Installation Guide

AWS Elemental Server

Version 2.17

AWS Elemental Server: Installation Guide

Table of Contents

This is version 2.17 of the AWS Elemental Server documentation. This is the latest version. For prior versions, see the *Previous Versions* section of AWS Elemental Conductor File and AWS Elemental Server Documentation.

About This Guide

This guide describes how to install AWS Elemental Server software for the first time. The reference documents for the different types of installation are listed in the following table.

Installation type	Description
Node-locked licenses on AWS Elemental appliances	You received AWS Elemental Appliance edition hardware, which comes with the appropriate licenses already installed. To complete setup of each node, see the getting started guide that came in your product box or Cabling Setup. If you're using AWS Elemental Conductor File to control your AWS Elemental Server nodes, see AWS Elemental Conductor File Installation Guide as well.
Node-locked licenses on hardware	You're installing unique licenses for each piece of physical, qualified hardware that's running AWS Elemental software. See Installing AWS Elemental Server Node-locked Licenses on Qualified Hardware. If you're using AWS Elemental Conductor File to control your AWS Elemental Server nodes, see AWS Elemental Conductor File Installation Guide as well.
Node-locked licenses on a virtual machine (VM)	You're installing unique licenses for each VM guest that's running AWS Elemental software. See Installing AWS Elemental Server Node-locked Licenses on a Virtual Machine (VM).

Installation type	Description
	If you're using AWS Elemental Conductor File to control your AWS Elemental Server nodes, see AWS Elemental Conductor File Installation Guide as well.
Node-locked licenses on a kernel-based virtual machine (KVM)	You're installing unique licenses for each VM guest that's running AWS Elemental software. See Installing AWS Elemental Server Node-locked Licenses on a Kernel-Based Virtual Machine (KVM). If you're using AWS Elemental Conductor File to control your AWS Elemental Server nodes, see AWS Elemental Conductor File Installation Guide as well.
Pooled licenses on a virtual machine (VM)	You're installing pooled licenses for each VM guest that's running AWS Elemental software. The AWS Elemental Conductor File nodes hold the license pool and disseminate licenses to the worker nodes. All worker nodes have the same licensing options. See the pooled license topic in AWS Elemental Conductor File Installation Guide.

All of these scenarios get you through phase 1 of the installation process: the preconfigured operating system is installed, the software is installed, eth0 is configured, and licenses are installed. Phase 2 is configuration of the software and is addressed in Configuring a Stand-alone Node Quick Guide.

Note

To receive assistance with your AWS Elemental appliances and software products, see the forums and other helpful tools on the AWS Elemental Support Center.

Installing AWS Elemental Server Node-locked Licenses on Qualified Hardware

This section is for IT administrators who perform the first-time installation of AWS Elemental Server software on a hardware unit that is considered qualified hardware.

For information on hardware that AWS Elemental has qualified, contact your AWS Elemental Sales representative or contact AWS Elemental Support through your company's Private Space in AWS Elemental Support Center.

Prerequisite Knowledge

It is assumed that you know how to:

- Log in to the AWS Elemental machine over SSH, in order to work via the command line interface.
- Use Windows Share (on a Windows computer), Samba (on a Mac workstation), or a utility such as Secure Copy Protocol (SCP) (on a Linux workstation) to move files.
- Access recently downloaded files on your workstation.

The procedure for installing any version of AWS Elemental Server is the same; only the version number in the file name changes. In this procedure, we show how to install version 2.17.3.12345 of the software.

Installation consists of four parts:

1. Downloading files from AWS Elemental
2. Installing the host operating system (OS)
3. Installing the AWS Elemental software
4. Setting up licensing

Topics

Step A: Prepare Hardware and Download Files

Prepare Hardware and Network

To prepare your hardware and network, make sure you have done the following:

- Physically installed the hardware unit.
- Set up the unit as a node on your network.
- Configured network cards and ensured that they're able to reach other machines on the network.
- Set up a method, such as SCP, for transferring files from your workstation to the node.

Note Your Activation Code

You should have received an email with your activation code. You need this number for the installation.

If you're installing AWS Elemental software on more than one system, you received an activation code for each system. Decide and note which activation code you will use for each unit. The codes are not tied ahead of time to any specific system, but you cannot use the same code on more than one.

Download Files

Download the installation files for each unique AWS Elemental product that you're using.

To download installation files

1. Log in to AWS Elemental Support Center Activations. For detailed steps to download installation files, see Downloading AWS Elemental Server Software.
2. Download your files.

   You need the following files for each unique piece of AWS Elemental software that you're installing.

- A kickstart (`.iso`) file for creating a USB boot drive. For example, `centos-20161028T12270-production-usb.iso`.

  You use this file to put a preconfigured installation of your operating system on your physical machine.

- An installation (`.run`) file for the AWS Elemental software itself. For example, `elemental_production_server_2.17.3.44452.run`.

  Make sure that you download the right version of software for the processing architecture that you need, either CPU-only or GPU-enabled.

For example, if you're installing AWS Elemental Conductor File on two systems and AWS Elemental Server on five systems, you need to download two `.iso` files and two `.run` files.

Step B: Install (Kickstart) the Operating System Software

You must install a configured operating system from an `.iso` file onto each physical machine that will be running AWS Elemental software. Doing so is referred to as “kickstarting the system”.

Make sure that you install the right version of the operating system with each piece of software. The correct `.iso` file is always provided with the `.run` file under **Activations** at AWS Elemental Support Center Activations.

Create a Boot USB Drive or DVD

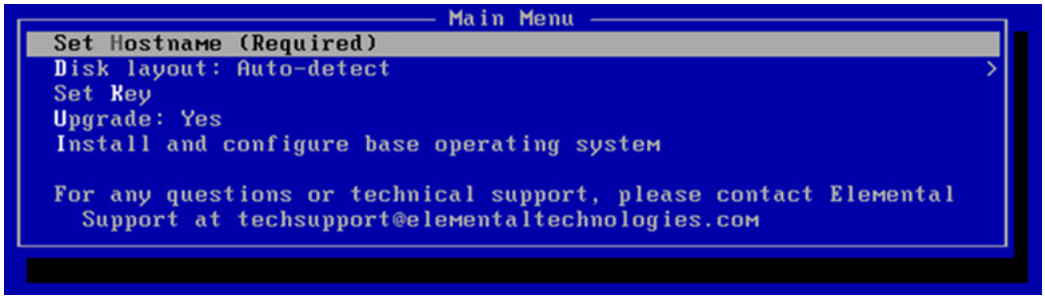
Do this from your workstation.

Use a third-party utility (such as PowerISO or ISO2USB) to create a bootable DVD or USB drive from your `.iso` file. Instructions for using these utilities can be found in the AWS Elemental Support Center knowledge base.

Install the Operating System at Each Node

Do this from each Elemental node.

1. Insert the DVD or USB thumb drive into the hardware unit.
2. Boot up or reboot the system. The installer automatically starta.



