- Lab 5. Bias and Explainability
  - Bias and Explainability-Tabular Data
- Lab 6. SageMaker Pipelines
  - Option 1: Train Pipeline (SageMaker Pipelines)
  - Option 2: Batch Inference Pipeline (SageMaker Pipelines)
  - Option 3: SageMaker Projects
- Lab 7. Real Time ML inference on Streaming Data
- Lab 8. Build ML Model with No Code Using Sagemaker Canvas
- Lab 9. Amazon SageMaker JumpStart
  - Lab 9a. Build image classification with SageMaker JumpStart model
  - Lab 9b. Flan-T5 foundation model in Amazon SageMaker JumpStart
- Lab 10. ML Governance Tools for Amazon SageMaker
  - **Lab 10a. SageMaker Role Manager**
- Lab 11. SageMaker Notebook Instances

Lab 10a. SageMaker Role Manager

- Overview
- Personas
- ML activities
- Prerequisite
- Create a Role
- Onboard User

Overview

SageMaker Role Manager provides a baseline set of permissions for ML activities and personas through a catalog of prebuilt AWS Identity and Access Management (IAM) policies. It comes with a set of predefined policy templates for different personas and ML activities. Personas represent the different types of users that need permissions to perform ML activities in SageMaker, such as data scientists or MLOps engineers.

Personas

A persona is an entity that needs to perform a set of ML activities and uses a role to grant them permissions. SageMaker Role Manager provides you with a set of predefined persona templates for common use cases, or you can build your own custom persona. There are several personas currently supported, including:

- **Data scientist** : A persona that performs ML activities from within a SageMaker environment. They're permitted to process Amazon Simple Storage Service (Amazon S3) data, perform experiments, and produce models.
- **MLOps** : A persona that deals with operational activities from within a SageMaker environment. They're permitted to manage models, endpoints, and pipelines, and audit resources.
- **SageMaker compute role** : A persona used by SageMaker compute resources such as jobs and endpoints. They're permitted to access Amazon S3 resources, Amazon Elastic Container Registry (Amazon ECR) repositories, Amazon CloudWatch, and other services for ML computation.
- **Custom role settings** : This persona has no pre-selected settings or default options. It offers complete customization starting with empty settings.

ML activities

- Lab 5. Bias and Explainability
  - Bias and Explainability-Tabular Data
- Lab 6. SageMaker Pipelines
  - Option 1: Train Pipeline (SageMaker Pipelines)
  - Option 2: Batch Inference Pipeline (SageMaker Pipelines)
  - Option 3: SageMaker Projects
- Lab 7. Real Time ML inference on Streaming Data
- Lab 8. Build ML Model with No Code Using Sagemaker Canvas
- Lab 9. Amazon SageMaker JumpStart
  - Lab 9a. Build image classification with SageMaker JumpStart model
  - Lab 9b. Flan-T5 foundation model in Amazon SageMaker JumpStart
- Lab 10. ML Governance Tools for Amazon SageMaker
  - **Lab 10a. SageMaker Role Manager**
- Lab 11. SageMaker Notebook Instances

Content preferences

Language

ML activities are predefined sets of permissions tailored to common ML tasks. Personas are composed of one or more ML activities to grant permissions. For example, the data scientist persona uses the following ML activities:

- **Run Studio Applications** : Permissions to operate within a Studio environment. Required for domain and user-profile execution roles.
- **Manage Experiments** : Permissions to manage experiments and trials.
- **Manage ML Jobs** : Permissions to audit, query lineage, and visualize experiments.
- **Manage Models** : Permissions to manage SageMaker jobs across their lifecycles.
- **Manage Pipelines** : Permissions to manage SageMaker pipelines and pipeline executions.
- **S3 Bucket Access** : Permissions to perform operations on specified buckets.

In this lab, you will use SageMaker Role Manager setup SageMaker service role and onboard data scientists in SageMaker with custom permissions in place.

Prerequisite

You will use JumpStart from Amazon SageMaker Studio, so please make sure that you've followed the instructions in the Prerequisites section and can access SageMaker Studio with proper IAM permissions.

Create a Role using Amazon SageMaker Role Manager

There are two ways to get to SageMaker Role Manager, either through Getting started in the SageMaker console or when you select Add user in the SageMaker Studio Domain control panel.

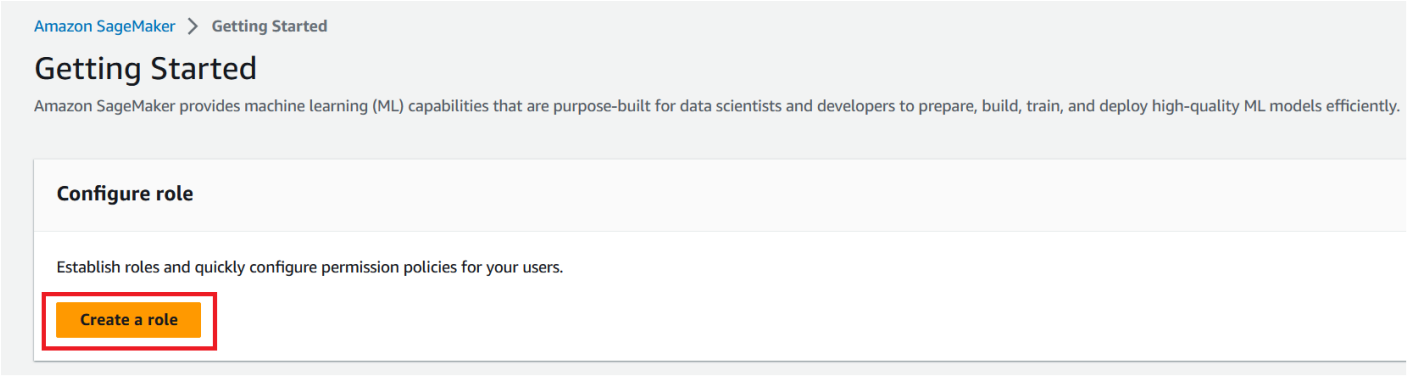
1. In the SageMaker console, choose *Get started*.

