

# Cambria FTC/Cluster: AMI Creation and Editing

## Objective

This documentation assists with creating your own Amazon Machine Images (AMI) on Microsoft Windows Server 20XX Base. These new AMI's can be used to create Amazon instances with Cambria Products.

## Section 1: Creating an EC2 instance

Please follow the steps below:

1. Open the Amazon EC2 console at <https://console.aws.amazon.com/ec2/>.
2. In the navigation pane on the left, under **Images**, select **AMI Catalog**.
3. Use the Filter options to scope the list of AMI's and select the Windows AMI's that meet your needs.

For example, to view the Windows AMI's provided by AWS, select the **Search Bar**, and type **Windows** and look for the most recent Server Base:

4. **Ex. Microsoft Windows Server 2022 Base**

The screenshot shows the Amazon EC2 console's AMI Catalog page. At the top, there's a breadcrumb 'EC2 > AMI Catalog' and a title 'AMI Catalog'. Below the title is a descriptive paragraph: 'An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. You can select an AMI provided by AWS, our user community, or the AWS Marketplace; or you can select one of your own AMIs.' The main content area is titled 'AMIs' and features a search bar with 'Windows' entered. To the right of the search bar are two buttons: 'Create Template with AMI' and 'Launch Instance with AMI'. Below the search bar are four filter tabs: 'Quickstart AMIs (20) Commonly used AMIs', 'My AMIs (47) Created by me', 'AWS Marketplace AMIs (1259) AWS & trusted third-party AMIs', and 'Community AMIs (500) Published by anyone'. On the left side, there's a 'Refine results' section with a 'Clear all filters' button and a 'Free tier only info' checkbox. The main results area shows 'Windows (20 filtered, 20 unfiltered)' with a pagination control showing '1'. The first result is 'Microsoft Windows Server 2022 Base' with ID 'ami-0c5300e833c2b32f3 (64-bit (x86))'. It includes a 'Microsoft' logo, 'Windows' text, and several badges: 'Free tier eligible', 'Verified provider', and '64-bit (x86)'. Technical details listed include 'Platform: windows', 'Root device type: ebs', 'Virtualization: hvm', and 'ENA enabled: Yes'. An orange 'Select' button is positioned to the right of the result.

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5. Click on **Select** for the AMI and then click **Launch Instance with AMI**. This will take you to the Instance Creation Wizard. Here you can choose the Instance Type based on your needs, **Add Tags, Configure Instance Details, Set up Key Pairs, Configure Network Settings, Add Storage, and Review**.
  - a. Name the instance something that will make it easy to figure out what it is used for. **Ex. FTC Launcher**
  - b. Leave **Application and OS Images** as it is as we set that up earlier when choosing the AMI Catalog
  - c. For the **Instance Type**, we recommend using c5.large, but you can choose an instance type of your liking. Make sure to choose an instance that has enough cpu and memory for your job.
  - d. For **Key pair**, if you do not have one already, click on Create new key pair and name it something that is easy to remember what it is used for. **Ex. FTC AMI Key**. Make sure to set the Private key file format to **.pem**. Click on Create key pair and make sure that the .pem file is saved somewhere safe. This key will be used to connect to your Windows instance later.
  - e. For **Network Settings**, we will need to Configure specific **Security Groups** in order to allow Cambria FTC and Cambria Cluster to communicate.
    - i. Click on **Edit** and then **Add security group rule**
    - ii. Add the following rule **Type Info: Custom TCP, Port Range: 8090-8119, Source Type: Anywhere**
    - iii. Click on **Add security group rule** again and now add the following rule **Type Info: Custom TCP, Port Range: 8647-8650, Source Type: Anywhere**

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▼ Security group rule 2 (TCP, 8090-8119, 0.0.0.0/0) Remove

Type [Info](#) Protocol [Info](#) Port range [Info](#)

Custom TCP TCP 8090-8119

Source type [Info](#) Source [Info](#) Description - optional [Info](#)

Anywhere  e.g. SSH for admin desktop

X

▼ Security group rule 3 (TCP, 8647-8650, 0.0.0.0/0) Remove

Type [Info](#) Protocol [Info](#) Port range [Info](#)

Custom TCP TCP 8647-8650

Source type [Info](#) Source [Info](#) Description - optional [Info](#)

Anywhere  e.g. SSH for admin desktop

X

**NOTE:** Please add the following **Inbound Rules** in order to allow the AMI to reach Cambria Floating Server and allow Cambria products to communicate.

6. Select **Launch**. After launching click on **View all instances** to look at the instance you just created.

## Section 2: Connecting to your EC2 instance

7. Go to the **Instances** section on AWS (located on the items list on the left). Find the instance that was just created and wait until the **Instance State** displays **running** and the **Status Checks** have completed.

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...	Elastic IP
-	i-06ee4dcec82c11283	Running	c5.large	2/2 checks passed	No alarms	us-west-2d	ec2-34-222-187-7.us-...	34.222.187.7	-

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8. Select the **Connect** button and then click on **RDP client**.
9. Click on **Get Password** and then **Upload private key file**.
10. Find the .cep file that you saved earlier and open that file.
11. Click **Decrypt Password** and a password should be generated. It should look something like this **GA%)8Z!ADU6N1Vogb4YUR6;S=1..?8&Q**.
12. After, click **Download remote desktop file**, open the file, and select **Connect**. Remote Desktop will require you to enter in the Password.
13. Copy the password that was just generated and then paste it into the Password field. Then, click **OK** and **Yes**.
14. You should now be connected to the Windows Instance that you just created.

