aws

Administrator Guide

Amazon SageMaker Unified Studio

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Amazon SageMaker Unified Studio: Administrator Guide

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What is Amazon SageMaker Unified Studio?

As a part of the next generation of Amazon SageMaker, Amazon SageMaker Unified Studio is a unified development experience that brings together AWS data, analytics, artificial intelligence (AI), and machine learning (ML) services. It provides a place to build, deploy, execute, and monitor workflows from a single interface. This helps drive collaboration across teams and facilitate agile development.

In Amazon SageMaker Unified Studio, administrators manage the users and groups that can access Amazon SageMaker Unified Studio, and they set up resources for teams to use. When your administrator grants you access to Amazon SageMaker Unified Studio, you can contribute to Amazon SageMaker Unified Studio projects. Within Amazon SageMaker Unified Studio projects, you can collaborate on business use cases by creating and sharing data, computation work, and other resources.

This guide provides information for Amazon SageMaker Unified Studio administrators on using the Amazon SageMaker management console to set up resources in Amazon SageMaker Unified Studio and on managing users and groups and their access to Amazon SageMaker Unified Studio and its configured resources.

For more information about the user experience and flow of using projects to create and share data, perform computation work, and complete other tasks, see the Amazon SageMaker Unified Studio User Guide.

Administrators can also configure Amazon SageMaker Unified Studio programmatically by invoking the HTTPS APIs.

How does it work?

Amazon SageMaker Unified Studio administrators can use the Amazon SageMaker management console to configure and customize the following Amazon SageMaker Unified Studio capabilities:

- Data analytics, machine learning, SQL, and generative AI
- Data and AI governance
- Generative AI app development using Amazon Bedrock serverless models
- Amazon Q
- Authentication via AWS IAM, AWS IAM Identity Center, or SAML

Amazon SageMaker Unified Studio terminology and concepts

As you get started with Amazon SageMaker Unified Studio, it is important that you understand its key concepts, terminology, and components.

Amazon SageMaker Unified Studio

This is a browser-based web application where you can use all your data and tools for analytics and AI. Amazon SageMaker Unified Studio can authenticate you with your IAM user credentials or with credentials from your identity provider through the AWS IAM Identity Center or with your SAML credentials. You can obtain the Amazon SageMaker Unified Studio URL for you domains by accessing the Amazon SageMaker management console at https://console.aws.amazon.com/datazone.

Amazon SageMaker management console

You can use the Amazon SageMaker management console at https://console.aws.amazon.com/datazone to access and configure your domains for user management, account associations, project profiles, blueprints, Amazon Bedrock models, Git connections, and Amazon Q usage.

Amazon Bedrock in SageMaker Unified Studio

Amazon Bedrock in SageMaker Unified Studio in Amazon SageMaker Unified Studio enables you to easily build and scale generative AI applications. Amazon Bedrock in SageMaker Unified Studio provides a web interface that allow users to interact with Amazon Bedrock foundation models and use Amazon Bedrock tools, such as Agents, Guardrails, Prompts, Flows, Evaluation, and Functions in a seamless unified fashion. Users can interact with models in a generative AI playground or collaborate on developing generative AI applications in projects. For more information, see Amazon Bedrock in SageMaker Unified Studio.

Amazon Q

Amazon Q Developer is an AI coding assistant that can chat about code, provide inline code completions, generate net new code, scan your code for security vulnerabilities, and make code upgrades and improvements. For more information, see Amazon Q in Amazon SageMaker Unified Studio.

In the current release of Amazon SageMaker Unified Studio, by default, all users of an Amazon SageMaker Unified Studio domain have access to the Free Tier release of Amazon Q.

Amazon SageMaker Lakehouse

Amazon SageMaker Lakehouse unifies your data across Amazon S3 data lakes and Amazon Redshift data warehouses. Amazon SageMaker Lakehouse helps you build powerful analytics, machine learning (ML), and generative AI applications on a single copy of data.

Amazon SageMaker Lakehouse is accessible via Amazon SageMaker Unified Studio.

Amazon SageMaker Data Processing Visual ETL

Amazon SageMaker Unified Studio allows you to author highly scalable extract, transform, load (ETL) data integration flows for distributed processing without becoming an Apache Spark expert. You can define your data integration flow in the simple visual interface and Amazon SageMaker Unified Studio automatically generates the code to move and transform your data. The code is generated in Python and written for Apache Spark. Additionally, you can choose to author your visual flows in English using generative AI prompts from Amazon Q.

Asset

In Amazon SageMaker Unified Studio, an asset is an entity that presents a single physical data object (for examples, a table, a dashboard, a file) or virtual data object (for example, a view).

Asset type

Asset types define how assets are represented in the Amazon SageMaker catalog. An asset type defines the schema for a specific type of asset. When assets are created, they are validated against the schema defined by their asset type (by default, the latest version). When an asset update occurs, Amazon SageMaker Unified Studio creates a new asset version and enables Amazon SageMaker Unified Studio users to operate on all asset versions.

Associated accounts

Account association in Amazon SageMaker Unified Studio enables you to publish data from other AWS accounts into the Amazon SageMaker catalog and create projects to work with data across multiple AWS accounts. Account association requests are initiated from AWS accounts from which Amazon SageMaker unified root domains are created. You can request association from the Amazon SageMaker management console. Account association requests must be accepted by the administrators of the AWS accounts invited for account association. You can authorize the domain account to use data or allow infrastructure deployment with the right IAM permissions as part of approval. Once an associated account is linked to a domain, projects in Amazon SageMaker Unified Studio can use resources from those accounts and also other types

of assets. You can deploy resources in specific AWS accounts through project profiles. For more information, see Associated accounts in Amazon SageMaker Unified Studio.

Authorization policy

Authorization policies are a set of controls within Amazon SageMaker Unified Studio applied to entities such as projects, blueprints, environments, glossary, and metadata forms.

Within an Amazon SageMaker Unified Studio domain unit, you can assign the following authorization policies to your users and groups to grant them specific permissions:

- Domain unit creation policy
- Project creation policy
- Project membership policy
- Domain unit ownership assumption policy
- Project ownership assumption policy

Within an Amazon SageMaker Unified Studio domain unit, you can assign the following authorization policies to your projects to grant them specific permissions:

- Glossary creation policy
- Metadata forms creation policy
- Custom asset type creation policy

Within a specific blueprint configuration, you can assign the following authorization policies to projects and domain unit owners:

- Create environment profiles using this blueprint - this policy can be assigned to Amazon SageMaker Unified Studio projects and it authorizes them to create environment profiles using this blueprint.
- Grant permissions to create environment profiles using this blueprint - this policy can be assigned to domain unit owners and it authorizes them to grant permissions to projects to create environment profiles using this blueprint.

AWS account owner

In Amazon SageMaker Unified Studio, AWS account owners create roles, policies, and permissions in their AWS accounts that enable these AWS accounts to be associated with Amazon SageMaker Unified Studio domains. For more information, see Managing users in Amazon SageMaker Unified Studio.

Blueprint

A blueprint with which the project profile is created defines what AWS tools and services members of the project to which the project profile belongs can use as they work with data in the Amazon SageMaker catalog. For more information, see Blueprints in Amazon SageMaker Unified Studio.

In the current release of Amazon SageMaker Unified Studio the following default blueprints are supported:

Blueprint name	Description	Resources created
AmazonBedrockGenerativeAI	This is the combined Amazon Bedrock blueprint which contains seven sub-Amazon Bedrock blueprint s. It enables users to build generative AI applications using tools such as Agents, Knowledge Bases, Guardrail s, Flows, Functions, and Model Evaluation.	
AmazonBedrockChatAgent	Provides a reusable AWS CloudFormation template to create an Amazon Bedrock Agent and supportin g resources, including an execution role and a consumption role.	Bedrock Agent, Bedrock Agent Execution role, Bedrock Agent Consumption role
AmazonBedrockEvaluation	Creates one IAM role as the service role for an Amazon Bedrock evaluation job.	Bedrock Evaluation job execution role
AmazonBedrockFlow	Provides a reusable AWS CloudFormation template to create an Amazon Bedrock	Amazon Bedrock Flow, Amazon Bedrock Flow Execution role

Blueprint name	Description	Resources created
	Prompt Flow and supportin g resources such as an execution role.	
AmazonBedrockFunction	Provides a reusable AWS CloudFormation template to create an AWS Lamda function and supportin g resources, such as an execution role, and a secret manager.	Secrets Manager secret, AWS Lambda function, AWS Lambda function execution role, Log group
AmazonBedrockGuardrail	Provides an AWS CloudForm ation template to create an Amazon Bedrock Guardrail and supporting resources such as an execution role.	Amazon Bedrock Guardrail
AmazonBedrockKnowl edgeBase	Provides an AWS CloudForm ation template to create a reusable Amazon Bedrock Knowledge Base and supporting resources such as an execution role.	Amazon Bedrock Knowledge Base, OpenSearch Serverless collection, Amazon Bedrock Knowledge Base Execution role, AWS Lambdas, including OpenSearch Index Lambda and KB Ingestion Trigger Lambda, AWS Lambda Execution role, Amazon Bedrock Knowledge Base data source

Blueprint name	Description	Resources created
AmazonBedrockPrompt	Provides a reusable AWS CloudFormation template to create an Amazon Bedrock Prompt and supportin g resources, such as an execution role, and a consumption role.	Amazon Bedrock Prompt, Amazon Bedrock Prompt Consumption role
LakeHouseDatabase	Provides a reusable AWS CloudFormation template to create a data lake environme nt with a AWS Glue database for data management and an Amazon Athena workgroup for querying data.	AWS Glue databases, lake formation permissions, Amazon Athena workgroups
EMRonEC2	Provides a reusable AWS CloudFormation template to create an Amazon EMR on EC2 cluster to run and scale Apache Spark, Hive, and other big data workloads. For more information about enabling this blueprint see, Specify PEM certificate for EmrOnEc2 blueprint	EMR on EC2 clusters
EMRServerless	Provides a reusable AWS CloudFormation template to create an Amazon EMR Serverless application that is ready to serve Apache Spark batch jobs and interactive sessions.	EMR on Serverless applicati ons