- Lab 5. Bias and Explainability
  - Bias and Explainability-Tabular Data
- Lab 6. SageMaker Pipelines
  - Option 1: Train Pipeline (SageMaker Pipelines)
  - Option 2: Batch Inference Pipeline (SageMaker Pipelines)
  - Option 3: SageMaker Projects
- Lab 7. Real Time ML inference on Streaming Data
- Lab 8. Build ML Model with No Code Using Sagemaker Canvas
- Lab 9. Amazon SageMaker JumpStart
  - Lab 9a. Build image classification with SageMaker JumpStart model
  - Lab 9b. Flan-T5 foundation model in Amazon SageMaker JumpStart
- Lab 10. ML Governance Tools for Amazon SageMaker
  - **Lab 10a. SageMaker Role Manager**
- Lab 11. SageMaker Notebook Instances

Content preferences

Language

2. Choose *Create a role*.

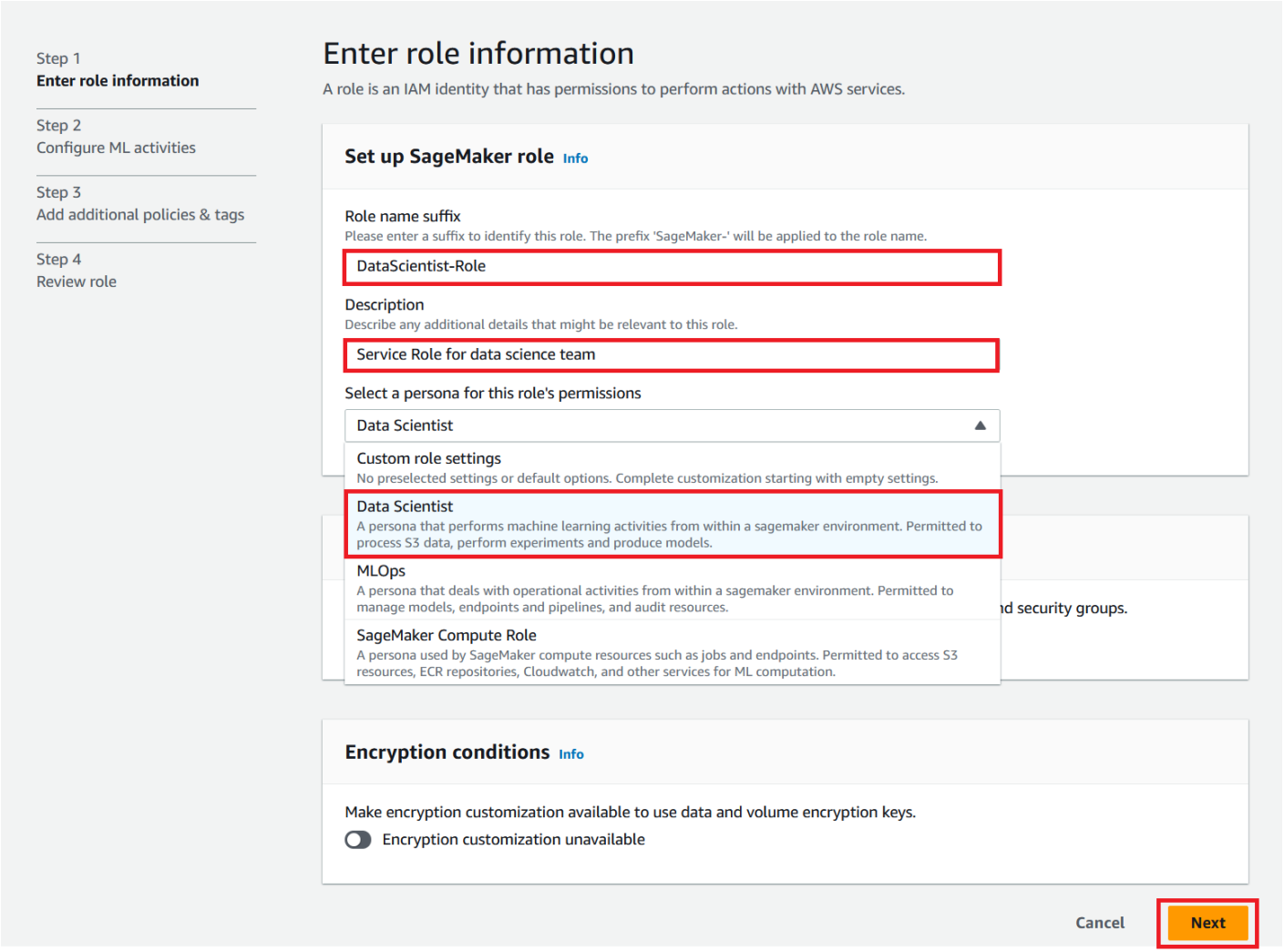


- Lab 5. Bias and Explainability
  - Bias and Explainability-Tabular Data
- Lab 6. SageMaker Pipelines
  - Option 1: Train Pipeline (SageMaker Pipelines)
  - Option 2: Batch Inference Pipeline (SageMaker Pipelines)
  - Option 3: SageMaker Projects
- Lab 7. Real Time ML inference on Streaming Data
- Lab 8. Build ML Model with No Code Using Sagemaker Canvas
- Lab 9. Amazon SageMaker JumpStart
  - Lab 9a. Build image classification with SageMaker JumpStart model
  - Lab 9b. Flan-T5 foundation model in Amazon SageMaker JumpStart
- Lab 10. ML Governance Tools for Amazon SageMaker
  - **Lab 10a. SageMaker Role Manager**
- Lab 11. SageMaker Notebook Instances

Content preferences

Language

3. Provide *Role name* and *Description*. Choose *Data Scientist* from *persona* drop down. Choose *Next*.



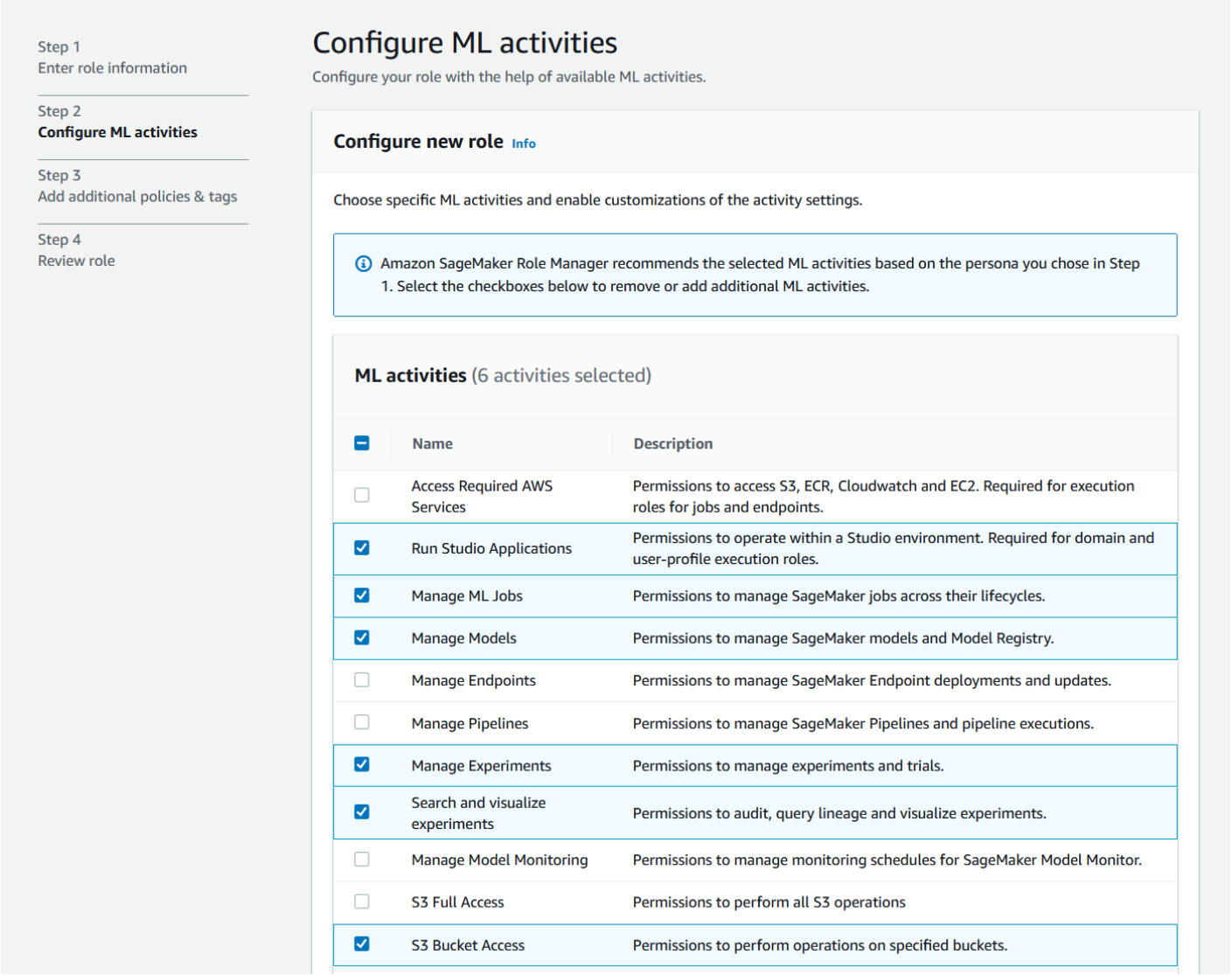
You can also define the network and encryption settings in this step by selecting Amazon Virtual Private Cloud (Amazon VPC) subnets, security groups, and encryption keys.