3. Use the arrow keys to select each option and do the following:

Menu Option	Instructions
`Set Hostname`	Change the hostname to a useful name such as **`server-01`** or **`server-chicago-01`** . Do not use localhost as the hostname! Do not use periods or underscores in the hostname
`Disk layout: Auto-detect`	Leave this set at Auto-detect.
`Set Key`	Press the down arrow to skip this option.
`Upgrade`	Choose **`No`**. Choosing **`No`** deletes all data from the hardware unit. Never choose **`Yes`** when doing a new install.
`Install and configure base operating system`	Press **`Enter`** to begin the OS installation.

   The operating system is installed. From now on, the system runs this customized version of your Linux operating system.

4. Repeat the above steps on each system, using the `.iso` file that goes with the AWS Elementalsoftware you are installing on each system.

Step C: Install the AWS Elemental Software

These steps must be performed on each node where you are installing AWS Elemental software, either directly at the machine or from your workstation via SSH.

Make sure that you use the .run file that corresponds to the .iso file that you used to set up the operating system on the node. That is, install software on the nodes that you kickstarted with the .iso and worker software on nodes that you kickstarted with the worker .iso.

To install the software

1. At the Linux command line, log in with the *elemental* user credentials.
2. Run the installer as follows. Use the actual filename of your .run file, rather than the example below.

   For GPU and CPU versions of the software.

   ```
   [elemental@hostname ~]$ sudo sh ./elemental_production_server_2.17.n.nnnnn.run -l -z -t
   ```

   For CPU-only versions of the software.

   ```
   [elemental@hostname ~]$ sudo sh ./elemental_production_server_cpu_2.17.n.nnnnn.run -l -z -t
   ```

   Where -l is a letter, not a number.
3. You are prompted as described in the table below.

Prompt	Action
`Do you agree to these terms?`	This prompt appears after you have paged through the EULA (End User License Agreement). Enter **`Yes`** or **`No`**. (You must enter Yes to continue.)

Prompt	Action
`Enter this server's Hostname`	Type the hostname of this hardware unit. For example, **`server-01`**
`Is eth0 a management interface?`	Type **`Yes`**.
`Does eth0 use DHCP to get its IP address?`	Type **`Yes`** to use DHCP or type **`No`** to enter a static IP address. If you plan to bond eth0 and eth1 (which you will set up in a later phase), we recommend that you enter a static IP address and set up eth0, eth1, and bond0 all on the same subnet.
`Enter eth0's IP address:`	If you chose static, type the IP address for this hardware unit.
`Enter eth0's NETMASK:`	If you chose static, type the netmask for this hardware unit.
`Enter eth0's Gateway (or type **none**):`	If you chose static, type **none** or type the gateway for this hardware unit.
`Keep this configured nameserver: 10.6.16.10?`	Skip; you set up a nameserver in the next phase of configuration.
`Would you like to configure eth1?`	Type **No**; you can configure eth1 in the next phase of the configuration.
`The firewall for this system is currently disabled. Would you like to enable it?`	Skip; you set up the firewall in the next phase of configuration.
`Select time zone ('n' for more)`	Enter the time zone you want to show on the web interface of the nodes. This setting does not affect activity via SSH or via the REST API.

Prompt	Action
`Would you like to start the Elemental service now?`	Type **Yes**.

Then the software is installed. Finally, this message appears:

```
Installation and configuration complete!
Please open a web browser and point it to http://xxx.xxx.xxx.xxx to get to the web
 interface.
Enjoy!
```

4. Start a web browser and start the AWS Elemental Server web interface by typing the following:

```
http://<hostname>
```

Make sure the web interface displays.

Step D: Set-Up Licensing

At this point, the software is installed but it is not yet enabled. To begin using the software, install a valid license file on each node.

To do so, follow the detailed steps described in the following table.

Step	Where to Perform Step	Start Step With	Finish Step With
Step a: Retrieve Activation Code	Your workstation	Activation email	Activation code
Step b: Generate License Activation Key File	The AWS Elemental system, via an SSH client like PuTTY	Activation code	Key file (`.key`)
Step c: Download Licenses from the	Your workstation	Key file (`.key`)	Tarball file (`.tgz`)

Step	Where to Perform Step	Start Step With	Finish Step With
AWS Elemental User Community			
Step d: Install the License Files	Your workstation	Unlicensed software with limited functionality	Fully licensed, full-feature software

Step a: Retrieve Activation Code

You should have received an email containing an activation code. If you're installing software for more than one node, you will have received a separate code for each one.

If you didn't receive this email or have lost it, contact AWS Elemental Support through your company's Private Space in AWS Elemental Support Center.

Step b: Generate a License Activation Key File

The operating system that you installed on your hardware has a utility you can use to generate an activation key file.

To generate an activation key file

1. Using an SSH client such as PuTTY, log in to the hardware unit with the *elemental* user credentials.

   You are logged in at the home directory (/elemental).
2. Enter this command.

   ```
   [elemental@hostname ~] ./keygen
   ```
3. At the prompt, enter the activation code. The following file is created in the home directory: `activation_<hostname of the system>.key .`
4. Copy the file to your workstation. For example:

   - Use SCP or a similar utility on a Linux workstation.

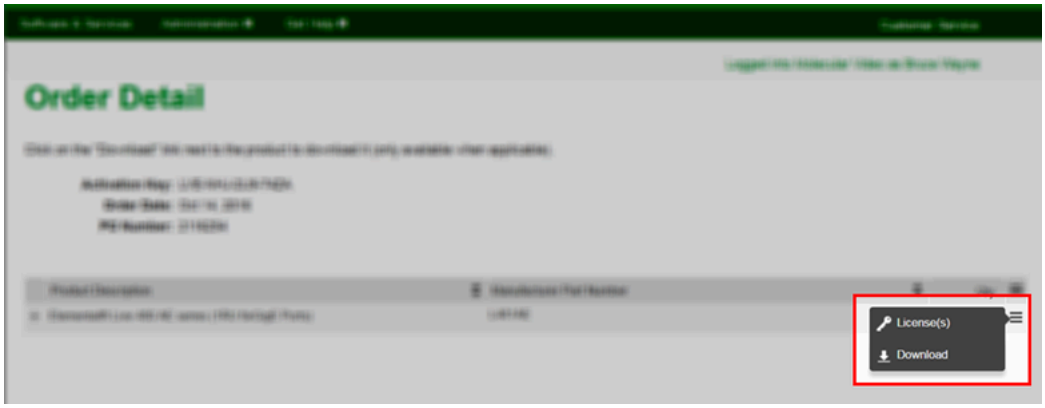
Use the *elemental* user credentials and copy and paste the file from the network share.

5. Repeat these steps for each AWS Elemental Server hardware unit.

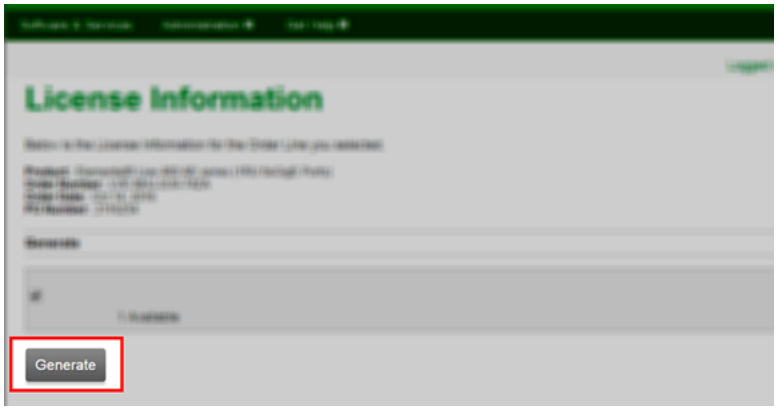
   - Make sure to log in to each hardware unit for each activation key file that you want to generate: each activation key file that you create must contain the hostname of the individual hardware unit.
   - Make sure to use a different activation code on each unit.

