

# Technical Competency

SageMaker Proof of Project Competency

# SageMaker + S3 Bucket Setup

SageMaker is in an inert state by default and several steps need to be done to Start the environment. Below is a very basic set on how to Start SageMaker Studio and start a Jupyter Notebook.

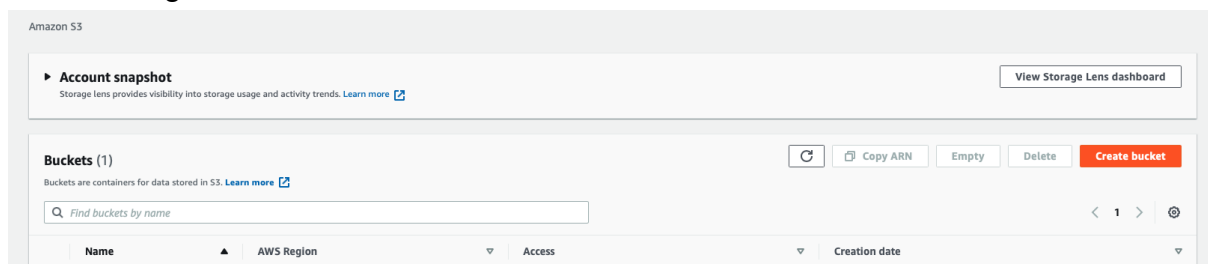
The Jupyter NoteBook can be found here:

[https://github.com/ablewitt/ITC303-Documents/blob/main/ml\\_competency.ipynb](https://github.com/ablewitt/ITC303-Documents/blob/main/ml_competency.ipynb)

## Create an S3 Bucket

As a starting point we will first create an S3 bucket to store our data in.

1. Navigate to the S3 service in the AWS console and select “Create Bucket”



2. Name the bucket whatever you want. In the case the Bucket is called “sagemakercompetency”. Ensure the AWS Region is the same as the region for the SageMaker studio you will launch later. Other options remain on default.

# Create bucket

Buckets are containers for data stored in S3. [Learn more](#)

## General configuration

Bucket name

Bucket name must be unique and must not contain spaces or uppercase letters. [See rules for bucket naming](#)

AWS Region

US East (Ohio) us-east-2

Copy settings from existing bucket - *optional*

Only the bucket settings in the following configuration are copied.

Choose bucket

## 3. Confirm bucket is created successfully

Successfully created bucket "sagemakercompetency"

To upload files and folders, or to configure additional bucket settings choose [View details](#).

Amazon S3

**Account snapshot**

Storage lens provides visibility into storage usage and activity trends. [Learn more](#)

[View Storage Lens dashboard](#)

**Buckets (2)**

Buckets are containers for data stored in S3. [Learn more](#)

	Name	AWS Region	Access	Creation date
<input type="radio"/>	<a href="#">groundtruth1</a>	US East (Ohio) us-east-2	Bucket and objects not public	April 28, 2021, 22:29:09 (UTC+10:00)
<input type="radio"/>	<a href="#">sagemakercompetency</a>	US East (Ohio) us-east-2	Bucket and objects not public	May 3, 2021, 13:41:50 (UTC+10:00)

## 4. Take note of bucket ARN in the properties tab of the S3 bucket

sagemakercompetency

Objects | **Properties** | Permissions | Metrics | Management | Access Points

**Bucket overview**

AWS Region US East (Ohio) us-east-2	Amazon Resource Name (ARN) arn:aws:s3::sagemakercompetency	Creation date May 3, 2021, 13:41:50 (UTC+10:00)
--	---	--

# Start SageMaker Studio

SageMaker Studio can now be started. We will use the S3 Bucket we just created to store data during all steps of the ML life cycle.

1. Navigate to the SageMaker Studio in the AWS console and open the SageMaker Studio section. Select Quick start, enter the name for your SageMaker Studio.

Amazon SageMaker > SageMaker Studio

## SageMaker Studio

### Get started

[Learn more about getting started with SageMaker Studio](#)

☒ **Quick start**  
Let Amazon SageMaker handle configuring account and setting the permissions that you or a team in your organization need to use SageMaker Studio. Choosing this options uses standard encryption, which you can't change. If you need more control over configuration, choose Standard setup.

**User name**  
mlCompetency  
The user name can have up to 63 characters. Valid characters: A-Z, a-z, 0-9, and - (hyphen)

**Execution role**  
SageMaker Studio requires permissions to access other AWS services, such as Amazon SageMaker and Amazon S3. The execution role must have the [AmazonSageMakerFullAccess policy](#) attached. If you don't have a role with this policy attached, we can create one for you.  
AmazonSageMaker-ExecutionRole-20210503T134317

**Success! You created an IAM role.**  
[AmazonSageMaker-ExecutionRole-20210503T134317](#)

**SageMaker Projects and JumpStart** New  
Enable access and provisioning of AWS Service Catalog Portfolio of products in Amazon SageMaker Studio for Amazon SageMaker Projects and JumpStart. [Learn more](#)

☒ **Enable Amazon SageMaker project templates and JumpStart for this account and Studio users**  
If enabled, the administrator can view the Amazon SageMaker provided project templates and JumpStart solutions published in AWS Service Catalog and users who are configured to use the domain execution are allowed to create projects using those templates and solutions with JumpStart. A launch constraint role and a project use role are automatically generated in IAM for your account.