- Lab 5. Bias and Explainability
  - Bias and Explainability-Tabular Data
- Lab 6. SageMaker Pipelines
  - Option 1: Train Pipeline (SageMaker Pipelines)
  - Option 2: Batch Inference Pipeline (SageMaker Pipelines)
  - Option 3: SageMaker Projects
- Lab 7. Real Time ML inference on Streaming Data
- Lab 8. Build ML Model with No Code Using Sagemaker Canvas
- Lab 9. Amazon SageMaker JumpStart
  - Lab 9a. Build image classification with SageMaker JumpStart model
  - Lab 9b. Flan-T5 foundation model in Amazon SageMaker JumpStart
- Lab 10. ML Governance Tools for Amazon SageMaker
  - **Lab 10a. SageMaker Role Manager**
- Lab 11. SageMaker Notebook Instances

Content preferences

Language

4. You can select what ML activities data scientists in your team need to perform.



In the Configure ML activities section, one or more ML activities are pre-selected based on your baseline persona template.

Certain ML activities require additional information to complete the role setup. For example, selecting the S3 Bucket Access ML activity requires you to specify a list of S3 buckets to grant access to.Other ML activities may require a *PassRoles* entry to allow this persona to pass its permissions to a service role to perform actions on behalf of the persona. In our example, the Manage ML Jobs ML activity requires a *PassRoles* entry.

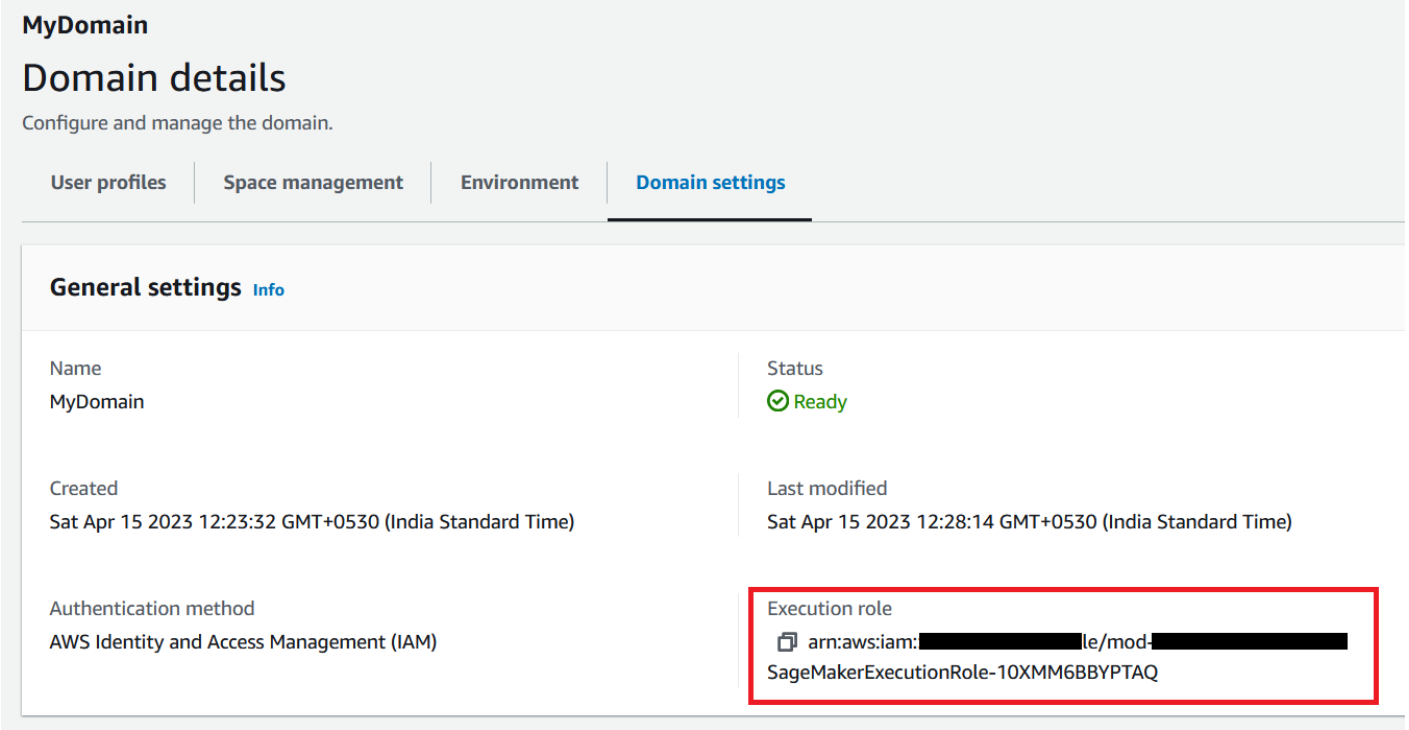
For this lab, we use the existing role and S3 bucket.