Blueprint name	Description	Resources created
LakehouseCatalog	Provisions a new catalog in the Amazon SageMaker Lakehouse that is backed by Amazon Redshift Managed Storage	
MLExperiments	Provides OnDemand blueprint to enable MLflow tracking server for the experimentation inside a project.	MLflow tracking server (on demand)
PartnerApps	Creates an IAM role and a Connection that enables access to Partner AI Apps. Through Partner AI Apps you can leverage integrate d and fully-managed thrid-party solutions for AI/Ml development.	Amazon SageMaker Partner AI Apps IAM role, Amazon SageMaker Partner AI Apps Connection
RedshiftServerless	Provides a reusable AWS CloudFormation template to create an Amazon Redshift Serverless environment to get insights from data without managing infrastru cture.	Amazon Redshift Serverless warehouses
Tooling	Creates resources for the project, including IAM user roles, security groups, and Amazon SageMaker unified domains.	IAM user roles, Amazon SageMaker unified domains, security groups

Blueprint name	Description	Resources created
Workflows	Provides an AWS CloudFormation template to create the MWAA environment for Airflow based Workflows	Enables project workflows on MWAA

Business data catalog

This is a catalog of all the published assets from various projects. The scope of the business data catalog is the domain therefore published assets are discoverable by all projects in that domain. Business data catalog enables discovery that crosses the account and region boundary. Assets can be published to the business data catalog and subsequently be subscribed to as well. Every asset that lives in the business data catalog has an owner project (also known as the producer project) which controls policies around how subscriptions can be fulfilled. A subscriber (also known as a consumer project) is able to make a request to the owner project to gain access to the asset. Once the request is approved, the owner project provides the necessary permissions to subscriber project so that it may gain access to that asset.

Business glossary

In Amazon SageMaker Unified Studio, a business glossary is a collection of business terms that may be associated with assets. A business glossary helps ensure that the same terms and definitions are used across an organization throughout its various data analytics tasks. The terms in a business glossary can be added to assets and columns to classify or enhance the identification of those attributes during search. Glossary can be selected as the value type for a field in a metadata form that is associated with an asset. When a particular term is selected as the value for an asset's metadata form field, users can search for the business glossary term and find the associated assets.

Git connection

Git connections enable you to check in and check out files, and manage your code repository. When you create an Amazon SageMaker unified domain, a default git connection to CodeCommit is provided for you to manage your code. You can also create and enable new 3P Git connections to GitHub, GitHub Enterprise Server, GitLab, and GitLab Self-Managed. For more information, see Github connections.

Data source

An entity which brings in metadata from a source and adds metadata forms (e.g. ingestion job). This entity allows publishers to capture ingestion configuration including what metadata forms to attach, whether to run BNG, etc. Since this configuration has a 1 to many mapping with the credentials provided by the publisher, we believe that it should be captured in a separate entity.

In Amazon SageMaker Unified Studio, you can use data sources to import technical metadata of assets (data) from the source databases or data warehouses into Amazon SageMaker Unified Studio. In the current release of Amazon SageMaker Unified Studio, you can create and run data sources for AWS Glue and Amazon Redshift. By creating a data source, you establish a connection between Amazon SageMaker Unified Studio and the source (AWS Glue Data Catalog or Amazon Redshift Warehouse) which enables you to read technical metadata, including tables names, columns names, and data types. By creating a data source you also kick off the initial data source run that creates new or updates existing assets in Amazon SageMaker Unified Studio. While creating a data source or after the data source is successfully created, you also have the option to specify a schedule for your data source runs.

Data source run

In Amazon SageMaker Unified Studio, a data source run is a task that Amazon SageMaker Unified Studio performs in order to create assets in project inventories and also optionally to publish project inventory assets to the Amazon SageMaker catalog. Data source runs can be automated (kicked off when a data source is initially created) or scheduled or manual. Data selection criteria enables you to fine-tune the existing and future data sets to be ingested into project inventories or the Amazon SageMaker catalog and the frequency of metadata updates to those inventory or catalog assets.

Domain

In Amazon SageMaker Unified Studio, a domain is the organizing entity for connecting together your assets, users, and their projects. With Amazon SageMaker unified domains, you have the flexibility to reflect the data and analytics needs of your organizational structure, whether it's creating a single Amazon SageMaker unified domain for your enterprise or multiple domains for different business units. For more information, see Domains in Amazon SageMaker Unified Studio.

Domain administrator

The IAM principal ID that has the super administrative permissions to edit entities in the domain.

In Amazon SageMaker Unified Studio, an IAM principal who creates an Amazon SageMaker Unified Studio domain is the default domain administrator of that domain. Domain administrators in Amazon SageMaker Unified Studio perform key functionalities for the domain, including creating domains, assigning other domain administrators, creating and managing project profiles, configuring blueprints, user management, account associations, Amazon Bedrock models, Git connections, and Amazon Q.

Domain unit

Domain units enable you to easily organize your assets and other domain entities under specific business units and teams. To set up secure and efficient data sharing within and across business units of your organization, you can create domain units within Amazon SageMaker Unified Studio and enable selected users within each business unit to login and share their assets to the catalog. Domain units can also be used to enable resource owners, such as AWS account owners, to set up Amazon SageMaker Unified Studio authorization permissions on their resources. Domain units provide a delegated authority from account owners to domain unit owners and they can set up authorization permissions on behalf of account owners.

JupyterLab

Amazon SageMaker Unified Studio provides a JupyterLab interactive development environment (in SageMaker Unified Studio) for you to use as you perform data integration, analytics, or machine learning in your projects. Amazon SageMaker Unified Studio notebooks are built on JupyterLab spaces and Amazon SageMaker Distribution.

Metadata form type

A metadata form type is a template that defines the metadata that is collected and saved when assets are created as inventory or published in an Amazon SageMaker unified domain. Metadata form types can be associated with a data asset. Metadata form types help domain administrators to define metadata forms needed for that domain such as compliance information, regulation information, or classifications. It enables domain administrators to customize additional metadata for their assets. Amazon SageMaker Unified Studio has system metadata form types such as asset-common-details-form-type, column-business-metadata-form-type, glue-table-form-type, glue-view-form-type, redshift-table-form-type, redshift-view-form-type, s3-object-collection-form-type, subscription-terms-form-type, and suggestion-form-type.

Metadata form

In Amazon SageMaker Unified Studio, metadata forms define the metadata that is collected and saved when assets are created as inventory or published in an Amazon SageMaker

unified domain. Metadata form definitions are created in the catalog domain by a domain administrator. A metadata form definition is composed of one or more field definitions, with support for boolean, date, decimal, integer, string, and business glossary field value data types. A domain administrator applies a metadata form to assets in their domain by adding the metadata form to their domain. Asset publishers then provide any optional and required field values in the metadata form.

Project profile

In Amazon SageMaker Unified Studio, a project profile defines an uber template for projects in your Amazon SageMaker unified domains. A project profile is a collection of blueprints which are configurations used to create projects. A project profile can define if a particular blueprint is enabled during the creation of the project, or available later for the project users to enable on-demand. For more information, see Project profiles in Amazon SageMaker Unified Studio.

You must be an administrator of a Amazon SageMaker Unified Studio domain to create and manage project profiles. In the current release of Amazon SageMaker Unified Studio, you can create the following project profiles:

- All capabilities project profile
- SQL analytics project profile
- Generative AI application development project profile
- Custom project profile

Project

The project entity is the mechanism by which Amazon SageMaker Unified Studio users organize their work and provide business context over the jobs they are performing. A project is a container for all the users code including notebooks, queries, dashboards, workflows etc. A project provides three capabilities: 1) business context for the user's work which provides a level of audit to the functionality being performed, 2) collaboration boundary where the users can work with each other by interacting with the project's source control repository and 3) a permission boundary which gives users access to all the project artifacts and data/compute permissions once the users are added to the project. A project exists within a domain. A single Amazon SageMaker unified domain can have several projects and each user can be added to multiple projects.

Each project is created using a template called project profile which is enabled by an administrator during the setup phase. A project profile controls the tools available within the

project. Project members can request access to assets from the business data catalog and produce new artifacts using one or more of the tools available inside the project. Artifacts in a project are not accessible outside of the project unless they are published to the business data catalog which is discussed later.

Each project has one or multiple owners, who can add or remove other users (called Project Members) as owners or contributors and can modify or delete projects. Other restrictions on contributors can be defined with policies. When a user creates a project, they become the first owner of that project.

Project S3

The purpose of the project S3 path in Amazon SageMaker Unified Studio is to provide a secure, project-isolated location for storing temporary execution data and other project-related artifacts. The project S3 path follows a standardized structure of "<bucket>/<domain_id>/<project_id>/<project_scope>/" to ensure separation between projects and prevent objects from being shared across projects. The project S3 path is also used to store specific types of data, such as the location for the provisioned consumer AWS Glue database, Athena Workgroup output, and temporary storage for individual workflow runs.

Project Git repository

A project includes a dedicated git repository which serves as a central hub for users to manage version control for the code associated with their Amazon SageMaker Unified Studio projects. This enables collaboration across users within a project. All tools that generate file-based assets must use the project git repository for version control, e.g. Query Editor, JupyterLab in SageMaker Unified Studio, etc. By default, Amazon SageMaker Unified Studio uses AWS CodeCommit as the project's repository which is created when a project is created. However, administrators can modify this to connect a third-party Git repository such as Github, Github Enterprise Server, GitLab, and BitBucket instead of the default repository.