Step c: Download Licenses from the AWS Elemental User Community

1. Follow the instructions in Downloading AWS Elemental Server Software to get to the **Order Detail** page on the AWS Elemental Support Center Activations.
2. Hover over the three-bar icon on the right of the screen to bring up a small menu. Choose **License(s)**.

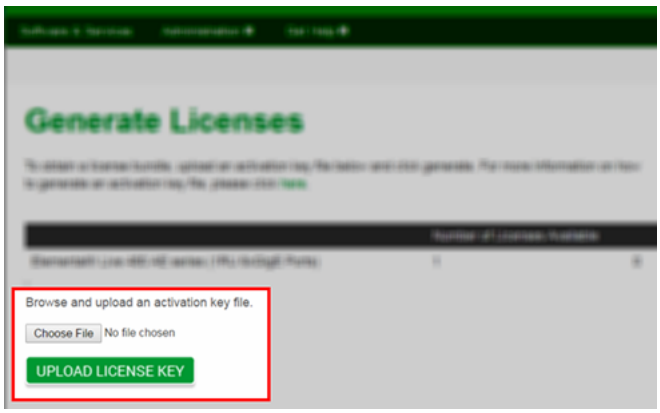


3. On the **License Information** page, choose **Generate**.

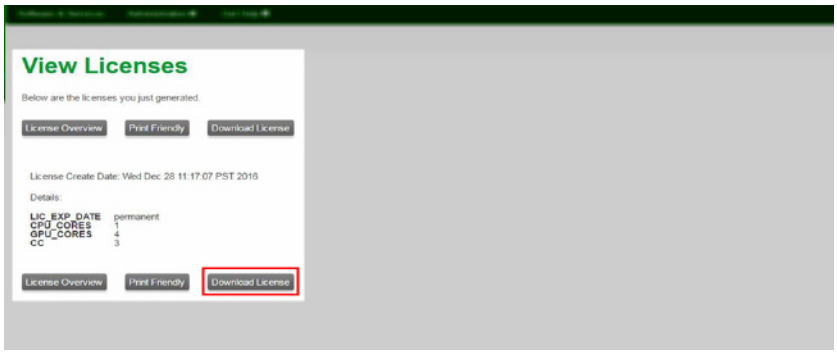


4. On the **Generate Licenses** page, select **Choose File** to browse to and select your `.key` file.

5. This returns you to the **Generate Licenses** page, with your `.key` file selected. Choose **Upload License Key**.



6. This takes you to the **View Licenses** page, where you can download a `.tgz` file. This is a compressed, aggregated file that contains all the license files that you need for this system.



7. Save the `.tgz` file to a place accessible to the AWS Elemental system that will be using this license, for example, a directory on your workstation called “licenses”. Make a note of the path.

   The files are named `lic-download-<hostname>.tgz`.

8. Repeat these steps for each hardware unit that will have AWS Elemental software.

Step d: Install the License Files

Now that you have a `.tgz` compressed license file for each instance of the software you are running, you must point the software to it.

From your workstation, perform the following steps for each newly installed AWS Elemental system.

1. Navigate to the directory where you saved the `.tgz` file and unpack it.

2. Bring up the web interface for the AWS Elemental Server system. From the main menu, select **Settings** > **Licenses**. The Licenses screen appears.
3. Select **Choose File** and navigate to the directory where you placed the license files. Select the file name with the hostname portion matching the hostname of this node.

4. Back on the Licenses screen, choose **Update**. The license file is installed.
5. Repeat steps 1 through 4 on each node.

Step E: Complete Node Configuration

You have now installed and performed basic configuration of AWS Elemental Server. To complete the node configuration, refer to the following.

Scenario	Guide
AWS Elemental Server in a stand-alone configuration. AWS Elemental Server is not managed by AWS Elemental Conductor File.	AWS Elemental Server Configuration Guide
AWS Elemental Server being controlled by AWS Elemental Conductor File. In other words, AWS Elemental Server is in a Conductor File cluster.	AWS Elemental Conductor File Configuration Guide

Installing AWS Elemental Server Node-locked Licenses on a Virtual Machine (VM)

This section is for IT administrators who perform the first-time installation of AWS Elemental Server software on a VM (virtual machine).

VM Guest Requirements

AWS Elemental software can run only on a virtual machine generated by VMware virtualization software. You must use VMware vCenter Server to create the VM. The vSphere client by itself will not work.

For version and system requirements and other information about VMware, see System Requirements for Virtual Machines (VMs).

Phase 1 Setup

This section explains how to perform the following on each blade:

- Create a virtual machine and install the AWS Elemental OVA.
- Install the licenses.
- Install the AWS Elemental Server software.
- Configure eth0 as the management interface on each virtual machine.

Prerequisite Knowledge

To complete this process, you must have the following knowledge:

- You have a basic understanding of server virtualization.
- You have installed and know how to use VMware Center and the VMware vSphere client interface, including Open Console.
- You know how to move files from a VM guest to other systems over the network. We recommend using a utility such as SCP.
- You know how to locate recently downloaded files.

The procedure for installing any version of AWS Elemental Server is the same; only the version number in the file name changes. In this procedure, we show how to install version 2.17.3.12345 of the software.

Installation consists of four parts:

1. Downloading files from AWS Elemental
2. Installing the host operating system (OS)
3. Installing the AWS Elemental software
4. Setting up licensing

Topics

Step A: Prepare Hardware and Download Files

Prepare Hardware and Network

To prepare your hardware and network, make sure you have done the following:

- Physically installed the hardware unit.
- Set up the unit as a node on your network.
- Configured network cards and ensured that they're able to reach other machines on the network.
- Set up a method, such as SCP, for transferring files from your workstation to the VM guest.

Note Your Activation Code

You should have received an email with your activation code. You need this number for the installation.

If you're installing AWS Elemental software on more than one system, you received an activation code for each system. Decide and note which activation code you will use for each unit. The codes are not tied ahead of time to any specific system, but you cannot use the same code on more than one.

Download Files

Download the installation files for each unique AWS Elemental product that you're using.

To download installation files

1. Log in to AWS Elemental Support Center Activations. For detailed steps to download installation files, see Downloading AWS Elemental Server Software.
2. Download your files.

   You need the following files for each unique piece of AWS Elemental software that you're installing.

   - A kickstart (`.ova`) file for creating a VM instance. For example, `centos-20161028T12270-production-usb.ova`.

     You will use this file to put a preconfigured installation of your operating system on your VM.
   - An installation (`.run`) file for the AWS Elemental software itself. For example, `elemental_production_server_2.17.3.44452.run`.

     Make sure that you download the right version of software for the processing architecture that you need, either CPU-only or GPU-enabled.

   For example, if you're installing AWS Elemental Conductor File on two systems and AWS Elemental Server on five systems, you need to download two `.iso` files and two `.run` files.

