

# Practical: Using EC2 Launch Templates and AMIs

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This practical will show how you can create Launch Templates and use them to quickly launch an EC2 instance with all configuration already set. This will greatly speed up the process of getting an EC2 instance running with all the required settings.

## Creating an AMI

An AMI is an image of an EC2 instance. You have already been using these from the start of the unit; selecting Ubuntu when launching an EC2 instance is selecting the Ubuntu AMI. By creating your own AMI you can launch instances that already have your software and required dependencies installed.

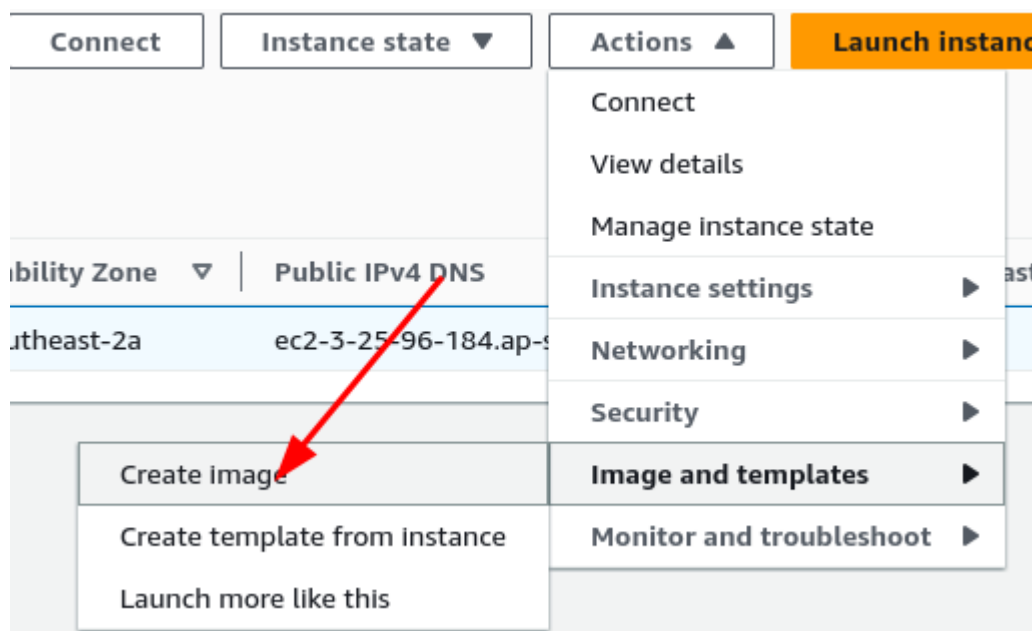
## Launch and customise an EC2 instance

- Follow the steps in [Practical: Creating an EC2 Instance](#) (<https://canvas.qut.edu.au/courses/20367/pages/practical-creating-an-ec2-instance>) to create an EC2 instance based on Ubuntu.
- Follow the steps in [Practical: Node.js application on EC2](#) (<https://canvas.qut.edu.au/courses/20367/pages/practical-node-dot-js-application-on-ec2>) to install node on the EC2 instance.
- Follow the steps in [Practical: Getting Started with Docker](#) (<https://canvas.qut.edu.au/courses/20367/pages/practical-getting-started-with-docker>) to install Docker on the EC2 instance.

You can do any further customisation you like on your EC2 instance. For example, you might want to add additional SSH keys so that you can access it from multiple computers. We will leave this for you to explore on your own.

## Create the AMI

- On the AWS console, find your instance. Select it and under the *Actions* menu find *Images and templates* then *Create Image*.