Project member

A project member is any user who has been added to a project and given access to the project data and resources. Users can be enterprise users sourced from the IDP or IAM Principals from one of the domain associated accounts. Project owners can add members either by adding them directly or by selecting enterprise groups. A project member is added to a project with a designation that defines the set of permissions it has within the project. Users can collaborate on various activities such as accessing data assets, performing data analysis or machine learning activities.

Subscription request

A request to use a data product.

In Amazon SageMaker Unified Studio, a subscription request is a process that an Amazon SageMaker Unified Studio project must follow in order to be granted access to a specific asset. Subscription requests can be approved, rejected, revoked, or granted.

Subscription grant

An object representing a fulfilled request for a particular project.

Querybook

Querybooks allow you to develop, run, and share multiple SQL queries in a single interactive notebook. They provide an environment for data scientists, analysts, and developers to query, analyze, and visualize data using Amazon Redshift or Amazon Athena as the query engine. Cells in a Querybook contain SQL statements or markdown and can be run individually, like a traditional query editor, or sequentially. Query results appear in-line with each cell, where you can toggle between multiple results and create data visualizations. To accelerate query development, Querybooks integrate with Amazon Q to generate SQL queries from natural language input, and provide auto-complete suggestions for table names, column names, and SQL keywords as you type. Amazon SageMaker Unified Studio automatically saves your work as you progress. When ready, you can publish your Querybook to your project for collaboration with teammates.

Space

A space in Amazon SageMaker Unified Studio refers to a personalized workspace that provides an isolated, sandboxed environment for users to run arbitrary code without interfering with other workers in a project. Each space consists of a compute instance, an EBS volume, and the JupyterLab application. Users can access their spaces through various entry points in Amazon SageMaker Unified Studio, the developer tools section, or by clicking on Notebook files. The project Git repository is cloned into the space on first time creation of space. SageMaker Distribution is the image that is used to provide all the libraries, extensions, packages in the in SageMaker Unified Studio application.

Setting up Amazon SageMaker Unified Studio

Topics

- Sign up for an AWS account
- Create a user with administrative access

Sign up for an AWS account

If you do not have an AWS account, complete the following steps to create one.

To sign up for an AWS account

1. Open https://portal.aws.amazon.com/billing/signup.
2. Follow the online instructions.

   Part of the sign-up procedure involves receiving a phone call or text message and entering a verification code on the phone keypad.

   When you sign up for an AWS account, an *AWS account root user* is created. The root user has access to all AWS services and resources in the account. As a security best practice, assign administrative access to a user, and use only the root user to perform tasks that require root user access.

AWS sends you a confirmation email after the sign-up process is complete. At any time, you can view your current account activity and manage your account by going to https://aws.amazon.com/ and choosing **My Account**.

Create a user with administrative access

After you sign up for an AWS account, secure your AWS account root user, enable AWS IAM Identity Center, and create an administrative user so that you don't use the root user for everyday tasks.

Secure your AWS account root user

1. Sign in to the AWS Management Console as the account owner by choosing **Root user** and entering your AWS account email address. On the next page, enter your password.

For help signing in by using root user, see Signing in as the root user in the *AWS Sign-In User Guide*.

2. Turn on multi-factor authentication (MFA) for your root user.

   For instructions, see Enable a virtual MFA device for your AWS account root user (console) in the *IAM User Guide*.

Create a user with administrative access

1. Enable IAM Identity Center.

   For instructions, see Enabling AWS IAM Identity Center in the *AWS IAM Identity Center User Guide*.

2. In IAM Identity Center, grant administrative access to a user.

   For a tutorial about using the IAM Identity Center directory as your identity source, see Configure user access with the default IAM Identity Center directory in the *AWS IAM Identity Center User Guide*.

Sign in as the user with administrative access

- To sign in with your IAM Identity Center user, use the sign-in URL that was sent to your email address when you created the IAM Identity Center user.

  For help signing in using an IAM Identity Center user, see Signing in to the AWS access portal in the *AWS Sign-In User Guide*.

Assign access to additional users

1. In IAM Identity Center, create a permission set that follows the best practice of applying least-privilege permissions.

   For instructions, see Create a permission set in the *AWS IAM Identity Center User Guide*.

2. Assign users to a group, and then assign single sign-on access to the group.

   For instructions, see Add groups in the *AWS IAM Identity Center User Guide*.

Regions where Amazon SageMaker Unified Studio is supported

In the current release, Amazon SageMaker Unified Studio is supported in the following AWS regions:

- Asia Pacific (Tokyo)
- Europe (Ireland)
- US East (N. Virginia)
- US East (Ohio)
- US West (Oregon)
- Europe (Frankfurt)
- South America (São Paulo)
- Asia Pacific (Seoul)
- Europe (London)
- Asia Pacific (Singapore)
- Asia Pacific (Sydney)
- Canada (Central)
- Asia Pacific (Mumbai)
- Europe (Paris)
- Europe (Stockholm)

Domains in Amazon SageMaker Unified Studio

In Amazon SageMaker Unified Studio, a domain is the organizing entity for connecting together your assets, users, and their projects. With Amazon SageMaker unified domains, you have the flexibility to reflect the data and analytics needs of your organizational structure, whether it's creating a single Amazon SageMaker unified domain for your enterprise or multiple domains for different business units. This section describes how you can create and manage domains using the Amazon SageMaker management console.

In the current release of Amazon SageMaker Unified Studio, you can use the Amazon SageMaker management console to create either Amazon SageMaker unified domains or Amazon DataZone domains. For the Amazon SageMaker unified domains, you can choose either the **Quick setup** or the **Manual setup** options. Once your domain is created, you can navigate to the Amazon SageMaker Unified Studio (a browser-based web application) where you can use all your data and configured tools for analytics and AI.

Topics

- Create a Amazon SageMaker Unified Studio domain - quick setup
- Create a Amazon SageMaker Unified Studio domain - manual setup
- Create an Amazon DataZone domain
- Edit domains
- Delete domains
- Upgrade Amazon DataZone domains to Amazon SageMaker unified domains

Create a Amazon SageMaker Unified Studio domain - quick setup

Complete the following procedure to create an Amazon SageMaker unified domain with the Quick setup option.

Important

Note that there is an additional charge for any VPC or resources that AWS sets up if you chose the Quick setup option for domain creation. The Quick setup option is intended for testing purposes and we recommend deleting the domain after initial tests.

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose **Create a Unified Studio domain** and then choose **Quick setup**.

   With this option, you're choosing to create an Amazon SageMaker unified domain and you're letting Amazon SageMaker Unified Studio configure your domain with the following default capabilities that you can customize later:

   - Data analytics, machine learning, SQL, and generative AI
   - Data and AI governance
   - Generative AI app development using Amazon Bedrock serverless models
   - Amazon Q - Free tier
   - Authentication via AWS IAM or AWS IAM Identity Center
3. If you see the following note **No VPC has been specifically set up for use with Amazon SageMaker Unified Studio**, you can use the **Choose VPC** or **Create VPC** buttons to **Create a new VPC (recommended)** or choose an existing properly-configured VPC.

   If you plan to choose your own VPC, Amazon SageMaker Unified Studio enables you to choose VPCs within the same account as well as shared VPCs from other member accounts of the AWS organization. For more information, see Share your VPC subnets with other accounts.

   Note

   If you choose to create a new VPC, note that the VPC template with which it is created is not intended for production use. You can use this template as a start and modify it for your organization's purposes.

If you see the following note **No models accessible**, you can use the **Grant model access** button to grant access to Amazon Bedrock serverless models for use in Amazon SageMaker Unified Studio.

4. Expand the **Quick setup settings** section and review the selected configurations, including domain name, domain execution role, domain service role, and domain data encryption information under **Domain resources**, provisioning role, manage access role, Amazon S3 bucket for projects, and Virtual private cloud (VPC) information under **Data analytics, machine learning, and SQL analytics resources**, and the model provisioning role and model consumption role under **Generative AI resources**. Modify as needed or leave the defaults, and then choose **Continue**.
5. On the **Create IAM Identity Center user** page, create an SSO user (account with IAM Identity Center) or select an existing SSO user to log in to the Amazon SageMaker Unified Studio. IAM roles that create the Amazon SageMaker unified domains cannot log in to the Amazon SageMaker Unified Studio. The SSO selected here is used as the administrator in the Amazon SageMaker Unified Studio.
6. Choose **Create domain**.

Create a Amazon SageMaker Unified Studio domain - manual setup

Complete the following procedure to create a Amazon SageMaker Unified Studio domain with the quick setup option.

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose **Create a Unified Studio domain** and then choose **Manual setup**.

   With this option, you're choosing to create an Amazon SageMaker unified domain and your'e claiming full control over customizing your domain settings, including the following:

   - Customize data analytics, machine learning, SQL, Generative AI, and more
   - Data and AI governance
   - Configure Amazon Bedrock generative AI playgrounds and application development

- Amazon Q - Free tier
- Authentication via AWS IAM, AWS IAM Identity Center, or SAML

3. In **Name**, specify the domain name.
4. In **Description**, specify the domain description.
5. Under **Permissions**, specify the domain execution role. For more information, see AmazonSageMakerDomainExecution role.
6. Under **Permissions**, specify the domain service role. For more information, see AmazonSageMakerDomainService role.
7. Under **Data encryption**, specify the data encryption settings. Your data is encrypted by default with a key that AWS owns and manages for you. To choose a different key, customize your encryption settings.
8. Under **Tags**, specify the tags for your domian.
9. Choose **Create domain**.

Once your domain is created, you can proceed to customizing your domain settings, including SSO, project profiles, blueprints, account associations, Amazon Bedrock models, connections, and AmazonQ.

Create an Amazon DataZone domain

Complete the following procedure to create a Amazon SageMaker Unified Studio domain with the quick setup option.