Step B: Deploy the VM

Perform these steps from your workstation.

1. Place the OVA image in a convenient location accessible to the VM host.
2. Start the VMware vSphere client and choose the option that lets you run the OVF Deploy wizard.

3. Complete the fields in the wizard. Pay special attention to the following settings:
   - For the *source*, enter the location where you saved the OVA file.
   - Ensure that the *hostname* that you assign to the VM guest is unique across all of your AWS Elemental products.
   - For *network settings*, such as DNS servers and eth configuration, leave the fields blank. You configure these settings later in the AWS Elemental Server installation and configuration process.

   When you finish and save your inputs, the OVA is installed, the guest is created, and the eth0 is configured as specified.
4. Before you proceed, take a snapshot of the VM as described in the VMware vSphere help text.
5. Repeat these steps to install the OVA on all of the VM instances.

Step C: Install the AWS Elemental Software

1. Use SCP to move each AWS Elemental software installer (.run file) to the /home/elemental directory on the appropriate virtual machine. Use the *elemental* user credentials.
2. From the VMware vSPhere client, choose **Open Console** and access the virtual machine with the *elemental* user credentials.

   You are logged in at the home directory (/home/elemental).
3. Run the installer as follows. Use the actual filename of your .run file, rather than the example below.

   ```
   [elemental@hostname ~]$ sudo sh ./<product> -xeula -l -z
   ```

   where :
   - *<product>* is the file name of the file that you downloaded. For example, `elemental_production_server_2.17.0.123456.run`.
   - -l is a letter, not a number.
4. You are prompted as described in the table below.

Prompt	Action
`Enter this server's Hostname`	Accept the suggestion, which is the value that you entered when you installed the OVA.
`Is eth0 a management interface?`	Type **Yes**.
`Does eth0 use DHCP to get its IP address?`	Accept the suggestion.
`Enter eth0's IP address:`	If the prompt appears, accept the suggestion.
`Enter eth0's NETMASK:`	If the prompt appears, accept the suggestion.
`Enter eth0's Gateway (or type **none**):`	If the prompt appears, accept the suggestion.
`Keep this configured nameserver: 10.6.16.10?`	Skip; you set up a nameserver in the next phase of configuration.
`Would you like to configure eth1?`	Type **No**; you can configure eth1 in the next phase of the configuration.
`The firewall for this system is currently disabled. Would you like to enable it?`	Skip; you set up the firewall in the next phase of configuration.
`Select time zone ('n' for more)`	Enter the time zone you want to show on the web interface of the nodes. This setting does not affect activity via SSH or via the REST API.
`Would you like to start the Elemental service now?`	Type **Yes**.

The software is installed. This message confirms:

```
Installation and configuration complete!
Please open a web browser and point it to http://xxx.xxx.xxx.xxx to get to the web
 interface.
Enjoy!
```

5. Take a snapshot of the VM, as described in the CentOS 7 Virtual Manager online help.
6. Start a web browser and start the AWS Elemental Server web interface by typing the following:

```
http://<hostname>
```

Make sure the web interface displays.

Step D: Set-up Licensing

Install a valid license file for each AWS Elemental system using the following steps described in the following table. Detailed instructions for each step follow.

Step	Where to Perform Step	Start Step With	Finish Step With
Step a: Retrieve Activation Code	Your workstation	Activation email	Activation code
Step b: Generate License Activation Key File	The `keygen` utility available on the VM	Activation code	Key file (`.key`)
Step c: Download Licenses from the AWS Elemental User Community	Your workstation	Key file (`.key`)	Tarball file (`.tgz`)

Step	Where to Perform Step	Start Step With	Finish Step With
Step d: Install the License Files	Your workstation	Unlicensed software with limited functionality	Fully licensed, full-feature software

Step a: Retrieve Activation Code

You should have received an email containing an activation code. If you're installing software for more than one VM guest, you will have received a separate code for each one.

If you didn't receive this email or have lost it, contact AWS Elemental Support through your company's Private Space in AWS Elemental Support Center.

Step b: Generate a License Activation Key File

The operating system that you installed on your virtual machine (VM) has a utility you can use to generate an activation key file.

To generate an activation key file

1. From the VMware vSphere client, choose **Open Console** and access the desired VM, using the *elemental* user credentials.

   You are logged in at the home directory (/elemental).

2. Enter this command.

   ```
   [elemental@hostname ~] ./keygen
   ```

3. At the prompt, enter the activation code for the first VM, including the dashes. The following file is created in the home directory: `activation_<hostname of the system>.key`

4. Copy the activation key file from the VM to your workstation using SCP.

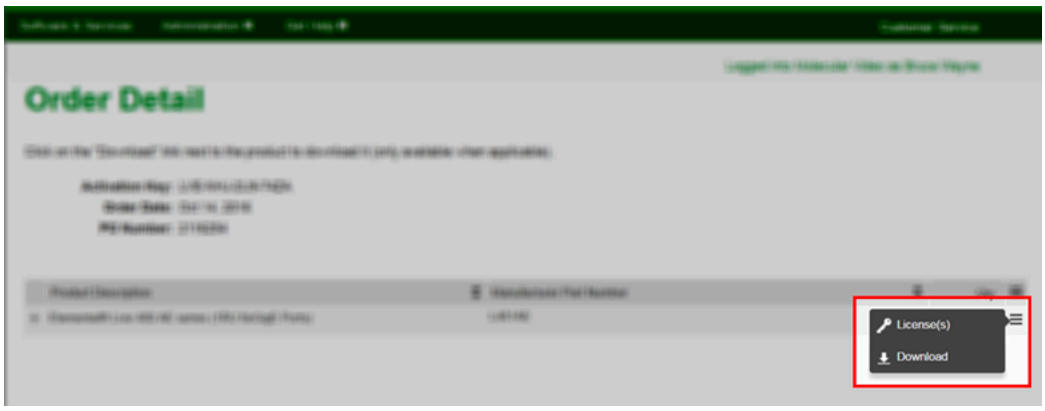
   Use the *elemental* user credentials.

5. Repeat these steps for each VM.

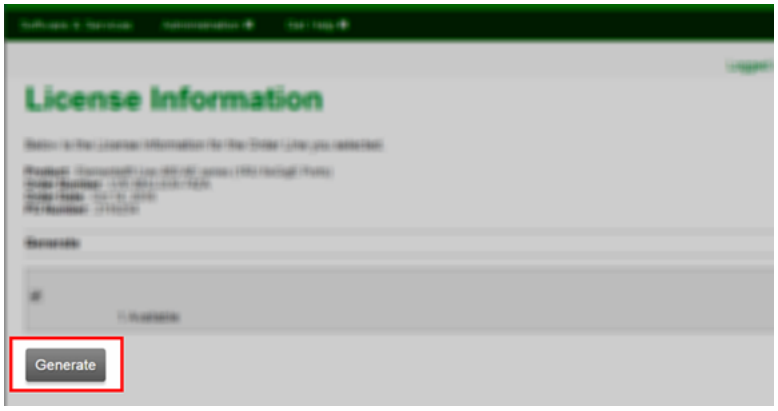
- Make sure to repeat step 1 for each activation key file that you want to generate: each key file must contain the hostname of the individual VM.
- Make sure to use a different activation code on each VM.