- Lab 5. Bias and Explainability
  - Bias and Explainability-Tabular Data
- Lab 6. SageMaker Pipelines
  - Option 1: Train Pipeline (SageMaker Pipelines)
  - Option 2: Batch Inference Pipeline (SageMaker Pipelines)
  - Option 3: SageMaker Projects
- Lab 7. Real Time ML inference on Streaming Data
- Lab 8. Build ML Model with No Code Using Sagemaker Canvas
- Lab 9. Amazon SageMaker JumpStart
  - Lab 9a. Build image classification with SageMaker JumpStart model
  - Lab 9b. Flan-T5 foundation model in Amazon SageMaker JumpStart
- Lab 10. ML Governance Tools for Amazon SageMaker
  - **Lab 10a. SageMaker Role Manager**
- Lab 11. SageMaker Notebook Instances

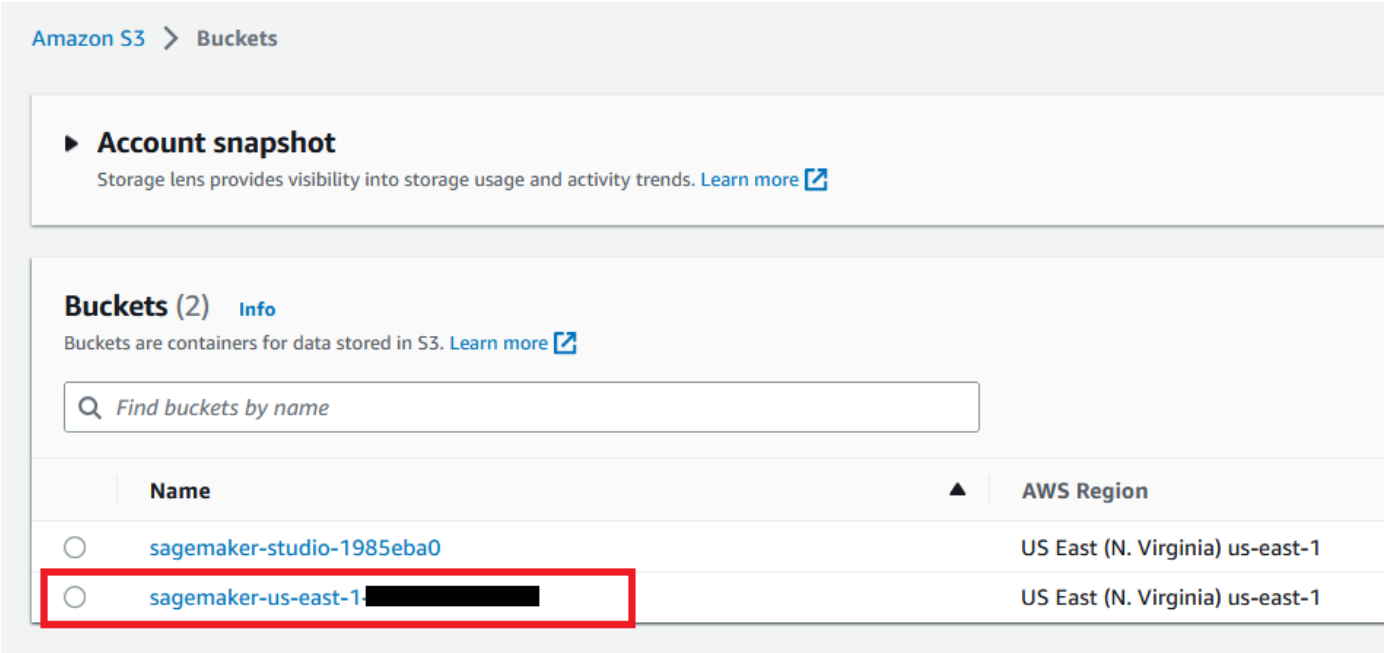
Content preferences

Language

5. In a new window, go to SageMaker domain and note down *Exceution role ARN* under *Domain settings*.



6. Go to Amazon S3 console and note the bucket name starts with *sagemaker--*.



- Lab 5. Bias and Explainability
  - Bias and Explainability-Tabular Data
- Lab 6. SageMaker Pipelines
  - Option 1: Train Pipeline (SageMaker Pipelines)
  - Option 2: Batch Inference Pipeline (SageMaker Pipelines)
  - Option 3: SageMaker Projects
- Lab 7. Real Time ML inference on Streaming Data
- Lab 8. Build ML Model with No Code Using Sagemaker Canvas
- Lab 9. Amazon SageMaker JumpStart
  - Lab 9a. Build image classification with SageMaker JumpStart model
  - Lab 9b. Flan-T5 foundation model in Amazon SageMaker JumpStart
- Lab 10. ML Governance Tools for Amazon SageMaker
  - **Lab 10a. SageMaker Role Manager**
- Lab 11. SageMaker Notebook Instances

Content preferences

Language

7. Provide Exceution role ARN for *Manage ML Jobs PassRoles*, *Manage Models PassRoles* and S3 bucket name. Choose *Next*.

- Lab 5. Bias and Explainability
  - Bias and Explainability-Tabular Data
- Lab 6. SageMaker Pipelines
  - Option 1: Train Pipeline (SageMaker Pipelines)
  - Pipelines)
  - Option 3: SageMaker Projects
- Lab 7. Real Time ML inference on Streaming Data
- Lab 8. Build ML Model with No Code Using Sagemaker Canvas
- Lab 9. Amazon SageMaker JumpStart
  - Lab 9a. Build image classification with SageMaker JumpStart model
  - Lab 9b. Flan-T5 foundation model in Amazon SageMaker JumpStart
- Lab 10. ML Governance Tools for Amazon SageMaker
  - **Lab 10a. SageMaker Role Manager**
- Lab 11. SageMaker Notebook Instances

Content preferences

Language

Manage ML Jobs

PassRoles

Specify one or more IAM Role ARNs (ex:- 'arn:aws:iam::112233445566:role/myRole'). This ML activity requires a role to be passed to a SageMaker service, to be assumed on the user's behalf.

arn:aws:iam:[redacted]ole/mod-6297809195fe4845-SageM

Remove

Manage Models

PassRoles

Specify one or more IAM Role ARNs (ex:- 'arn:aws:iam::112233445566:role/myRole'). This ML activity requires a role to be passed to a SageMaker service, to be assumed on the user's behalf.

arn:aws:iam:[redacted]role/mod-6297809195fe4845-SageM

Remove

Add

S3 Bucket Access

bucket

Specify one or more S3 buckets (ex:- 'my-bucket'). This ML activity requires read and write permissions to S3 buckets.

sagemaker-us-east-1-[redacted]