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose **Create domain** and then choose **Create an Amazon DataZone domain** - choose this option if you want to create a new Amazon DataZone domain. For detailed steps on working with Amazon DataZone domains, including how to create Amazon DataZone domains, see Domains and user access in Amazon DataZone.

Edit domains

After you create a domain, you can edit its description or further customize your domain settings, including SSO, project profiles, blueprints, account associations, Amazon Bedrock models, connections, and AmazonQ.

To edit a domain, complete the following steps:

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose **View domains** and choose the domain's name from the list. The name is a hyperlink.
3. On the details page for the domain, Expand **Actions** and then choose **Edit**. You can use the **Edit domain** page to change the description or manage tags. Once you've made your edits, choose **Update domain**.
4. You can use the domain's details page to further customize your domain settings, including SSO, project profiles, blueprints, account associations, Amazon Bedrock models, connections, and AmazonQ.

Delete domains

When deleting a domain, note that the act of deleting a domain is final. Another important note to remember is that not all items created by Amazon SageMaker Unified Studio are deleted. The following items can only be deleted in their service consoles:

- AWS resources - except for this domain - will NOT be deleted.
- Subscription grants will NOT be removed.
- Resource shares of this domain to associated accounts will NOT be deleted.

To prevent someone from deleting a domain maliciously, deleting a domain requires administrative IAM permissions for Amazon SageMaker Unified Studio, which you can configure with IAM. To prevent someone from deleting a domain accidentally, deleting a domain requires a confirmation word.

To delete a domain, complete the following procedure:

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose **View domains** and choose the domain's name from the list. The name is a hyperlink.
3. On the details page for the domain, Expand **Actions** and then choose **Delete**.
4. Note that deleting a domain cannot be undone and if you want to proceed, confirm the deletion by typing in the domain name in the text field, and then choose **Delete**.

Upgrade Amazon DataZone domains to Amazon SageMaker unified domains

Considerations before you upgrade your domain

Before upgrading your Amazon DataZone domain to an Amazon SageMaker unified domain, review these important considerations to ensure a smooth upgrade process.

- The upgrade process is available only through the AWS management console. Currently, no API support is offered for upgrading your domain. You can initialize the upgrade process from the domain details page of your Amazon DataZone domain.
- The upgrade process requires the following roles to be configured (you can select existing roles or have Amazon SageMaker Unified Studio create the roles on your behalf):
  - Domain Execution role - for an Amazon DataZone domain, you're using the AmazonDataZoneDomainExecutionRole that is required by Amazon DataZone to catalog, discover, govern, share, and analyze data in your domain. With an Amazon SageMaker unified domain, you must either use the existing of create a new AmazonSageMakerDomainExecution role.
  - Domain Service role - Amazon DataZone does not require a Domain Service role. With an Amazon SageMaker unified domain, you must either use the existing of create a new AmazonSageMakerDomainService role. This is a service role for domain level actions performed by Amazon SageMaker Unified Studio.
- Root domain ownership considerations:
  - IAM users or SSO users/groups can be optionally assigned as root domain owners during the upgrade process.

  - If the root domain unit only has IAM roles assigned as owners, it is recommended that you add an IAM user or an SSO user/group as owner. For more information, see User management in the Amazon SageMaker Unified Studio Administrator Guide.
  - **Important**: IAM roles cannot log in to the Amazon SageMaker Unified Studio.
- Associated accounts and AWS Resource Access Manager (AWS RAM) changes:
  - Associated accounts use resource shares from AWS RAM to permit API actions from the root domain account.
  - The upgrade process changes the underlying managed permissions for the AWS RAM share that is created and managed by Amazon DataZone. The affected managed permissions are `AWSRAMPermissionsAmazonDatazoneDomainExtendedServiceAccess` and `AWSRAMPermissionsAmazonDatazoneDomainExtendedServiceWithPortalAccess`.
- Amazon Q subscription changes - the upgraded domain will have Amazon Q subscription defaulted to the free-tier. Domain administrators can change this after the domain upgrade is complete.
- After the upgrade, the domain's `domainVersion` attribute changes from `V1` to `V2`.

Upgrade your Amazon DataZone domain to an Amazon SageMaker unified domain

For detailed steps on now to initialize the domain upgrade process, see Upgrade Amazon DataZone domains to Amazon SageMaker unified domains.

Frequently asked questions about upgrading Amazon DataZone domains to Amazon SageMaker unified domains

- **Which properties and configurations carry over with the domain after the upgrade?**

  All properties configured on the Amazon DataZone domain carry over to the upgraded Amazon SageMaker unified domain. This includes data encryption properties, authentication application properties, etc.
- **Do I need to set up single sign-on (SSO) access again for my users?**

  No. Your IAM Identity Center SSO application associated to the domain will carry over to the upgraded Amazon SageMaker unified domain. Additionally, any IAM user or role assigned to the domain will be available in the upgraded Amazon SageMaker unified domain.

- **Can I still use the Amazon DataZone portal after the upgrade?**

  Yes. After the upgrade both Amazon DataZone portal and Amazon SageMaker Unified Studio will be available for end users to interact with. Both portals will remain open until a domain administrator deactivates the Amazon DataZone portal from the Amazon SageMaker management console.

- **Will I see the projects and other entities that were created in the Amazon DataZone portal in Amazon SageMaker Unified Studio?**

  Yes. Most entities (projects, metadata forms, glossaries, domain units) created through the Amazon DataZone portal will be visible in Amazon SageMaker Unified Studio. Projects will carry over all assets, metadata forms and glossaries associated to assets, subscriptions to assets, members, etc. These projects require querying the data from AWS Athena or Amazon Redshift query editors. Metadata forms and glossaries will appear in Amazon SageMaker Unified Studio and they can be edited from Amazon SageMaker and assigned to assets from projects created through Amazon SageMaker. Environments and environment profiles from Amazon DataZone will not show in Amazon SageMaker Unified Studio - these entities have been replaced by Amazon SageMaker project profiles. Projects created in the Amazon SageMaker Unified Studio will not be visible through the Amazon DataZone portal.

- **What happens to the domain identifier and the project identifiers after the upgrade to Amazon SageMaker unified domain?**

  All entity identifiers, including the domain and projects, will remain the same after the upgrade.

- **Will my AWS CloudFormation (CFN) stacks continue to work for the newly upgrade Amazon SageMaker unified domain?**

  Amazon SageMaker Unified Studio uses the same APIs as Amazon DataZone. However, some modifications to the logic within CFN templates will be needed. For example, domains from Amazon DataZone are distinguished from Amazon SageMaker unified domains by an attribute named domainVersion (values V1 | V2).

- **What happens when the upgrade is rolled back?**
  - Rolling back the upgrade changes the domain version from V2 to V1. Amazon SageMaker Unified Studio will no longer be accessible. The console view for the domain will return to the Amazon DataZone view. Resources created before the roll back will remain so long as they are not tied to a project that was created from Amazon SageMaker Unified Studio - rolling back is only permitted when no projects that were created from within Amazon SageMaker Unified Studio are present.

- Settings such as AWS Q subscription will also persist after the roll back.
- If VPCs were created for the use of Amazon SageMaker, these will persist after the roll back. VPC's created by the SageMaker service will have tag: Name = SageMakerUnifiedStudioVPC
- The managed permission under the RAM resource share will not be rolled back. The managed permission is a superset of both Amazon DataZone and Amazon SageMaker Unified Studio.
- A domain that had been rolled back can again be upgraded to Amazon SageMaker unified domain.

Domain units and authorization policies in Amazon SageMaker Unified Studio

Use *domain units* to organize your assets and other domain entities under specific business units and teams. To set up secure and efficient data sharing within and across business units of your organization, create domain units within Amazon SageMaker Unified Studio and grant access to selected users within each business unit so they can log in and share their assets to the catalog. Users from anywhere in the enterprise can search for assets under those business units and request access to those assets.

Resource owners such as AWS account owners can use domain units to set up Amazon SageMaker Unified Studio authorization permissions on their resources. Domain units provide a delegated authority from account owners to domain unit owners, and they can set up authorization permissions on environment profiles (created using blueprint configurations) on behalf of account owners. This way, you can limit who can create and use environment profiles depending on the business units to which they belong. Amazon SageMaker Unified Studio authorization permissions can also be used to enforce metadata standards and enable only selected projects to create metadata forms and glossary. This can help maintain consistent and quality metadata. For more information, see Amazon SageMaker Unified Studio terminology and concepts.

Within an Amazon SageMaker Unified Studio domain unit, you can assign the following authorization policies to your users and groups to grant them specific permissions:

- Domain unit creation policy
- Project creation policy
- Project membership policy
- Domain unit ownership assumption policy
- Project ownership assumption policy

Within an Amazon SageMaker Unified Studio domain unit, you can assign the following authorization policies to your projects to grant them specific permissions:

- Glossary creation policy
- Metadata forms creation policy
- Custom asset type creation policy

Topics

- Create domain units in Amazon SageMaker Unified Studio
- Edit domain units in Amazon SageMaker Unified Studio
- Delete domain units in Amazon SageMaker Unified Studio
- Manage domain unit owners in Amazon SageMaker Unified Studio
- Assign authorization policies to users and groups within an Amazon SageMaker Unified Studio domain unit
- Assign authorization policies to projects within an Amazon SageMaker Unified Studio domain unit
- Assign authorization policies to asset types

Create domain units in Amazon SageMaker Unified Studio

In Amazon SageMaker Unified Studio, domain units enable you to organize your assets and other domain entities under specific business units and teams. For more information, see Amazon SageMaker Unified Studio terminology and concepts.