Step c: Download Licenses from the AWS Elemental User Community

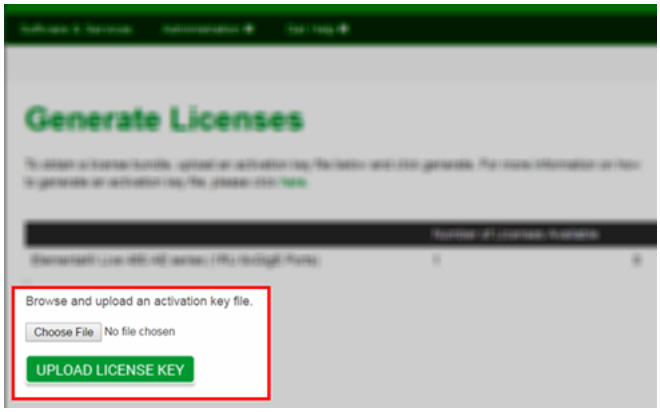
1. Follow the instructions in Downloading AWS Elemental Server Software to get to the **Order Detail** page on the AWS Elemental Support Center Activations.
2. Hover over the three-bar icon on the right of the screen to bring up a small menu. Choose **License(s)**.



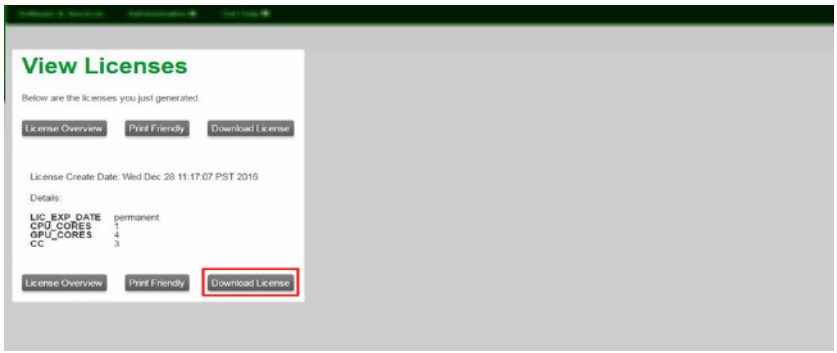
3. On the **License Information** page, choose **Generate**.



4. On the **Generate Licenses** page, select **Choose File** to browse to and select your `.key` file.
5. This returns you to the **Generate Licenses** page, with your `.key` file selected. Choose **Upload License Key**.



6. This takes you to the **View Licenses** page, where you can download a `.tgz` file. This is a compressed, aggregated file that contains all the license files that you need for this system.



7. Save the `.tgz` file to a place accessible to the AWS Elemental system that will be using this license, for example, a directory on your workstation called “licenses”. Make a note of the path.

   The files are named `lic-download-<hostname>.tgz`.

8. Repeat these steps for each virtual machine that will have AWS Elemental software.

Step d: Install the License Files

Now that you have a `.tgz` compressed license file for each instance of the software you are running, you must point the software to it.

From your workstation, perform the following steps for each newly installed AWS Elemental system.

1. Navigate to the directory where you saved the `.tgz` file and unpack it.
2. Bring up the web interface for the AWS Elemental Server system. From the main menu, select **Settings** > **Licenses**. The Licenses screen appears.

3. Select **Choose File** and navigate to the directory where you placed the license files. Select the file name with the hostname portion matching the hostname of this node.

4. Back on the Licenses screen, choose **Update**. The license file is installed.
5. Repeat steps 1 through 4 on each VM guest.

Step E: Complete Node Configuration

You have now installed and performed basic configuration of AWS Elemental Server. To complete the configuration, refer to the following:

Scenario	Guide
AWS Elemental Server in a stand-alone configuration. AWS Elemental Server is not managed by AWS Elemental Conductor File.	AWS Elemental Server Configuration Guide
AWS Elemental Server being controlled by AWS Elemental Conductor File. In other words, AWS Elemental Server is in a Conductor File cluster.	AWS Elemental Conductor File Configuration Guide

Installing AWS Elemental Server Node-locked Licenses on a Kernel-Based Virtual Machine (KVM)

This section is for IT administrators who perform first-time installation of AWS Elemental Server software on a KVM (kernel-based virtual machine).

KVM Guest System Requirements

The resources available to your virtual machine (VM) determine the speed for encoding assets and the number of streams, bitrate, and possible types of encoding. Your VM guest should have, at minimum, the following resources allocated to it:

- RAM: 16 GB
- Disk space: 500 GB
- CPU cores: 24
- Processor speed: 2.3 GHz or more (comparable to that of an Intel® Xeon® Processor ES-2630)

For minimum resources required for testing purposes, see Minimum Hardware Requirements.

Phase 1 Setup

This section explains how to perform the following on each blade:

- Create a virtual machine with the QCOW2 image.
- Install the licenses.
- Install the AWS Elemental Server software.
- Configure eth0 as the management interface on each virtual machine.

Prerequisite Knowledge

To complete this process, you must have the following knowledge:

- You have a basic understanding of server virtualization.
- You have installed and know how to use KVM.
- You know how to move files from a VM guest to other systems over the network. We recommend using a utility such as SCP.

- You know how to locate recently downloaded files.

The procedure for installing any version of AWS Elemental Server is the same; only the version number in the file name changes. In this procedure, we show how to install version 2.17.3.12345 of the software.

Installation consists of four parts:

1. Downloading files from AWS Elemental
2. Installing the host operating system (OS)
3. Installing the AWS Elemental software
4. Setting up licensing

Topics

Step A: Prepare Hardware and Download Files

Prepare Hardware and Network

To prepare your hardware and network, make sure you have done the following:

- Physically installed the hardware unit.
- Set up the unit as a node on your network.
- Configured network cards and ensured that they're able to reach other machines on the network.
- Set up a method, such as SCP, for transferring files from your workstation to the VM guest.

Note Your Activation Code

You should have received an email with your activation code. You need this number for the installation.

If you're installing AWS Elemental software on more than one system, you received an activation code for each system. Decide and note which activation code you will use for each unit. The codes are not tied ahead of time to any specific system, but you cannot use the same code on more than one.

Download Files

Download the installation files for each unique AWS Elemental product that you're using.

To download installation files

1. Log in to AWS Elemental Support Center Activations. For detailed steps to download installation files, see Downloading AWS Elemental Server Software.
2. Download your files.

   You need the following files for each unique piece of AWS Elemental software that you're installing.

   - A Linux KVM guest image (`.qcow2`) file for creating a KVM instance. For example, `centos-20161028T12270-production-usb.qcow2`.

     You use this file to put a preconfigured installation of your operating system on your KVM.
   - An installation (`.run`) file for the AWS Elemental software itself. For example, `elemental_production_server_2.17.3.44452.run`.

     Make sure that you download the right version of software for the processing architecture that you need, either CPU-only or GPU-enabled.

   For example, if you're installing AWS Elemental Conductor File on two systems and AWS Elemental Server on five systems, you need to download two `.iso` files and two `.run` files.

Step B: Deploy the VM

Perform these steps from your workstation.