☐ **Standard setup**  
Control all aspects of account configuration, including permissions and encryption. Choose this option if you are an administrator setting up SageMaker Studio for your organization.

2. Select the Execution Role Drop down and select “Create a new role”. Here we give the role access to our S3 Bucket created earlier.

### Create an IAM role

Passing an IAM role gives Amazon SageMaker permission to perform actions in other AWS services on your behalf. Creating a role here will grant permissions described by the [AmazonSageMakerFullAccess](#) IAM policy to the role you create.

The IAM role you create will provide access to:

☒ **S3 buckets you specify - optional**

☐ Any S3 bucket  
Allow users that have access to your notebook instance access to any bucket and its contents in your account.

☒ **Specific S3 buckets**  
aws:s3::sagemakercompetency  
Comma delimited. ARNs, "\*" and "/" are not supported.

☐ None

☒ Any S3 bucket with "sagemaker" in the name

☒ Any S3 object with "sagemaker" in the name

☒ Any S3 object with the tag "sagemaker" and value "true" [See Object tagging](#)

☒ S3 bucket with a Bucket Policy allowing access to SageMaker [See S3 bucket policies](#)

- The studio can be started. It will take awhile and will remain in pending state till ready

**SageMaker Studio Control Panel**

Choose your user name, then choose Open Studio to get started

Search users

< 1 > ⚙

User name	Last modified	Created
No users To add a user, choose Add user and enter a user name.		

▼ Studio Summary

[How to delete Studio](#) [Delete Studio](#) [Edit Settings](#)

Status ⏸ Pending	Studio ID d-xqd3gnvrtibv	Execution role arn:aws:iam::422915401177:role/service-role/AmazonSageMaker-ExecutionRole-20210503T134317	Authentication method AWS Identity and Access Management (IAM)
---------------------	-----------------------------	---	---

Use the Studio ID for troubleshooting and tracking usage.  
The status shown is for the SageMaker Studio service, and is not the status of compute resources such as EC2 instances to execute notebooks.

Projects

- ✓ Amazon SageMaker project templates enabled for this account  
Launch constraint role: arn:aws:iam::422915401177:role/service-role/AmazonSageMakerServiceCatalogProductsLaunchRole  
Product use role: arn:aws:iam::422915401177:role/service-role/AmazonSageMakerServiceCatalogProductsUseRole
- ✓ Amazon SageMaker project templates enabled for Studio users  
Execution role: arn:aws:iam::422915401177:role/service-role/AmazonSageMaker-ExecutionRole-20210503T134317

🟢 SageMaker Studio is ready  
Choose your user name, then choose Open Studio to get started.

Amazon SageMaker > SageMaker Studio > Control Panel

**SageMaker Studio Control Panel**

Choose your user name, then choose Open Studio to get started

Search users

< 1 > ⚙

User name	Last modified	Created
mlcompetency	May 03, 2021 03:48 UTC	May 03, 2021 03:48 UTC

[Open Studio](#)

▼ Studio Summary

[How to delete Studio](#) [Delete Studio](#) [Edit Settings](#)

Status 🟢 Ready	Studio ID d-xqd3gnvrtibv	Execution role arn:aws:iam::422915401177:role/service-role/AmazonSageMaker-ExecutionRole-20210503T134317	Authentication method AWS Identity and Access Management (IAM)
-------------------	-----------------------------	---	---

Use the Studio ID for troubleshooting and tracking usage.  
The status shown is for the SageMaker Studio service, and is not the status of compute resources such as EC2 instances to execute notebooks.

Projects

- ✓ Amazon SageMaker project templates enabled for this account  
Launch constraint role: arn:aws:iam::422915401177:role/service-role/AmazonSageMakerServiceCatalogProductsLaunchRole  
Product use role: arn:aws:iam::422915401177:role/service-role/AmazonSageMakerServiceCatalogProductsUseRole
- ✓ Amazon SageMaker project templates enabled for Studio users  
Execution role: arn:aws:iam::422915401177:role/service-role/AmazonSageMaker-ExecutionRole-20210503T134317

From here you can enter into SageMaker Studio Environment and set up a Jupyter Notebook.

A demonstration notebook has been created and stored at this git repository. The below notebook is based on a tutorial for image processing adapted for use in our environment.

[https://github.com/ablewitt/ITC303-Documents/blob/main/ml\\_competency.ipynb](https://github.com/ablewitt/ITC303-Documents/blob/main/ml_competency.ipynb)