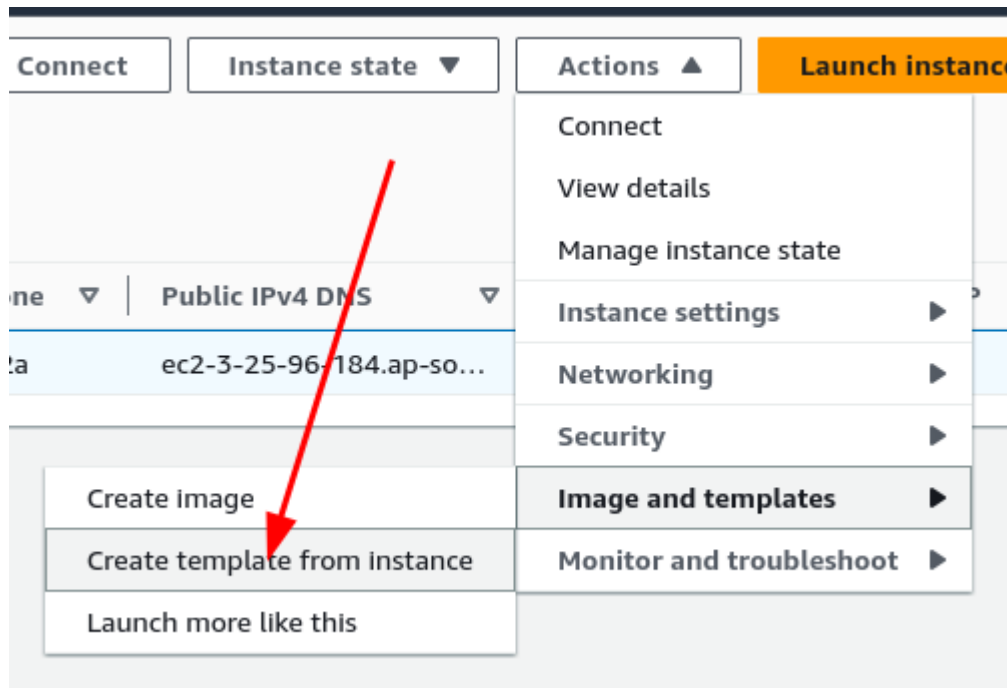


- Enter a name for your image. Something like `n1234567-docker-node` would be appropriate.
- Add a tag `qut-username` with your username like `n1234567@qut.edu.au`. Ensure that your tag follows this format (with `@qut.edu.au`), otherwise you will not be able to use the AMI when you launch instances.
- Click *Create image*

Your EC2 instance will become unavailable for a few minutes. Go to the *AMIs* page (under *Images* in the sidebar when viewing the EC2 services). You will be able to find your AMI in the list.

## Creating a Launch Template

- Back in the Instances list on EC2, select your instance and find the *Create template from Instance* under the *Actions* menu then under *Images and templates*



- Enter a name for your launch template. Something like `n1234567-docker-node` would be appropriate.
- Just enter the name, open *Template tags*. Add a tag `qut-username` with your username like `n1234567@qut.edu.au`. Add a `purpose` tag with value `practical` or, if you are using this launch template for an assessment, set the value to `assessment 1`, `assessment 2`, or `assessment 3` as appropriate.
- The tags from your EC2 instance should already be populated in the *Resource tags* section. These tags will be added to EC2 instances that are created from this template. Verify that they are appropriate.
- In the Application and OS Images section, click *My AMIs*. Then click the current AMI and find your AMI in the selection box.

▼ **Application and OS Images (Amazon Machine Image)** [Info](#)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

Search our full catalog including 1000s of application and OS images

AMI from catalog | Recents | **My AMIs** | Quick Start

☐ Don't include in launch template

☒ Owned by me

☐ Shared with me

[Browse more AMIs](#)

Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

<b>mckaguem-docker-node</b> ami-014b02ffa1ac91b7f 2024-08-08T02:07:08.000Z   Virtualization: hvm   ENA enabled: true   Root device type: ebs	▼
--	---