To create a domain unit

1. Navigate to Amazon SageMaker Unified Studio using the URL from your administrator and log in using your SSO or AWS credentials.
2. Choose **Govern**.
3. Choose **Domain units**.
4. Choose **Create domain unit**.
5. Specify the following:
   - Under **Domain unit details**, for **Name**, specify the domain unit name.
   - Under **Domain unit details**, for **Description**, specify the domain unit description.
   - Under **Parent domain unit** - choose **Select domain unit**.

     Select the parent domain unit under which you'd like to add the new domain unit. Then choose **Select parent domain unit**.
6. Choose **Create domain unit**.

Edit domain units in Amazon SageMaker Unified Studio

In Amazon SageMaker Unified Studio, domain units enable you to organize your assets and other domain entities under specific business units and teams. For more information, see Amazon SageMaker Unified Studio terminology and concepts.

To edit a domain unit

1. Navigate to Amazon SageMaker Unified Studio using the URL from your administrator and log in using your SSO or AWS credentials.
2. Choose **Govern**.
3. Choose **Domain units**.
4. Navigate to the **Domain units** tab and choose the domain unit that you want to edit.
5. Expand **Actions** and choose **Edit domain unit**.
6. Make your changes to the domain unit name and description and then choose **Update domain unit**.

Delete domain units in Amazon SageMaker Unified Studio

In Amazon SageMaker Unified Studio, domain units enable you to organize your assets and other domain entities under specific business units and teams. For more information, see Amazon SageMaker Unified Studio terminology and concepts.

To delete a domain unit

1. Navigate to Amazon SageMaker Unified Studio using the URL from your administrator and log in using your SSO or AWS credentials.
2. Choose **Govern**.
3. Choose **Domain units**.
4. Navigate to the **Domain units** tab and choose the domain unit that you want to delete.
5. Expand Actions and choose **Delete domain unit**.
6. In the **Delete domain unit** pop up window, confirm the deletion, then choose **Delete**.

Manage domain unit owners in Amazon SageMaker Unified Studio

In Amazon SageMaker Unified Studio, domain units enable you to organize your assets and other domain entities under specific business units and teams. For more information, see Amazon SageMaker Unified Studio terminology and concepts.

To add owners to a domain unit in Amazon SageMaker Unified Studio, complete the following steps.

1. Navigate to Amazon SageMaker Unified Studio using the URL from your administrator and log in using your SSO or AWS credentials.
2. Choose **Govern**.
3. Choose **Domain units**.
4. Navigate to the **Domain units** tab and choose the domain unit that you want to add owners to.
5. On the domain details page, navigate to the **Owners** tab.
6. Choose **Add owner**, and then in the **Add domain unit owners** pop up window, specify users that you want to make domain unit owners.
7. Choose **Add owners**.

Assign authorization policies to users and groups within an Amazon SageMaker Unified Studio domain unit

In Amazon SageMaker Unified Studio, domain units enable you to organize your assets and other domain entities under specific business units and teams. For more information, see Amazon SageMaker Unified Studio terminology and concepts.

In an Amazon SageMaker Unified Studio domain unit, you can assign the following authorization policies to your users and groups to grant them various authorization permissions within this domain unit:

- Domain unit creation policy
- Project creation policy
- Project membership policy

- Domain unit ownership assumption policy
- Project ownership assumption policy

To assign authorization policies to users and groups within a domain unit, complete the following procedure:

1. Navigate to Amazon SageMaker Unified Studio using the URL from your administrator and log in using your SSO or AWS credentials.
2. Choose **Govern**.
3. Choose **Domain units**.
4. Navigate to the **Domain units** tab and choose the domain unit that you want to add an authorization policy grant in.
5. On the domain unit details page, choose the authorization policy that you want to assign to users or groups to.
6. Choose **Add policy grant**.
7. In the **Add users** pop up window, do one of the following:
   - Choose **Select users and groups**, specify users and groups to which you want to assign the selected authorization policy, and then choose **Add policy grant**.
   - Choose **All users** and then choose **Add policy grant**.
8. You can also enable or disable the cascade permissions of the selected authorization policy for the selected users. To do so, select the user(s) for which you want to enable the cascade permissions, then expand **Actions**, and then choose **Set cascade permissions to true**. The selected users will have permissions granted by this policy in all child domain units under this domain unit. Or you can choose the user(s) for which you want to disable the cascade permissions, then expand **Actions**, and set **Set cascade permissions to false**.

To view examples of project membership policies in domain unit hierarchies, see Project membership policy in the hierarchy of domain units in Amazon DataZone in the Amazon Amazon DataZone User Guide.

Assign authorization policies to projects within an Amazon SageMaker Unified Studio domain unit

In Amazon SageMaker Unified Studio, domain units enable you to organize your assets and other domain entities under specific business units and teams. For more information, see Amazon SageMaker Unified Studio terminology and concepts.

In an Amazon SageMaker Unified Studio domain unit, you can assign the following authorization policies to your projects to grant these entities various authorization permissions within this domain unit:

- Glossary creation policy
- Metadata forms creation policy
- Custom asset type creation policy

To assign authorization policies to projects within a domain unit, complete the following procedure:

1. Navigate to Amazon SageMaker Unified Studio using the URL from your administrator and log in using your SSO or AWS credentials.
2. Choose **Govern**.
3. Choose **Domain units**.
4. Navigate to the **Domain units** tab and choose the domain unit that you want to add an authorization policy grant in.
5. On the domain unit details page, choose the authorization policy that you want to assign to projects and then choose **Add project**.
6. Choose **Add policy grant**.
7. In the **Add projects** pop up window, do one of the following:
   - Choose **Selected projects in a domain unit**, specify projects to which you want to assign the selected authorization policy, and then choose **Add policy grant**.
   - Choose **All projects in a domain unit** and then choose **Add policy grant**.

Assign authorization policies to asset types

In Amazon SageMaker Unified Studio, asset types define how assets are represented in the Amazon SageMaker catalog. An asset type defines the schema for a specific type of asset. You can complete the following procedure to assign authorization policies to asset types. Only domaint unit owners and project owners can edit asset types' usage permissions. Project contributors can view asset type usage permissions but they cannot edit them.

1. Navigate to Amazon SageMaker Unified Studio using the URL from your administrator and log in using your SSO or AWS credentials.
2. Choose **Govern**.
3. Choose **Asset types**.
4. Choose an existing asset type and then choose the **Permissions** tab.
5. Choose **Add usage permission**, and in the **Add projects and designations** pop up window, specify the authorized projects (you can choose **Select projects in a domain unit** or **All project in a domain unit**), the specific domain unit, and the allowed designations - which designations a project member must have to use this policy. You can choose **Owner** or **Contributor**.
6. Choose Add policy grant to save the changes and complete modifying the asset type usage permissions.

Managing users in Amazon SageMaker Unified Studio

By default, Amazon SageMaker unified domains support IAM user credentials. You can also enable access to the Amazon SageMaker unified domains in the Amazon SageMaker Unified Studio for users with SSO and SAML credentials. To do this, complete the following procedures.

To enable access to the Amazon SageMaker unified domains in the Amazon SageMaker Unified Studio for users with SSO credentials, complete the following procedure:

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Either create a new or choose an existing Amazon SageMaker unified domain where you want to configure SSO user access.
3. On the domain's details page, either choose **Configure** next to the **Configure SSO user access** in the **Next steps for your domain section** or navigate to the **User management** tab and choose **Configure SSO user access**.
4. On the **Choose user authentication method**, choose the **IAM Identity Center**. With IAM Identity Center, users configured in IAM Identity Center get to access the domain's Amazon SageMaker Unified Studio.

   You are either connecting to an organization instance of the IAM Identity Center or to an account instance of the IAM Identity Center.

   - If the account is the management account of an AWS Organization and IAM Identity Center organization instance is enabled, the IAM Identity Center organization instance is selected.
   - If the account is a member account of an AWS Organization and IAM Identity Center organization instance is enabled, an IAM Identity Center account instance is selected.
   - If the account is not a member account of an AWS Organization, an IAM Identity Center account instance is selected.
5. On the **Configure IAM Identity Center** details page, verify that your domain is connected to the IAM Identity Center and then choose user and group assignment method. You can choose either **Require assignments** - which allows only assigned IAM Identity Center users and groups access to this domain or **Do not require assignments** - which allows all authorized IAM Identity Center users and groups access to this domain.

6. On the **Review and save** page, review your choices and then choose **Save**. These settings cannot be changed once you save them.
7. If you've chosen to require assignments, use the **Add users and groups** to add IAM Identity Center users and groups to your Amazon SageMaker Unified Studio domain.

Complete the following procedure to configure SAML user access to Amazon SageMaker Unified Studio for your Amazon SageMaker unified domain.

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Either create a new or choose an existing Amazon SageMaker unified domain where you want to configure SAML user access.
3. On the domain's details page, either choose **Configure** next to the **Configure SSO user access** in the **Next steps for your domain** section or navigate to the **User management** tab and choose **Configure SSO user access**.
4. On the **Choose user authentication method** page, choose **SAML**. With SAML, users configured through external Identity Providers (IdPs) get to access the domain's Amazon SageMaker Unified Studio. Choose **Next**.
5. On the **Configure SAML** page, specify the Identity Provider (IdP) SSO URL. You must first configure a new IdP in the IAM console. You must then also choose the user and group assignment method. You can choose either **Require assignments** - which allows only assigned IAM Identity Center users and groups access to this domain or **Do not require assignments** - which allows all authorized IAM Identity Center users and groups access to this domain.
6. On the **Review and save** page, review your choices and then choose **Save**. These settings cannot be changed once you save them.
7. If you've chosen to require assignments, use the **Add users and groups** to add SAML users and groups to your domain.

Complete the following procedure to manage root domain owners for your Amazon SageMaker unified domain.

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.

2. Either create a new or choose an existing Amazon SageMaker unified domain and the nativate to the **User management** tab.
3. You can select existing owners and then expand the **Actions** menu and choose to **Remove** these owners.