Remove

Add

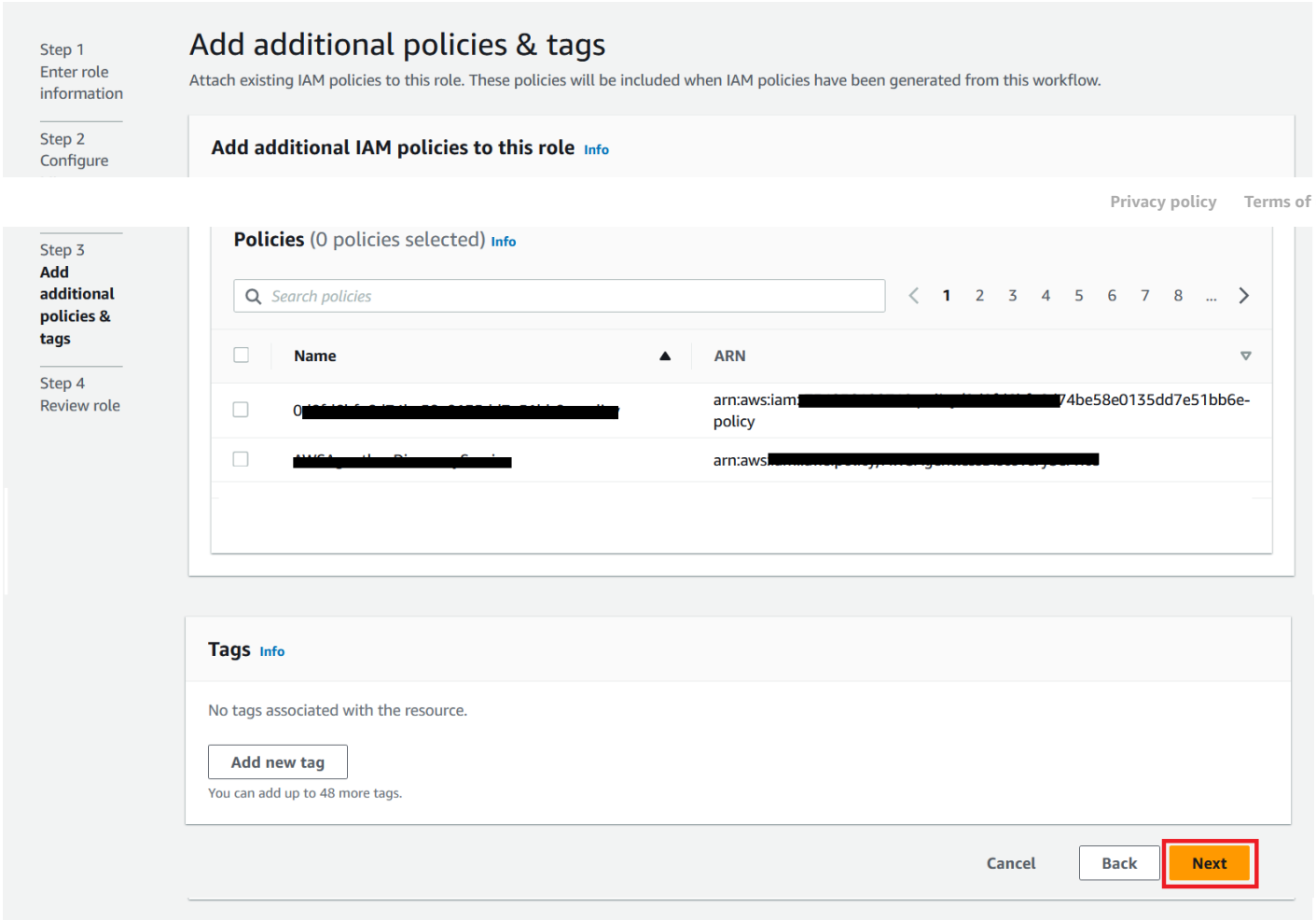
Cancel Back Next

- Lab 5. Bias and Explainability
  - Bias and Explainability-Tabular Data
- Lab 6. SageMaker Pipelines
  - Option 2: Batch Inference Pipeline (SageMaker Pipelines)
  - Option 3: SageMaker Projects
- Lab 7. Real Time ML inference on Streaming Data
- Lab 8. Build ML Model with No Code Using Sagemaker Canvas
- Lab 9. Amazon SageMaker JumpStart
  - Lab 9a. Build image classification with SageMaker JumpStart model
  - Lab 9b. Flan-T5 foundation model in Amazon SageMaker JumpStart
- Lab 10. ML Governance Tools for Amazon SageMaker
  - **Lab 10a. SageMaker Role Manager**
- Lab 11. SageMaker Notebook Instances

Content preferences

Language

8. You can attach additional IAM policies and add tags to the role if needed. Tags help you identify and organize your AWS resources. You can use tags to add attributes such as project name, cost center, or location information to a role. Choose *Next*.

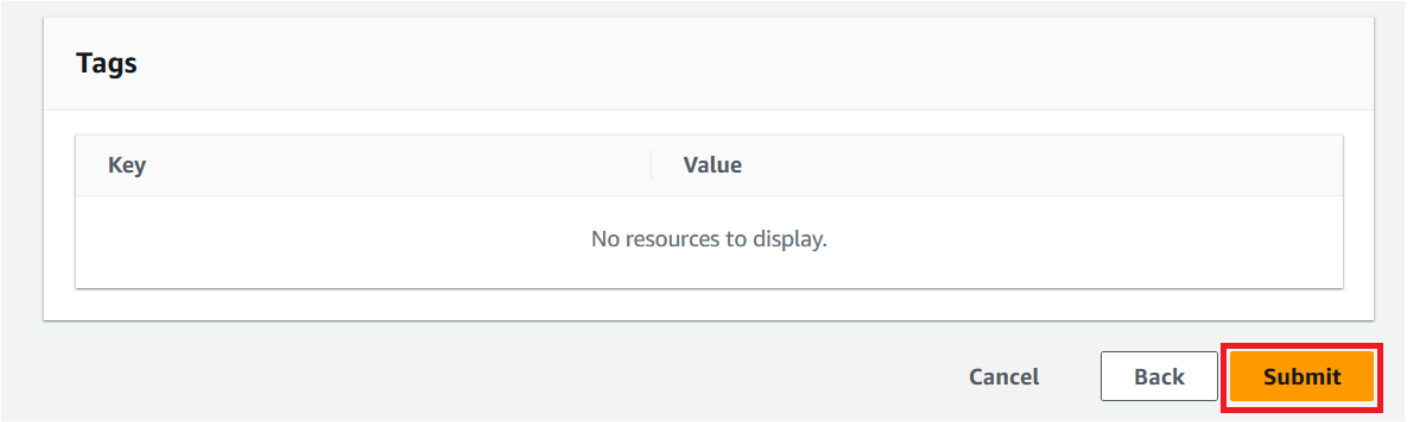


- Lab 5. Bias and Explainability
  - Bias and Explainability-Tabular Data
- Lab 6. SageMaker Pipelines
  - Option 1: Train Pipeline (SageMaker Pipelines)
  - Option 2: Batch Inference Pipeline (SageMaker Pipelines)
  - Option 3: SageMaker Projects
- Lab 7. Real Time ML inference on Streaming Data
- Lab 8. Build ML Model with No Code Using Sagemaker Canvas
- Lab 9. Amazon SageMaker JumpStart
  - Lab 9a. Build image classification with SageMaker JumpStart model
  - Lab 9b. Flan-T5 foundation model in Amazon SageMaker JumpStart
- Lab 10. ML Governance Tools for Amazon SageMaker
  - **Lab 10a. SageMaker Role Manager**
- Lab 11. SageMaker Notebook Instances