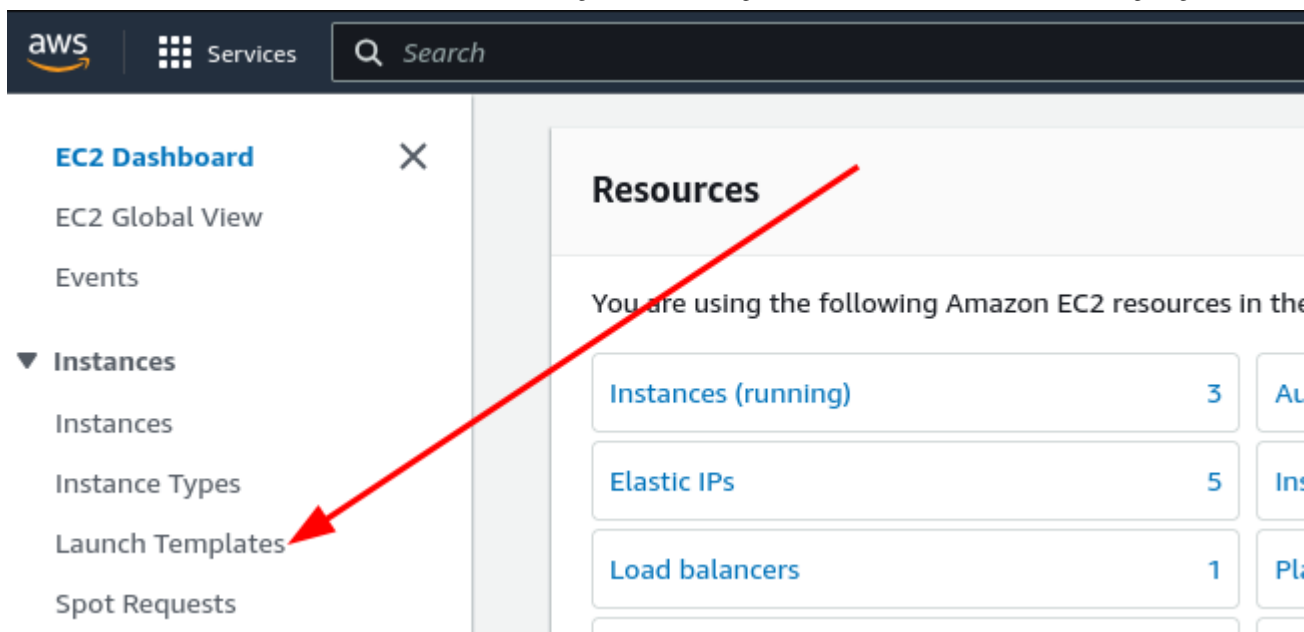
- If you can't find your AMI, make sure that you created an AMI in the previous section.
- At this point you can make other adjustments if necessary. If your settings for your EC2 instance were OK then this shouldn't be necessary.
- Click *Create launch template*

You'll be shown the list of launch templates where you should be able to find the one that you just created.

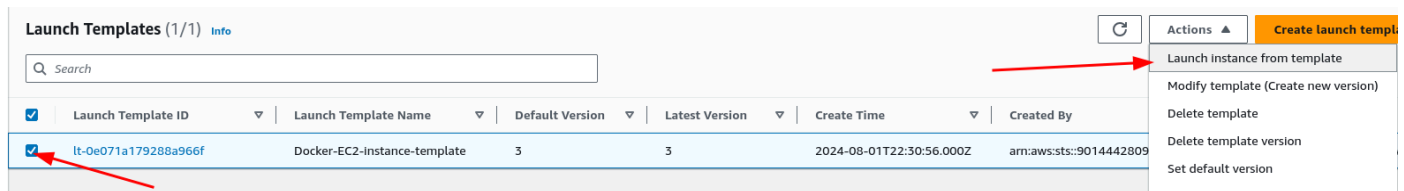
It's possible to modify a Launch Template. This will create a new version and you can still access the previous versions. The old version will remain the default, but you can change this (and delete old versions if you like) the details page for the launch template.

## Launching the template

1. On the AWS Web console, find the EC2 services. On the sidebar on the left you'll find *Launch Templates*. Click on it to bring up the list of templates.



2. Search for your launch template in the list of templates. Click the checkbox on the left to select it, then under *Actions* on the top right select *Launch Instance from template*



3. At this point you can customise the template's settings for your EC2 instance. For example:
  - Choose your Key Pair if you want to be able to log in with ssh from a different computer

## ▼ Key pair (login) [Info](#)

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - *required*

Template or default value



[Create new key pair](#)

## ► Network settings [Info](#)

## ► Storage (volumes) [Info](#)

## ▼ Resource tags [Info](#)

Key [Info](#)

qut-username

Value [Info](#)

add-your-username

Resource types [Info](#)

Select resource ty...

Instances

Key [Info](#)

purpose

Value [Info](#)

practical

Resource types [Info](#)

Select resource ty...

Instances

4. Click *Launch instance*.

At this point your EC2 instance will launch and you can use it the same way as other EC2 instances. If you see an error about a resource pending, it is mostly likely that the AMI hasn't finished being created yet. This can take a few minutes. Just retry a bit later.

## Troubleshooting

If you receive an error when launching an instance from the template:

- Ensure that you have tagged your AMI correctly. If the `qut-username` tag value does not exactly match your username, including the `@qut.edu.au` part at the end, then you will not have permissions to use the AMI.