1. Place the QCOW2 file in a convenient location accessible to the VM host.
2. Start the Virtual Machine Manager client and choose **File** > **Create New Virtual Machine**.
3. In the **New VM** dialog, choose **Import existing disk image** and select **Forward**.
4. Complete the fields as described in the following table and then select **Forward**.

Screen and Field	Action
Provide the existing storage path	Select the location where the QCOW2 image file is located.
OS type	Select **Linux**.
Version	Select **CentOS 6.5**.

5. Complete the memory and CPU fields as described in the following table and then select **Forward**.

Screen and Field	Action
Memory (RAM)	Choose a minimum of 15259 MiB (16GB). If your physical system has additional RAM available, choose more for improved performance. **Note** If you oversubscribe your memory for your virtual machine and there isn't enough for the host, then you might see performance degradation in the AWS Elemental Server software.
CPUs	Choose **24**.

Screen and Field	Action
	Important Ensure that the number of cores you select matches your AWS Elemental licensing. To check the cores available with your license, see the **Activations** information at AWS Elemental Support Center Activations.

6. Complete the installation fields as described in the following table and choose **Finish**.

Screen and Field	Action
Name	Type a descriptive name for the VM. This will be the hostname that you use to access AWS Elemental Server.
Network selection	Use this section to configure your system according to your network setup.

The QCOW2 is installed and the VM is created.

7. Before proceeding, take a snapshot of the VM, as described in the CentOS 7 online help.
8. Repeat these steps to install the QCOW2 on all of the VM instances.

Step C: Enable CPU Passthrough

Enable CPU passthrough so that the KVM can tell what CPU you're using. The AWS Elemental software installer could fail, or jobs remain in a pending state, if passthrough isn't enabled.

To enable CPU passthrough

1. At the Linux command line on the KVM host, use the following command to update the virtual machine configuration file.

```
sudo virsh edit hostname
```

where hostname is the name that you gave the virtual machine when you deployed it.

2. Go to the line that defines cpu mode and change it to **host-passthrough**.
3. Save and exit the editor.
4. Enable passthrough on all KVMs that you deployed.

Step D: Install the AWS Elemental Software

1. Use SCP to move each AWS Elemental software installer (.run file) to the /home/elemental directory on the appropriate virtual machine. Use the *elemental* user credentials.
2. From the VMware vSPhere client, choose **Open Console** and access the virtual machine with the *elemental* user credentials.

   You are logged in at the home directory (/home/elemental).
3. Run the installer as follows. Use the actual filename of your .run file rather than the example below.

   ```
   [elemental@hostname ~]$ sudo sh ./<product> -xeula -l -z
   ```

   where :

   - *<product>* is the file name of the file that you downloaded. For example, elemental_production_server_2.17.0.123456.run.
   - -l is a letter, not a number.
4. You are prompted as described in the table below.

Prompt	Action
Enter this server's Hostname	Accept the suggestion, which is the value that you entered when you installed the QCOW2.
Is eth0 a management interface?	Type **Yes**.

Prompt	Action
`Does eth0 use DHCP to get its IP address?`	Accept the suggestion.
`Enter eth0's IP address:`	If the prompt appears, accept the suggestion.
`Enter eth0's NETMASK:`	If the prompt appears, accept the suggestion.
`Enter eth0's Gateway (or type` **`none`**`):`	If the prompt appears, accept the suggestion.
`Keep this configured nameserver: 10.6.16.10?`	Skip; you set up a nameserver in the next phase of configuration.
`Would you like to configure eth1?`	Type **No**; you can configure eth1 in the next phase of the configuration.
`The firewall for this system is currently disabled. Would you like to enable it?`	Skip; you set up the firewall in the next phase of configuration.
`Select time zone ('n' for more)`	Enter the time zone you want to show on the web interface of the nodes. This setting does not affect activity via SSH or via the REST API.
`Would you like to start the Elemental service now?`	Type **`Yes`**.

The software is installed. This message confirms:

```
Installation and configuration complete!
Please open a web browser and point it to http://xxx.xxx.xxx.xxx to get to the web
 interface.
Enjoy!
```

5. Take a snapshot of the VM, as described in the CentOS 7 Virtual Manager online help.
6. Start a web browser and start the AWS Elemental Server web interface by typing the following:

   ```
   http://<hostname>
   ```

   Make sure the web interface displays.

Step E: Set-up Licensing

Install a valid license file for each AWS Elemental system using the following steps described in the following table. Detailed instructions for each step follow.

Step	Where to Perform Step	Start Step With	Finish Step With
Step a: Retrieve Activation Code	Your workstation	Activation email	Activation code
Step b: Generate License Activation Key File	The `keygen` utility available on the VM	Activation code	Key file (`.key`)
Step c: Download Licenses from the AWS Elemental User Community	Your workstation	Key file (`.key`)	Tarball file (`.tgz`)
Step d: Install the License Files	Your workstation	Unlicensed software with limited functionality	Fully licensed, full-feature software

Step a: Retrieve Activation Code

You should have received an email containing an activation code. If you're installing software for more than one VM guest, you will have received a separate code for each one.

If you didn't receive this email or have lost it, contact AWS Elemental Support through your company's Private Space in AWS Elemental Support Center.

Step b: Generate a License Activation Key File

The operating system that you installed on your virtual machine (VM) has a utility you can use to generate an activation key file.

To generate an activation key file

1. From the VMware vSphere client, choose **Open Console** and access the desired VM, using the *elemental* user credentials.

   You are logged in at the home directory (/elemental).

2. Enter this command.

   ```
   [elemental@hostname ~] ./keygen
   ```

3. At the prompt, enter the activation code for the first VM, including the dashes. The following file is created in the home directory: `activation_<hostname of the system>.key`

4. Copy the activation key file from the VM to your workstation using SCP.

   Use the *elemental* user credentials.

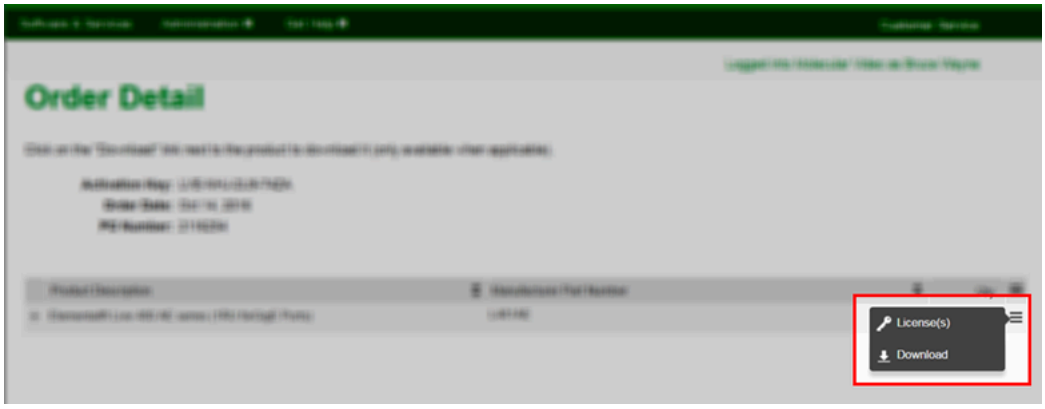
5. Repeat these steps for each VM.