   You can add new owners, by expanding **Add** and choosing the add SSO users and groups or IAM users and groups.

Associated accounts in Amazon SageMaker Unified Studio

In Amazon SageMaker Unified Studio, associated accounts are other AWS accounts that can be associated with an Amazon SageMaker unified domains so that resources can be created and accessed in these accounts for various purposes.

Complete the following procedures to manage account associations and configure domains in associated accounts in Amazon SageMaker Unified Studio.

Topics

- Request association with other AWS accounts
- Accept an account association request from an Amazon SageMaker Unified Studio domain and enable an environment blueprint
- Reject an account association request from an Amazon SageMaker Unified Studio domain
- Remove an associated account in Amazon SageMaker Unified Studio
- Configure Amazon Bedrock in SageMaker Unified Studio in an associated account

Request association with other AWS accounts

> **Note**
>
> By sending an association request to another AWS account, you are sharing your domain with the other AWS account with AWS Resource Access Manager (RAM). Be sure to check the accuracy of the account IDs that you enter.

Complete the following procedure to request association with other AWS accounts.

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose **View domains** and choose an Amazon SageMaker unified domain name from the list. The name is a hyperlink.
3. Choose the **Account associations** tab and then choose **Request association**.

4. On the **Request association** page, enter the IDs of the accounts with which you want to associate this domain. When you are satisfied with the list of account IDs, choose **Request association**.

   Notice that the account IDs to which you sent an association request now appear in the list of accounts in the **Associated accounts** tab with the **Requested** status.

Accept an account association request from an Amazon SageMaker Unified Studio domain and enable an environment blueprint

Complete the following procedure to accept association with an Amazon SageMaker unified domain.

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose **View requests** and select the inviting domain from the list of requests. The domain name is a hyperlink. You can also use the radio button next to the domain name and then choose **Review request**.
3. On the **Accept and configure AWS association page**, choose **Accept new permissions** to accept the association request.
4. Once the action completes and your account is associated with the inviting Amazon SageMaker unified domain, this domain's name appears in the **Associated domains** list on the **Associated domains** page. The name is a hyperlink. If you choose it, you then navigate to the Amazon SageMaker console for this domain as the associated account. You can perform the following configurations for this domain in your associated account:

   - Configure Data analytics and AI/ML model development capability under the **Next steps for your domain**. For more information, see All capabilities project profile.
   - Configure Generative AI application development capability under the **Next steps for your domain**. For more information, see Configure Amazon Bedrock in SageMaker Unified Studio in an associated account.
   - Configure SQL analytics capability under the **Next steps for your domain**. For more information, see SQL analytics project profile.

- View the permissions that govern the association between this account and the domain in the **Permissions** tab.
- Use the **Blueprints** tab to configure blueprints that contain the tools, resources and parameters that are used in this account. For more information, see Blueprints in Amazon SageMaker Unified Studio.
- Use the **Amazon Bedrock models** tab to configure access to your Amazon Bedrock serverless models for this account and set the default models for the generative AI playground model selector in this account. For more information, see Amazon Bedrock in SageMaker Unified Studio.

Reject an account association request from an Amazon SageMaker Unified Studio domain

Complete the following to reject an association request from an Amazon SageMaker unified domain.

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose **View requests** and select the inviting domain from the list of requests. The domain name is a hyperlink. You can also use the radio button next to the domain name and then choose **Review request**.
3. On the **Accept and configure AWS association** page, choose **Reject new permissions** to reject the association request.

Remove an associated account in Amazon SageMaker Unified Studio

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose **View domains** and choose an Amazon SageMaker unified domain name from the list. The name is a hyperlink.

3. Choose the **Account associations** tab, choose the account that you want to disassociate, and then choose **Disassociate**. In the **Disassociate account** pop up window, confirm disassociation by typing **disassociate** in the field.

Configure Amazon Bedrock in SageMaker Unified Studio in an associated account

In Amazon SageMaker Unified Studio, Generative AI enables project users to explore, build, and collaborate on generative AI applications using Amazon Bedrock foundation models and tools.

> **Important**
>
> As a user from an associated account, you can complete the procedure below to configure the available generative AI blueprints in your associated account. However, in order to fully use the generative AI capability in your Amazon SageMaker Unified Studio projects, you must also have the Generative AI application development project profile created for your associated account by the domain administrator from the AWS account that owns this domain.
>
> In the current release of Amazon SageMaker Unified Studio, project profiles for the domain can only be created by domain administrators from the AWS account that owns the domain.

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose **View associated domains** and then choose the associated domain where you want to configure Amazon Bedrock in SageMaker Unified Studio.
3. In the **Next steps for your associated domain** section, choose **Configure** next to **Generative AI**.
4. In the **Set up generative AI** page, in the **Generative AI blueprints** section, under **Provisioning role**, specify a new or existing service role that is to be used by Amazon SageMaker Unified Studio to provision and manage resources defined in the selected blueprints in your associated account. Enabling generative AI blueprints automatically configures default resources for the essential generative AI capabilities that projects need. The following blueprints powered by

Amazon Bedrock are included: Chat Agents, Knowledge Bases, Guardrails, Functions, Flows, Prompts, and Evaluations.

5. Locate the **Default tooling blueprint deployment settings** section that contains the Tooling bluepring deployment settings used to create projects from this project profile and review them and modify the following as needed. Note that if you have already enabled the Tooling blueprint, you cannot use this procedure to modify any of the Tooling blueprint settings.

   - Under **Manage access role**, specify a service role that gives Amazon SageMaker Unified Studio the authorization to create and configure project resources using AWS CloudFormation in the project account and region. If this service role already exists in this AWS account, it is selected by default.
   - For the Tooling blueprint deployment account and region, note that by configuring Amazon Bedrock in SageMaker Unified Studio for your associated domain, you can only enable the Tooling blueprint in the same AWS account and region as your associated domain.
   - In the **Amazon S3 bucket for blueprints** section, specify an Amazon S3 bucket for blueprints in your AWS account.
   - In the **Networking** section, in the **Virtual private cloud (VPC) setting**, choose a VPC in which to provision your Amazon SageManker unified domain. VPCs tagged with Amazon SageMaker Unified Studio should be correctly configured.

     In the **Subnets** section, select at least 3 subnets in different **Availability Zones** that contain required VPC Endpoints. Private subnets are recommended, not all functionality is available when selecting public subnets.
   - In the **Data encryption** section, your data is encrypted by default with a key that AWS owns and manages for you. Encryption cannot be changed after the domain is created. Choose either **Use AWS owned key** (a key that AWS owns and manages for you) or the **Choose a different AWS KMS key (advanced)** (a key that you have permissions to use, or create a new one) and then specify an existing or create a new AWS KMS key.

6. In the **Permissions for Amazon Bedrock model access** section, specify the permissions for users to interact with the enabled Amazon Bedrock models. The system can automatically create roles to control user access and interactions with these models or you can specify existing roles.

   For the **Model provisioning** role, you can create a new or use an existing role. The system uses the role you specify as the provisioning role to create an inference profile that has access to an

Amazon Bedrock model in a project. The role you specify here is used as the provisioning role for all the Amazon Bedrock models enabled for this domain.

For the **Model consumption** role, you can create a new or use an existing role. The system uses a consumption role to grant users access to Amazon Bedrock models in the playground in the Amazon SageMaker Unified Studio.

7. Choose **Submit**.

Once the action is successfully completed and you've finished configuring Amazon Bedrock in SageMaker Unified Studio for this associated account, you are redirected to the associated domain's details page where you can find the enabled generative AI blueprints under the **Blueprints** tab and the enabled models listed in the **Amazon Bedrock models** tab. Note, that you can manage model access directly from **Amazon Bedrock models** tab. For more information, see Amazon Bedrock in SageMaker Unified Studio. Also, if you want to publish models from your associated account, the IAM identity of the associated account must be added to the **GenerativeAIModelGovernanceProject** project. For more information, see Publishing models from associated accounts.

Project profiles in Amazon SageMaker Unified Studio

In Amazon SageMaker Unified Studio, a project profile defines an uber template for projects in your Amazon SageMaker unified domains. A project profile is a collection of blueprints which are configurations used to create projects. A project profile can define if a particular blueprint is enabled during the creation of the project, or available later for the project users to enable on-demand.

You must be an administrator of an Amazon SageMaker unified domain to create and manage project profiles. In the current release of Amazon SageMaker Unified Studio, you can create the following project profiles:

- All capabilities project profile
- SQL analytics project profile
- Generative AI application development project profile
- Custom project profile

All capabilities project profile

The All capabilities project profile enables your Amazon SageMaker Unified Studio users to analyze data and build machine learning and generative AI models and applications powered by Amazon Bedrock, Amazon EMR, AWS Glue, Amazon Athena, Amazon SageMaker AI, and Amazon SageMaker Lakehouse.

You can use the following procedures to create an all capabilities project profile.

Topics

- Configure all capabilities for your Amazon SageMaker unified domain
- Create an All capabilities project profile

Configure all capabilities for your Amazon SageMaker unified domain

Complete the following procedure to configure all capabilities for your Amazon SageMaker unified domain.

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Either create a new domain or choose an existing domain where you want to configure all capabilities.
3. On the domain's details page, under the **Next steps for your domain** section, choose the **Configure** button next to the **All capabilities**.
4. On the **Create project profile: All capabilities** page, in the **All capabilities** section, review the on-create and on-demand capabilities for this project profile. On-create capabilities are configured and ready to use when the project is created. On-demand capabilities can be configured when needed after project creation to control cost.
5. On the **Create project profile: All capabilities**, expand the **Default tooling blueprint deployment settings** section and review the settings, including the Tooling blueprint deployment account and region.