### **Section 3 : Installing Cambria Products**

**Download and install Cluster/FTC/License Manager**, preferably by copying and pasting the **installer files** from the physical machine being used or from the original installation source. After installing, you may choose to do the steps below in order to have your AMI ready with licensing and Amazon S3 access. If you are using Nodelock licensing, or feel like you do not need to do the steps below, just skip to Section 4.

#### **Floating License Client Setup**

To configure your own Floating License Client, if you have a Floating Licensing Server setup you will need to point your instance to a public IP where your Floating Server Manager is located. This can be done by changing some values in the Registry settings of the AWS EC2 instance:

#### **Manually setup client side after Floating Server is setup**

The following regedit path could be edited with the following information in order to launch Cluster/FTC with correct license:

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Computer\HKEY\_LOCAL\_MACHINE\SOFTWARE\WOW6432Node\CAPELLA\CambriaLicenseManager

FloatServerAddress (String Value)

IP of Floating Server Machine

FloatServerPort (32-bit DWORD) (this is port 8090 in hex)

1f9a

LicenseMode (String Value)

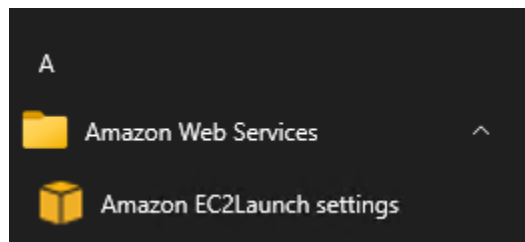
CryptflexFloat

### Nodelock License Setup

If you are using Nodelock licensing, just enter the license key like how you normally do. This will give CloudExtend access to FTC, so that it will be able to be used with Cluster.

### Section 4 : Preparing the Instance for AMI image creation

1. In the **EC2 Instance** that was created above, select **Start/ Windows Button** and select the **Down Arrow** for **Amazon Web Services**. Select **Amazon EC2Launch settings** application,



2. In the **General Tab**, select **Random** for **Administrator password settings** if it is not already selected and click **Save**. You should see a Success popup appear and then click **OK**.
3. Click **Shutdown with Sysprep**. A popup will appear asking if you want to prepare the instance to create an image. Click **Yes** and then wait for Sysprep to finish shutting down Windows.

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The screenshot shows the 'Amazon EC2Launch settings' dialog box with the 'General' tab selected. The settings are as follows:

- Set computer name:**  Set the computer name of the instance,  Set to "ip- <hex primary IP address>",  Use custom name (with an empty text box),  Reboot after setting computer name.
- Extend boot volume:**  Extend OS partition to use free space for boot volume.
- Set administrator account:**  Set administrator account, Administrator username (leave blank for default) (with an empty text box), Administrator password settings:  Random (retrieve from console),  Specify (temporarily stored in configuration file) (with an empty text box),  Do not set.
- Start SSM service:**  Re-enable and start SSM service after Sysprep.
- Optimize ENA:**  Optimize receive side scaling and receive queue depth.
- Enable SSH:**  Enable OpenSSH for later Windows versions.
- Enable Jumbo Frames:**  Enable Jumbo Frames. Important: Do not enable Jumbo Frames if you are not familiar with them.
- Prepare for imaging:** Two buttons: 'Shutdown without Sysprep' and 'Shutdown with Sysprep'.

At the bottom right, there are 'Save' and 'Exit' buttons.

4. This will allow future AMI's to use random keys pairs and separate passwords that are not dependent on the initial state.

### Section 5 : Creating an AMI from the Instance

5. In order to create an AMI with the instance, go to **Instances** in the **AWS Items List**.
6. Right-click the **Instance created in the above sections** to be used as the basis for your AMI and select **Image and templates**→**Create Image** from the context menu.

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**Create image** Info  
An image (also referred to as an AMI) defines the programs and settings that are applied when you launch an EC2 instance. You can create an image from the configuration of an existing instance.

Instance ID  
i-06ee4dcec82c11283

Image name  
FTC Version X.X.X.XXXXX  
Maximum 127 characters. Can't be modified after creation.

Image description - optional  
This is for the newest FTC Version  
Maximum 255 characters

No reboot  
 Enable

Instance volumes

Storage type	Device	Snapshot	Size	Volume type	IOPS	Throughput	Delete on termination	Encrypted
EBS	/dev/...	Create new snapshot fr...	30	EBS General Purpose S...	100		<input checked="" type="checkbox"/> Enable	<input type="checkbox"/> Enable

7.

In the **Create Image dialog box**, type a unique name and description, and then select **Create Image**.

- It may take a few minutes for the AMI to be created. **AMI's** are located under the **Images** section on **EC2 Dashboard**. Set filter to **Owned by me** to see your created AMI. Note: The image will not have a name, but you can find the name that you set previously under the **AMI name** tab. Make sure to name the image after you find it.
- The AMI can then be launched into a new instance with FTC installed onto it. Be sure to Terminate the original instance if you do not need it anymore as it may incur charges.
- Now an instance can be created from the AMI Image and it can also be used for Cluster CloudExtend.

For any questions or technical support contact Capella Systems at:

[support@capellasystems.net](mailto:support@capellasystems.net).