   - Make sure to repeat step 1 for each activation key file that you want to generate: each key file must contain the hostname of the individual VM.
   - Make sure to use a different activation code on each VM.

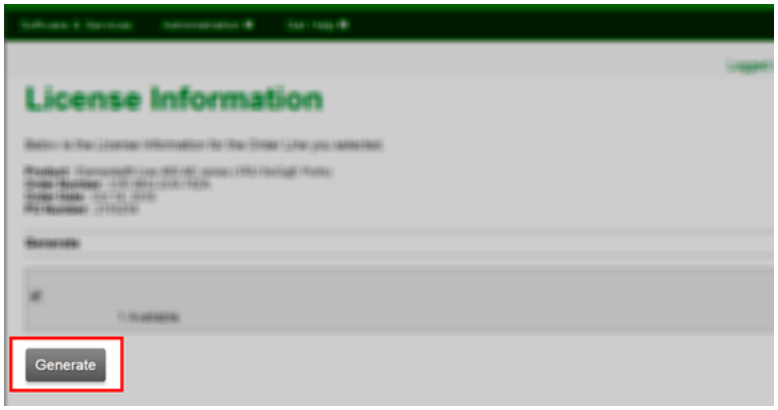
Step c: Download Licenses from the AWS Elemental User Community

1. Follow the instructions in Downloading AWS Elemental Server Software to get to the **Order Detail** page on the AWS Elemental Support Center Activations.

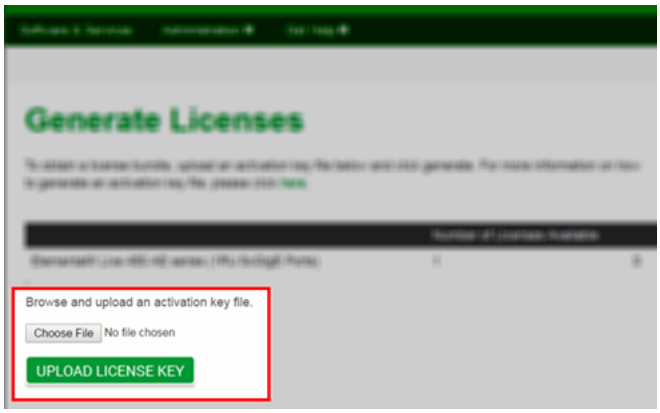
2. Hover over the three-bar icon on the right of the screen to bring up a small menu. Choose **License(s)**.



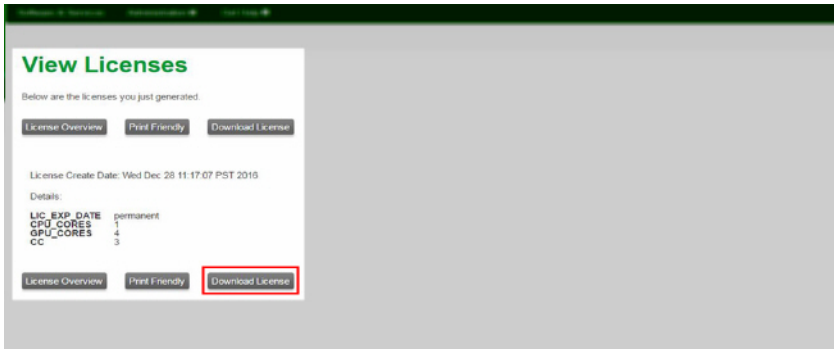
3. On the **License Information** page, choose **Generate**.



4. On the **Generate Licenses** page, select **Choose File** to browse to and select your `.key` file.
5. This returns you to the **Generate Licenses** page, with your `.key` file selected. Choose **Upload License Key**.



6. This takes you to the **View Licenses** page, where you can download a `.tgz` file. This is a compressed, aggregated file that contains all the license files that you need for this system.



7. Save the `.tgz` file to a place accessible to the AWS Elemental system that will be using this license, for example, a directory on your workstation called “licenses”. Make a note of the path.

   The files are named `lic-download-<hostname>.tgz`.
8. Repeat these steps for each virtual machine that will have AWS Elemental software.

Step F: Complete Node Configuration

You have now installed and performed basic configuration of AWS Elemental Server. To complete the configuration, refer to the following:

Scenario	Guide
AWS Elemental Server in a stand-alone configuration. AWS Elemental Server is not managed by AWS Elemental Conductor File.	AWS Elemental Server Configuration Guide
AWS Elemental Server being controlled by AWS Elemental Conductor File. In other words, AWS Elemental Server is in a Conductor File cluster.	AWS Elemental Conductor File Configuration Guide

Downloading AWS Elemental Server Software

These are the detailed steps for downloading files from the AWS Elemental Support Center.

1. Log in to the AWS Elemental Support Center with the email address that you used to receive your activation email and your password.
2. From the home page, click **Software and Licenses** on the right.
3. From the **Download Central Home**, choose **Your Entitlements** from the **Software & Entitlements** menu.
4. On **Your Entitlements**, your orders are listed from newest to oldest. In the **Activation Key** column, choose the link for the product that you're downloading.
5. On **Order Detail**, choose the plus sign for the package listed in the **Product Description** column to expand the order details.
6. In the expanded details, choose the product and version that you wish to download.
7. In the list of available files, choose the file you wish to download.
8. On **Product Download**, select the check box next to the file you want to download. Then click **Download Selected Files**.
9. If you are prompted to install the NetSession Interface download manager, click **download the installer** and run the executable.
10. Select a location and save the files. Note the file location for later.

System Requirements for Virtual Machines (VMs)

This section describes the system requirements if you're using a virtual machine (VM).

> **Note**
>
> Other than recommended and minimum hardware requirements, this information pertains only to VMs. It is not intended for kernel-based virtual machines (KVMs).

Required Software

This is the software that you need when using a VM.

- VMware® vSphere® Hypervisor (ESXi) version 6 or higher, installed onto bare-metal hardware.
- VMware® vCenter Server™, required to install the AWS Elemental OVA.
- VMware® vSphere® web client or desktop client.

> **Important**
>
> Do not use the free versions of these products; they do not include all the required features.

Guests per Host Hardware

Each instance of AWS Elemental products is considered a *guest*.

We recommend one AWS Elemental Live or AWS Elemental Server virtual machine per host hardware.

For other AWS Elemental products, make sure the combined loads for all products do not exceed recommended hardware requirements. See the following sections for details.

Recommended Hardware Requirements

The resources that you have available impact your performance. For encoders, the resources determine the speed for encoding assets and the number of streams, bitrate, and type of encoding that's possible. We recommend the following hardware specifications for optimum performance.

AWS Elemental Conductor Live, AWS Elemental Conductor File, AWS Elemental Statmux

- RAM: 16 GB
- Disk space: 500 GB
- CPU cores: 24
- Processor speed: 2.3 GHz or more (Comparable to an Intel® Xeon processor E5-2630)

AWS Elemental Server and AWS Elemental Live

- RAM: 16 GB
- Disk space: 500 GB
- CPU cores: 32
- Processor speed: 2.0 GHz or more (Comparable to an Intel® Xeon processor E5-2650)

AWS Elemental Delta

- RAM: 128 GB
- Disk space: 500 GB
- CPU cores: 24
- Processor speed: 2.3 GHz or more (Comparable to an Intel® Xeon processor E5-2630)

Minimum Hardware Requirements

You can use host hardware with these minimum resources to run AWS Elemental products for functional testing or for integrating with the AWS Elemental software API. These resource levels are not for performance testing.