   > **Important**
   >
   > Note that by configuring all capabilities for your domain (this procedure), you can only enable the Tooling blueprint in the same AWS account and region as your domain. To enable the Tooling blueprint in an account or region that's different from that of your domain's, see Create an All capabilities project profile or Custom project profile.

6. On the **Create project profile: All capabilities**, in the **Enable blueprints** section, review the following blueprints that will be enabled for this project profile.

   > **Important**
   >
   > Note that by configuring all capabilities for your domain (this procedure), you can only enable these blueprints in the same AWS account and region as your domain. To enable these blueprints in an account or region that's different from that of your domain's, see Create an All capabilities project profile or Custom project profile.

   - MLExperiments
   - Workflows
   - LakehouseCatalog

- EmrOnEc2
- Tooling
- RedshiftServerless
- LakeHouseDatabase
- EmrServerless
- AmazonBedrockGenerativeAI

7. On the **Create project profile: All capabilities** page, in the **Manage access role** section, specify a service role that gives Amazon SageMaker Unified Studio authorization to ingest and manage access to datashares, tables and views in Amazon Redshift. You can create a new or using an existing role.
8. On the **Create project profil: All capabilities** page, in the **Provisioning role** section, specify a service role that gives Amazon SageMaker Unified Studio authorization to ingest and manage access to datashares, tables and views in Amazon Redshift.
9. On the **Create project profile: All capabilities** page, in the **Amazon S3 bucket for blueprints** section, specify an Amazon S3 bucket for blueprints in your AWS account.
10. On the **Create project profile: All capabilities** page, in the **Networking section**, specify a VPC in which to provision your Amazon SageMaker unified domain. VPCs tagged with Amazon SageMaker Unified Studio should be correctly configured. In the **Subnets** section, select at least 3 subnets in different **Availability Zones** that contain required VPC Endpoints. Private subnets are recommended, not all functionality is available when selecting public subnets.
11. On the **Create project profile: All capabilities** page, in the **Authorization - optional** section, specify who can use this project profile to create projects in all domain units. This can also be done per domain unit in Amazon SageMaker Unified Studio. Choose either **Selected users and groups** (select which users and groups are authorized to use this project profile) or **Allow all users and groups** (allow any user to use this project profile).

> **Note**
>
> Projects do not provide strong security isolation. To limit cross-domain and cross-project resource discovery you can consider creating projects in separate accounts.

12. Choose **Create project profile**.

After you complete this procedure, your All capabilities project profile for this domain is created and all the supported blueprints for it are enabled. Your domain users can then proceed to use this project profile to create projects in Amazon SageMaker Unified Studio.

Create an All capabilities project profile

Complete the following procedure to create a All capabilities project profile for your Amazon SageMaker unified domain. Once this procedure is complete, your All capabilities project profile will only include the capabilities defined in the Tooling blueprint. To complete configuring all capabilities for your Amazon SageMaker unified domain, you must then use the **Blueprints** tab and configure the following blueprints for this project profile:

- MLExperiments
- Workflows
- LakehouseCatalog
- EmrOnEc2
- RedshiftServerless
- LakeHouseDatabase
- EmrServerless
- AmazonBedrockGenerativeAI

> **Important**
>
> Note that when you enable a blueprint, by default, you are enabling it in the same region as your domain. When you are enabling blueprints for a project profile that is created and enabled in a different region from your domain, you must enable these blueprints in same region where this project profile is enabled (in addition to enabling this blueprint in the same region as your domain). You can do this via the **Regions** tab in the blueprint details page. This applies to all blueprints, including the Tooling blueprint.

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Either create a new domain or choose an existing domain where you want to create a All capabilities project profile.

3. On the domain's details page, choose the **Project profiles** tab and then choose **Create**.
4. On the **Create project profile** page, in the **Project profile name and description** section, specify the name of the project profile and the description.
5. On the **Create project profile** page, in the **Project profile creation options** section, choose **Create from a template**, and then under **Project profile templates**, choose **All capabilities**.
6. On the **Create project profile** page, in the **Default tooling blueprint deployment settings** section, review the selections for the default deployment settings for the Tooling blueprint.

> **Important**
>
> Note that by creating this project profile from a template, you can either enable the Tooling blueprint in the same AWS account and region as your domain (prepopulated by default) or you can enable the Tooling blueprint in a different AWS account and region from this domain (an associated account).

7. On the **Create project profile** page, in the **Authorization - optional** section, specify who can use this project profile to create projects in all domain units. This can also be done per domain unit in the Amazon SageMaker Unified Studio. You can specify **Selected users and groups** or **Allow all users and groups** options.

> **Note**
>
> Projects do not provide strong security isolation. To limit cross-domain and cross-project resource discovery you can consider creating projects in separate accounts.

8. On the **Create project profile** page, in the **Project profile readiness** section, specify whether you want to enable this project profile on creation. Unless you check the **Enable project profile on creation** checkbox, your project profile is disabled and not available to use for Amazon SageMaker Unified Studio projects after its creation. Leaving a project profile in a disabled state upon creation gives you the opportunity to customize your blueprints before making the project profile available.
9. Choose **Create project profile**.

Important

After you complete this procedure, your All capabilities project profile will only include the capabilities defined in the Tooling blueprint. You can further customize this project profile and configure it to include all capabilities by using the **Blueprints** tab to enable the rest of its required bluerpints. They are the following:

- MLExperiments
- Workflows
- LakehouseCatalog
- EmrOnEc2
- RedshiftServerless
- LakeHouseDatabase
- EmrServerless
- AmazonBedrockGenerativeAI

Generative AI application development project profile

A Generative AI application development project profile enables generative AI solutions from Amazon Bedrock for your Amazon SageMaker unified domains. It provides project users in Amazon SageMaker Unified Studio with the access to the following generative AI tools: Bedrock Chat Agents, Bedrock Knowledge Bases, Bedrock Guardrails, Bedrock Functions, Bedrock Flows, Bedrock Prompts, and Bedrock Evaluations.

You can complete either of the following procedures to create a Generative API application development project profile in an Amazon Sagemaker unified domain.

Topics

- Configure Amazon Bedrock in SageMaker Unified Studio for your domain
- Create a generative AI application development project profile

Configure Amazon Bedrock in SageMaker Unified Studio for your domain

Complete the following procedure to configure Amazon Bedrock in SageMaker Unified Studio for your domain.

> **Important**
>
> In the current release of Amazon SageMaker Unified Studio, project profiles for the domain can be created only by a domain administrator from the AWS account that owns the domain. Completing this procedure as a user from an associated account only enables the generative AI blueprints but it doesn't create the Generative AI application development project profile. A domain administrator from the AWS account that owns the domain must create the Generative AI application development project profile in the domain for the associated accounts.

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Either create a new domain or choose an existing domain where you want to configure Amazon Bedrock in SageMaker Unified Studio.
3. On the domain's details page, under the **Next steps for your domain** section, choose the **Configure** button next to the **Generative AI** domain capability.
4. On the **Create project profile: Amazon Bedrock generative AI** page, locate the **Generative AI blueprints** section and review the settings.

   As part of configuring Amazon Bedrock in SageMaker Unified Studio for your domain (this procedure) you are creating the Generative AI application development project profile and therefore you must enable the blueprints that contain the tools, resources, and parameters that this project profile requires. The following blueprints are enabled when you create this project profile as part of this procedure:

   - AmazonBedrockChatAgent
   - AmazonBedrockKnowledgeBase
   - AmazonBedrockGuardrail

- AmazonBedrockFunction
- AmazonBedrockFlow
- AmazonBedrockPrompt
- AmazonBedrockEvaluation

> **Important**
>
> Note that by configuring Amazon Bedrock in SageMaker Unified Studio for your domain (this procedure), you can only enable the generative AI blueprints for this project profile in this domain's AWS account and Region. To enable these blueprints in an associated account, see Configure Amazon Bedrock in SageMaker Unified Studio in an associated account.

Under **Provisioning role**, specify a new or existing service role that is to be used by Amazon SageMaker Unified Studio to provision and manage resources defined in the selected blueprints in your account.

5. On the **Create project profile: Amazon Bedrock generative AI** page, locate the **Default tooling blueprint deployment settings** section that contains the Tooling blueprint deployment settings used to create projects from this project profile and review them and modify the following as needed. Note that if you have already enabled the Tooling blueprint, you cannot use this procedure to modify any of the Tooling blueprint settings.

   - Under **Manage access** role, specify a service role that gives Amazon SageMaker Unified Studio the authorization to create and configure project resources using AWS CloudFormation in the project account and region. If this service role already exists in this AWS account, it is selected by default.
   - For the Tooling blueprint deployment account and region, note that by configuring Amazon Bedrock in SageMaker Unified Studio capability for your domain (this procedure), you can only enable the Tooling blueprint in the same AWS account and region as your domain. To enable the Tooling blueprint in an associated account, see Configure Amazon Bedrock in SageMaker Unified Studio in an associated account.
   - In the **Amazon S3 bucket for blueprints** section, specify an Amazon S3 bucket for blueprints in your AWS account.

- In the **Networking** section, in the **Virtual private cloud (VPC) setting**, choose a VPC in which to provision your Amazon SageManker unified domain. VPCs tagged with Amazon SageMaker Unified Studio should be correctly configured.

  In the **Subnets** section, select at least 3 subnets in different **Availability Zones** that contain required VPC Endpoints. Private subnets are recommended, not all functionality is available when selecting public subnets.
- In the **Data encryption** section, your data is encrypted by default with a key that AWS owns and manages for you. Encryption cannot be changed after the domain is created. Choose either **Use AWS owned key** (a key that AWS owns and manages for you) or the **Choose a different AWS KMS key (advanced)** (a key that you have permissions to use, or create a new one) and then specify an existing or create a new AWS KMS key.