Content preferences

Language

9. After a final review of the settings select Submit, and the role is created.

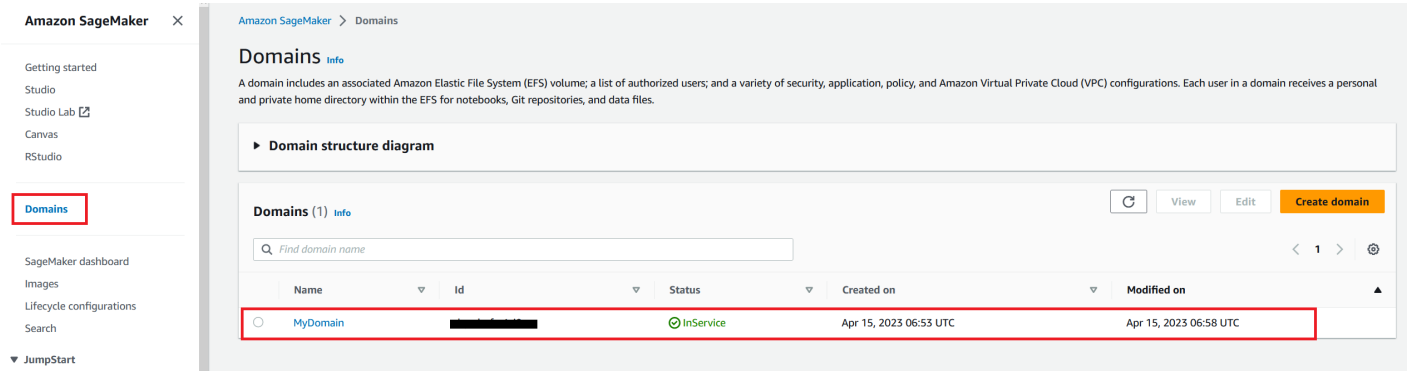


You have set up a SageMaker service role, and you are now ready to onboard data scientists in SageMaker with custom permissions in place.

Onboard User

Now you need user profile and you need the role to be associated to the user profile.

1. Go to Amazon Sagemaker and choose Domains.

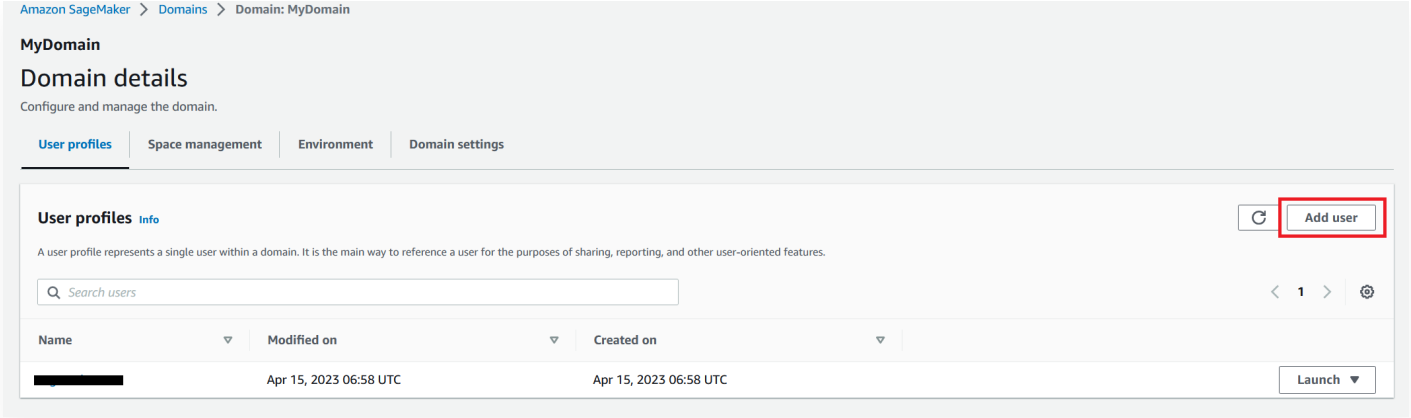


2. For this lab, a SageMaker domain is already provisioned in the pre-requisite section. A Sagemaker domain can have multiple user profiles. So you click on *domain* and choose *Add user*.

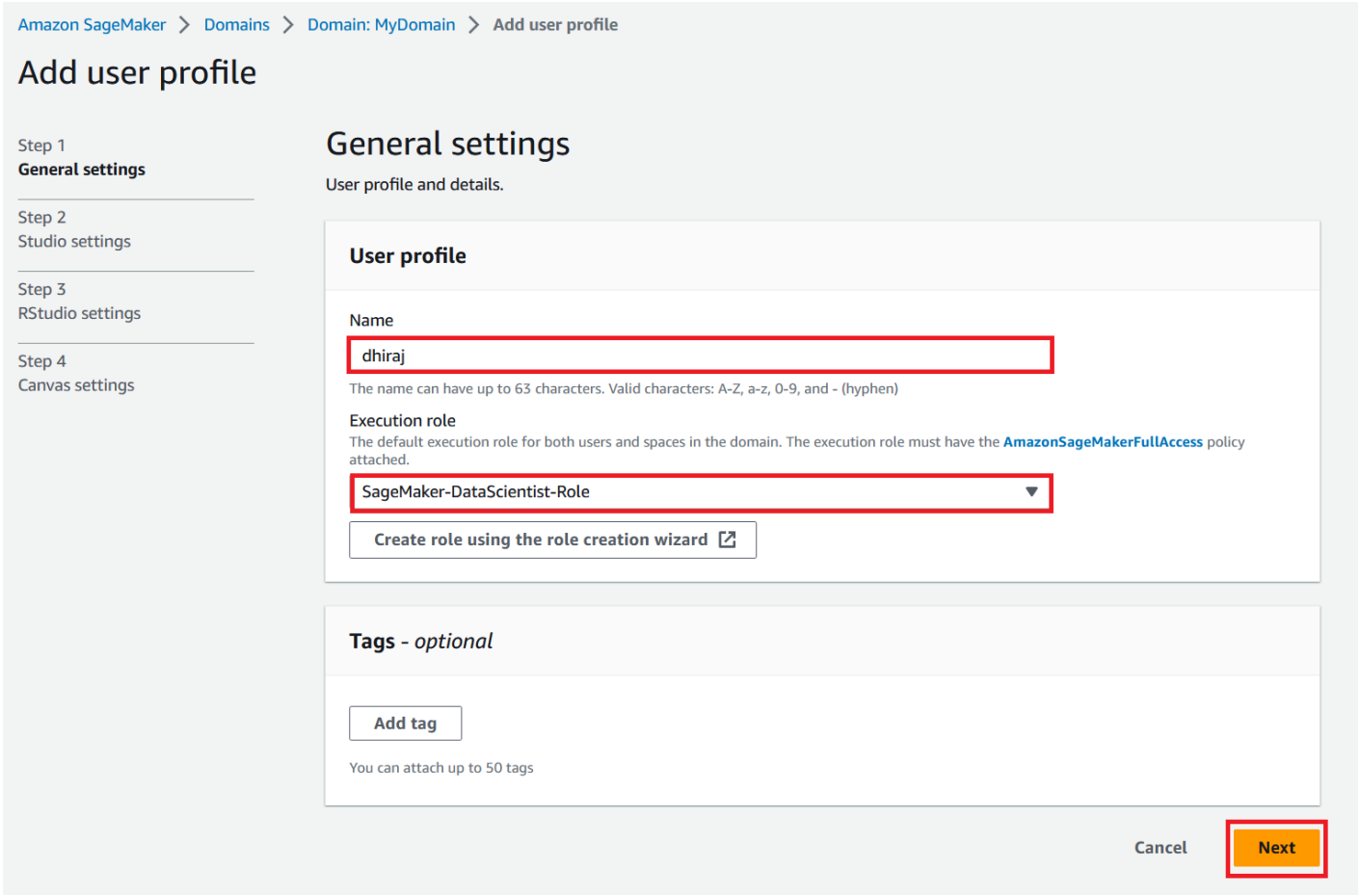
- Lab 5. Bias and Explainability
  - Bias and Explainability-Tabular Data
- Lab 6. SageMaker Pipelines
  - Option 1: Train Pipeline (SageMaker Pipelines)
  - Option 2: Batch Inference Pipeline (SageMaker Pipelines)
  - Option 3: SageMaker Projects
- Lab 7. Real Time ML inference on Streaming Data
- Lab 8. Build ML Model with No Code Using Sagemaker Canvas
- Lab 9. Amazon SageMaker JumpStart
  - Lab 9a. Build image classification with SageMaker JumpStart model
  - Lab 9b. Flan-T5 foundation model in Amazon SageMaker JumpStart
- Lab 10. ML Governance Tools for Amazon SageMaker
  - **Lab 10a. SageMaker Role Manager**
- Lab 11. SageMaker Notebook Instances