All products except AWS Elemental Delta

- RAM: 12 GB
- Disk space: 400 GB
- CPU cores: 8

EDLTlong;

- RAM: 16 GB
- Disk space: 40 GB
- CPU cores: 8

Compatible Hardware Platform

Verify that the host hardware platform is compatible with the VMware platform. Look at the *VMware Compatibility Guide* at vmware.com. AWS Elemental has specifically tested and qualified the following hardware:

- Cisco® UCS®
- HP® ProLiant® BL460c Gen8 Server Blade in an HP® C7000 enclosure
- Supermicro® SuperBlade™ and Supermicro® SYS-1027GR-TRF chassis

Install Error Messages

During install, you might see the error message `Hardware and license validation failed` at the command line. The table below provides a list of possible problems and causes that might result in this error.

Possible Problem	Possible Reason
eth0 is not set up	You didn't specify the address for eth0. Review the prompts in Step C: Install the AWS Elemental Software.
`eme.lic` is not valid	If you're installing licenses on several hardware units, you may have installed the wrong `eme.lic` license on this unit. Review the steps in Step D: Set-Up Licensing.
`cable.lic` is not valid	If you're installing licenses on several hardware units, you may have installed the wrong cable.lic license on this unit. Review the steps in Step D: Set-Up Licensing.
Products do not match	You might have requested and installed a license for one product (for example, AWS Elemental Server) and then installed a different product (for example, AWS Elemental Live).
Card counts do not match	If you changed the CPU or GPU cards on the hardware unit after requesting the license, the license might no longer be valid. Change the cards back or contact your sales representative to discuss your revised licensing requirements.

Sample Install

Following is a screen printout of a typical install, showing the prompts and possible responses.

```
[elemental@hostname ~] sudo sh ./elemental_production_server_2.17.0.12345.run -l -z -t
Verifying archive integrity... All good.
Uncompressing Elemental Installer...
Network device eth0 already initialized...

INFO: moving ui.lic to location ./ui.lic
Ensuring Postgres Service Health
Stopping replication recovery
Restarting Postgres
Stopping postgresql-9.3 service: [60G[[0;32m  OK  [0;39m]
Starting postgresql-9.3 service: [60G[[0;32m  OK  [0;39m]
Current version is: AWS Elemental Server 2.15.0.34713
New version is: AWS Elemental Server 2.17.0.12345

Stopping Apache..
Checking Elemental System Update
Starting system update
New system update version: 25301
System packages are now being updated and modified!
Please DO NOT interrupt the installer after this point!
Running pre-installation tasks

Installing DekTec Driver
Installing MOTD
Installing /etc/issue
Installing new RPMs...
Installing new gems...
Running scripts...

Updating PostgreSQL configuration
Stopping replication
Setting up config files
Restarting Postgres
Stopping postgresql-9.3 service: [60G[[0;32m  OK  [0;39m]
Starting postgresql-9.3 service: [60G[[0;32m  OK  [0;39m]
Installing AWS Elemental Server 2.17.12345
Restoring previous logs and thumbnails
Merging supported audio & video codec lists
```

```
Network device eth0 already initialized...

Welcome to the product installation utility!
Version information:
   AWS Elemental Server 2.17.0.12345
   -------------------------
   ruby 1.9.3p484 (2013-11-22 revision 43786) [x86_64-linux]
   Rails 3.2.17
   psql (PostgreSQL) 9.3.6
   Elemental Git revision 613c91dd
```

You are prompted to read and accept the EULA.

```
Checking license files.
IMPORTANT INFORMATION
.
.
.
Continue? [Y] y
.
.
.
Continue? [Y] y
.
.
.
Continue? [Y] y
.
.
.
Do you agree to these terms? [N] y
```

You are prompted to configure the network.

```
Enter this server's Hostname: [elemental@hostname ~]server-01
Detected 2 ethernet devices
Configuring eth0
Is eth0 a management interface? [Y]
Does eth0 use DHCP to get its IP address? [Y]
Would you like to configure eth1? [N]
The firewall for this system is currently enabled. Would you like to disable it? [N]
```

Services are stopped (note that actually no services are running) and interfaces are shut down.

```
Stopping services...
Restarting network services
Redirecting to /bin/systemctl start postgresql-9.4.service
Creating user 'elemental'
Creating database 'web_production'
Granting all privileges on 'web_production' to user 'elemental'
```

Interfaces are configured with the new information.

```
Bringing up loopback interface:    [  OK  ]
Bringing up interface eth0:
Determining IP information for eth0... done.
   [  OK  ] Bringing up interface eth1:
Determining IP information for eth1... done.
  [  OK  ]
```

The AWS Elemental Server software is configured.

```
Creating/Updating database...
Running migrations - this could take a while.
Database creation complete!
Loading Rails environment...
Adding node to database...
Saving settings...
Adding cluster stat monitors...
Adding node stat monitors...
Adding cluster scheduled tasks...
Adding node scheduled tasks...
Adding licensing scheduled tasks...
Hardware and license check complete
Creating default directory structures and data
```

You are prompted for the time zone and user authentication.

```
Configuring time zone...
...
Select time zone ('n' for more) [Pacific Time (US & Canada)]
Selected: Pacific Time (US & Canada)
Do you wish to enabled authentication [N]
```

The installation continues.

```
Changing permissions and ownership...
Cleaning elemental_ipc...
Removing tmp...
Removing cached files
Configuring Apache...
Adding Elemental service...
Configuring log rotation...
Configuring apache...

..Configuring SNMP...
Configuring dynamic libraries...
Configuring NTP...
Setting sysctl configuration and adding to /etc/rc.local...
Shutting down SMB services: [60G[[0;32m  OK  [0;39m]
Starting SMB services: [60G[[0;32m  OK  [0;39m]

Configuring RabbitMQ.........

Setting CPU scaling governor
Starting services...
Starting system logger: [60G[[0;32m  OK  [0;39m]
Starting httpd: httpd.worker: Could not reliably determine the server's fully qualified
 domain name, using ::1 for ServerName
[60G[[0;32m  OK  [0;39m]
Starting ntpd:
Starting snmpd: [60G[[0;32m  OK  [0;39m]
```

You are prompted to start elemental_se.

```
Would you like to start the Elemental service now? [Y]
Starting elemental_se:     [  OK  ]
Starting elemental-motd:   [60G[[0;32m  OK  [0;39m]
Starting elemental-issue:  [  OK  ]

Installation and configuration complete!
Please open a web browser and point it to http://10.24.34.2 to get to the web
 interface.
Enjoy!
```

Document History for Installation Guide

The following table describes the documentation for this release of AWS Elemental Server.

- **API version:** 2.17
- **Release notes:** AWS Elemental Server Release Notes

The following table describes the documentation for this release of AWS Elemental Server. For notification about updates to this documentation, you can subscribe to an RSS feed.

Change	Description	Date
Version 2.17 release	Changes to support the 2.17 software release.	June 16, 2020