLE

Power Status

Powered On

Guest OS

Other 5.x or later Linux (64-bit)

VMware Tools

Running, version:11360 (Guest Managed)

DNS Name (1)

samba

IP Addresses (2)

192.168.56.12
fe80::250:56ff:fe81:a10b

Encryption

Not encrypted

Capacity and Usage

Last updated at 4:32 PM

CPU

0 MHz used

4 CPUs allocated

Memory

40 MB used

4 GB allocated

Storage

33.38 GB used

33.38 GB allocated

[VIEW STATS](#)