Content preferences

Language



3. Provide a name to user profile and select the data scientist role you have created earlier. Choose *Next*.

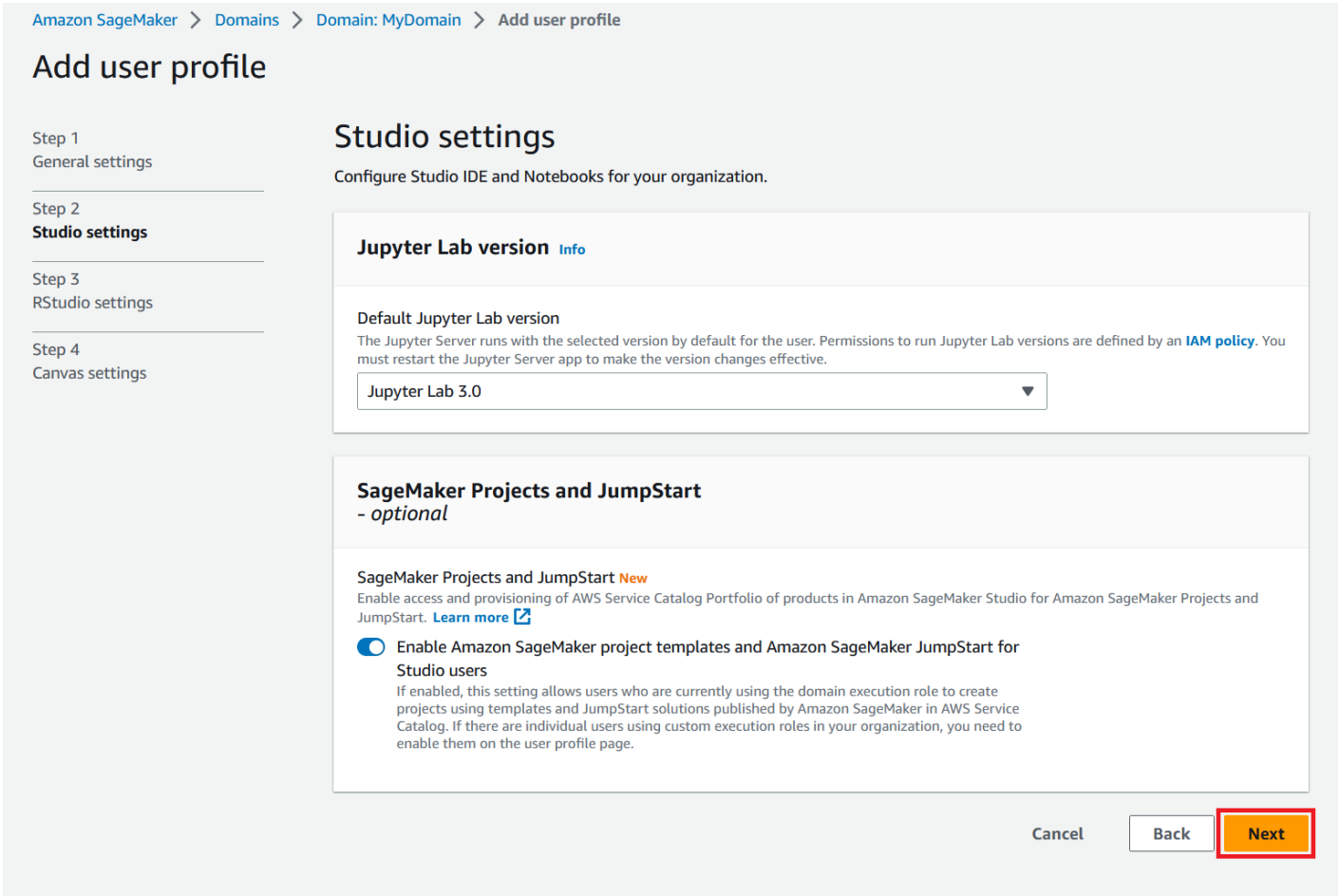


- Lab 5. Bias and Explainability
  - Bias and Explainability-Tabular Data
- Lab 6. SageMaker Pipelines
  - Option 1: Train Pipeline (SageMaker Pipelines)
  - Option 2: Batch Inference Pipeline (SageMaker Pipelines)
  - Option 3: SageMaker Projects
- Lab 7. Real Time ML inference on Streaming Data
- Lab 8. Build ML Model with No Code Using Sagemaker Canvas
- Lab 9. Amazon SageMaker JumpStart
  - Lab 9a. Build image classification with SageMaker JumpStart model
  - Lab 9b. Flan-T5 foundation model in Amazon SageMaker JumpStart
- Lab 10. ML Governance Tools for Amazon SageMaker
  - **Lab 10a. SageMaker Role Manager**
- Lab 11. SageMaker Notebook Instances

Content preferences

Language

4. Choose *jupyter Lab version* from drop down. Choose *Next*.

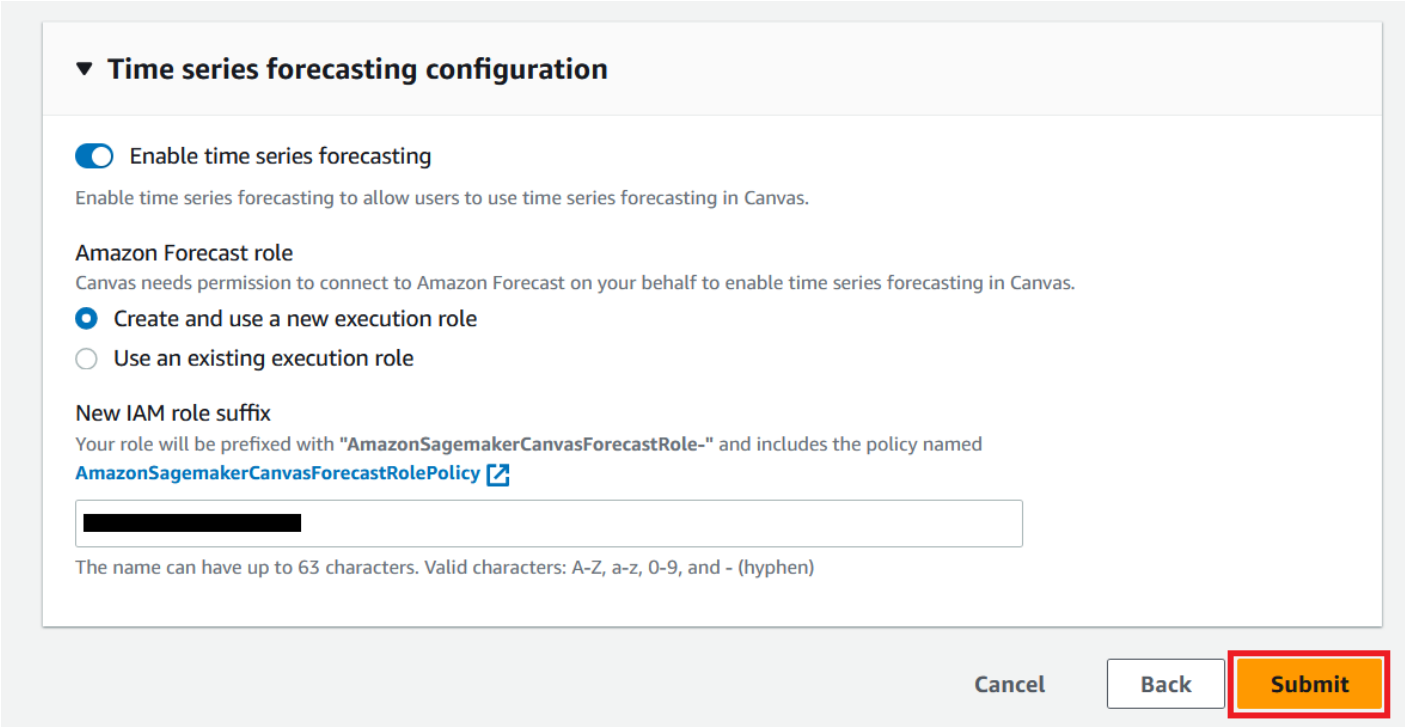


- Lab 5. Bias and Explainability
  - Bias and Explainability-Tabular Data
- Lab 6. SageMaker Pipelines
  - Option 1: Train Pipeline (SageMaker Pipelines)
  - Option 2: Batch Inference Pipeline (SageMaker Pipelines)
  - Option 3: SageMaker Projects
- Lab 7. Real Time ML inference on Streaming Data
- Lab 8. Build ML Model with No Code Using Sagemaker Canvas
- Lab 9. Amazon SageMaker JumpStart
  - Lab 9a. Build image classification with SageMaker JumpStart model
  - Lab 9b. Flan-T5 foundation model in Amazon SageMaker JumpStart
- Lab 10. ML Governance Tools for Amazon SageMaker
  - **Lab 10a. SageMaker Role Manager**
- Lab 11. SageMaker Notebook Instances

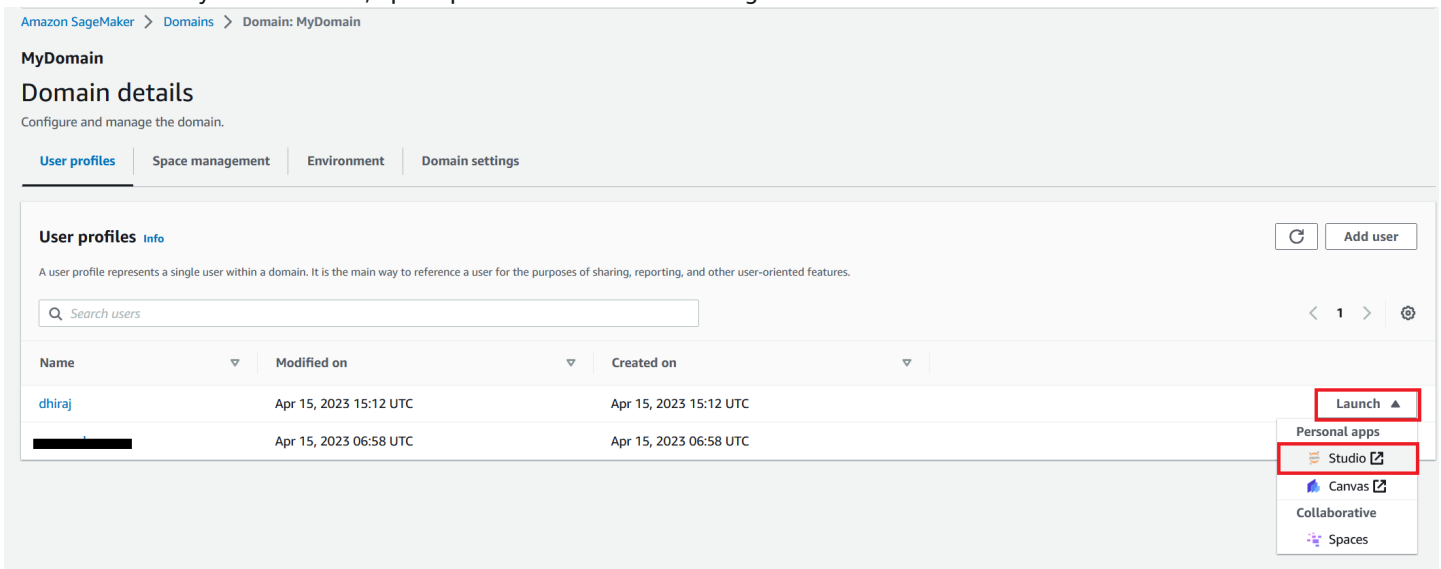
Content preferences

Language

5. Choose *Submit*.



Now user can easily launch studio , open up a notebook and start doing data science work.



- Lab 5. Bias and Explainability
  - Bias and Explainability-Tabular Data
- Lab 6. SageMaker Pipelines
  - Option 1: Train Pipeline (SageMaker Pipelines)
  - Option 2: Batch Inference Pipeline (SageMaker Pipelines)
  - Option 3: SageMaker Projects
- Lab 7. Real Time ML inference on Streaming Data
- Lab 8. Build ML Model with No Code Using Sagemaker Canvas
- Lab 9. Amazon SageMaker JumpStart
  - Lab 9a. Build image classification with SageMaker JumpStart model
  - Lab 9b. Flan-T5 foundation model in Amazon SageMaker JumpStart
- Lab 10. ML Governance Tools for Amazon SageMaker
  - **Lab 10a. SageMaker Role Manager**
- Lab 11. SageMaker Notebook Instances

Content preferences

Language