6. On the **Create project profile: Amazon Bedrock generative AI** page, in the **Authorization - optional** section, specify who can use this project profile to create projects in all domain units. This can also be done per domain unit in the Amazon SageMaker Unified Studio. Choose either **Selected users and groups** (select which users and groups are authorized to use this project profile) or **Allow all users and groups** (allow any user to use this project profile).

   > **Note**
   >
   > Projects do not provide strong security isolation. To limit cross-domain and cross-project resource discovery you can consider creating projects in separate accounts.

7. On the **Create project profile: Amazon Bedrock generative AI** page, in the **Permissions for Bedrock model access** section, specify the permissions for users to interact with the enabled Amazon Bedrock models. The system can automatically create roles to control user access and interactions with these models or you can specify existing roles.

   For the **Model provisioning** role, you can create a new or use an existing role. The system uses the role you specify as the provisioning role to create an inference profile that has access to an Amazon Bedrock model in a project. The role you specify here is used as the provisioning role for all the Amazon Bedrock models enabled for this domain.

   For the **Model consumption** role, you can create a new or use an existing role. The system uses a consumption role to grant users access to Amazon Bedrock models in the playground in Amazon SageMaker Unified Studio.

8. Choose **Next** to advance to the **Configure model access** page.

9. On the **Configure model access** page, in the **Models** section, you can configure access to your Amazon Bedrock serverless models by enabling or disabling them for this domain.

   The system queries Amazon Bedrock and displays a list of Amazon Bedrock serverless models to which you have access. If no models are listed or if a specific model is missing, visit the Amazon Bedrock management console for the appropriate account and Region to grant access. If you have updated model access in Amazon Bedrock, choose the refresh icon in the **Amazon Bedrock Models** tab to refresh the updated list of accessible models

   The following are important elements to consider as you review the generated list of models:

   - Every model in the list is prepopulated with certain details, including modality, inference type, whether it's enabled in projects and playground, and roles for model access. A model's modality indicates the type of output data it can generate. Amazon Bedrock in SageMaker Unified Studio supports Amazon Bedrock foundation models with on-demand throughput and on-demand cross-region inference. If a model supports both on-demand and on-demand cross-region inference, it appears in the list twice with the appropriate value listed in the **Inference** column. Amazon Bedrock in SageMaker Unified Studio does NOT support provisioned throughput, custom models, or imported models.
   - For easy setup, the system pre-selects accessible models that support on-demand throughput, excluding legacy models, to enable in projects and playground. Review and adjust the list to enable models for projects and playgrounds based on your specific requirements.
   - If the model that you want to manage for your Amazon SageMaker Unified Studio users is not present in the list, make sure that it has been enabled for access in Amazon SageMaker Unified Studio. This is done in the Amazon Bedrock management console. For more information, see Amazon Bedrock Documentation.

10. On the **Configure model access** page, in the **Default models - optional** section, you can set default models for the generative AI playgrounds in Amazon SageMaker Unified Studio.

    Amazon Bedrock in SageMaker Unified Studio supports generative AI playgrounds that enable Amazon SageMaker unified domain users to easily experiment with Amazon Bedrock models. Users can send prompt requests to various models and view the responses. There are two types of playgrounds in the Amazon Bedrock in SageMaker Unified Studio: the chat playground and the image and video playground.

For the **Chat playground - optional**, select a default model from the drop-down menu. The drop-down menu includes only the models that support **Text** as the output modality and are enabled for playground use.

For the **Image and video playground - optional**, select a default model from the drop-down menu. The drop-down menu will include only the models that support either **Image** or **Video** as the output modality and are enabled for playground use.

11. Choose **Finish** to complete configuring Amazon Bedrock in SageMaker Unified Studio for this domain.

Once the action is successfully completed and you've finished configuring Amazon Bedrock in SageMaker Unified Studio for this domain, you are redirected to the domain's details page where you can find the enabled generative AI blueprints under the **Blueprints** tab, a Generative AI project profile under the **Project profiles** tab, and the enabled models listed in the **Amazon Bedrock models** tab. Note, that you can manage model access directly from **Amazon Bedrock models** tab. For more information, see Amazon Bedrock in SageMaker Unified Studio

Create a generative AI application development project profile

Complete the following procedure to create a Generative AI application development project profile for your Amazon SageMaker unified domain. Once this procedure is complete, your Generative AI application development project profile will only include the capabilities defined in the Tooling blueprint. To configure the full generative AI application development capability for your Amazon SageMaker unified domain, you must then use the **Blueprints** tab and configure the **AmazonBedrockGenerativeAI** blueprint for this project profile. The **AmazonBedrockGenerativeAI** blueprint contains the following generative AI blueprints:

- AmazonBedrockChatAgent
- AmazonBedrockKnowledgeBase
- AmazonBedrockGuardrail
- AmazonBedrockFunction
- AmazonBedrockFlow
- AmazonBedrockPrompt
- AmazonBedrockEvaluation

> **Important**
>
> Note that when you enable a blueprint, by default, you are enabling it in the same region as your domain. When you are enabling blueprints for a project profile that is created and enabled in a different region from your domain, you must enable these blueprints in same region where this project profile is enabled (in addition to enabling this blueprint in the same region as your domain). You can do this via the **Regions** tab in the blueprint details page. This applies to all blueprints, including the Tooling blueprint.

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Either create a new domain or choose an existing domain where you want to create a generative AI application development project profile.
3. On the domain's details page, choose the **Project profiles tab** and then choose **Create**.
4. On the **Create project profile** page, in the **Project profile name and description** section, specify the name of the project profile and the description.
5. On the **Create project profile** page, in the **Project profile creation options** section, choose **Create from a template**, and then under **Project profile templates**, choose **Generative AI application development**.
6. On the **Create project profile** page, in the **Default tooling blueprint deployment settings** section, review the selections for the default deployment settings for the Tooling blueprint.

   > **Important**
   >
   > Note that by creating this project profile from a template, you can either enable the Tooling blueprint in the same AWS account and region as your domain (prepopulated by default) or you can enable the Tooling blueprint in a different AWS account and region from this domain (an associated account).

7. On the **Create project profile** page, in the **Authorization - optional** section, specify who can use this project profile to create projects in all domain units. This can also be done per domain unit in the Amazon SageMaker Unified Studio. You can specify **Selected users and groups** or **Allow all users and groups** options.

> **Note**
>
> Projects do not provide strong security isolation. To limit cross-domain and cross-project resource discovery you can consider creating projects in separate accounts.

8. On the **Create project profile** page, in the **Project profile readiness** section, specify whether you want to enable this project profile on creation. Unless you check the **Enable project profile on creation** checkbox, your project profile is disabled and not available to use for Amazon SageMaker Unified Studio projects after its creation. Leaving a project profile in a disabled state upon creation gives you the opportunity to customize your blueprints before making the project profile available.
9. Choose **Create project profile**.

SQL analytics project profile

The SQL analytics project profiles enables your users to query Amazon SageMaker Lakehouse, Amazon Redshift and Amazon Athena data in their Amazon SageMaker Unified Studio projects. Amazon SageMaker Unified Studio project members can analyze their data in Amazon SageMaker Lakehouse using SQL.

You can complete the following procedures to create a SQL analytics project profile for your Amazon SageMaker unified domain.

Topics

- Configure SQL analytics for your Amazon SageMaker unified domain
- Create a SQL analytics project profile

Configure SQL analytics for your Amazon SageMaker unified domain

Complete the following procedure to configure SQL analytics capability for your Amazon SageMaker unified domain.

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.

2. Either create a new domain or choose an existing domain where you want to configure SQL analytics.
3. On the domain's details page, under the **Next steps for your domain** section, choose the **Configure** button next to the **SQL** capability.
4. On the **Create project profile - SQL analytics** page, in the **SQL analytics** section, review the capabilities, tools, and functionalities that are enabled for this project profile.
5. On the **Create project profile: SQL analytics**, expand the **Default tooling blueprint deployment settings** section and review the settings, including the Tooling blueprint deployment account and region.

   > **Important**
   >
   > Note that by configuring the SQL analytics capability for your domain (this procedure), you can only enable the Tooling blueprint in the same AWS account and region as your domain. To enable the Tooling blueprint in an account or region that's different from that of your domain's, see Create a SQL analytics project profile or Custom project profile.

6. On the **Create project profile: SQL analytics** page, in the **Enable blueprints** section, review the following blueprints that will be enabled for this project profile.

   > **Important**
   >
   > Note that by configuring SQL analytics for your domain (this procedure), you can only enable these blueprints in the same AWS account and region as your domain. To enable these blueprints in an account or region that's different from that of your domain's, see Create a SQL analytics project profile and Custom project profile.

   - LakehouseCatalog
   - RedshiftServerless
   - DataLake
7. On the **Create project profile: SQL analytics** page, in the **Manage access role** section, specify a service role that gives Amazon SageMaker Unified Studio authorization to ingest and manage access to datashares, tables and views in Amazon Redshift. You can create a new or using an existing role.

8. On the **Create project profil: SQL analytics** page, in the **Provisioning role** section, specify a service role that gives Amazon SageMaker Unified Studio authorization to ingest and manage access to datashares, tables and views in Amazon Redshift.
9. On the **Create project profile: SQL analytics** page, in the **Amazon S3 bucket for blueprints** section, specify an Amazon S3 bucket for blueprints in your AWS account.
10. On the **Create project profile: SQL analytics** page, in the **Networking** section, specify a VPC in which to provision your Amazon SageMaker unified domain. VPCs tagged with Amazon SageMaker Unified Studio should be correctly configured. In the **Subnets** section, select at least 3 subnets in different **Availability Zones** that contain required VPC Endpoints. Private subnets are recommended, not all functionality is available when selecting public subnets.
11. On the **Create project profile: SQL analytics** page, in the **Authorization - optional** section, specify who can use this project profile to create projects in all domain units. This can also be done per domain unit in the Amazon SageMaker Unified Studio. Choose either **Selected users and groups** (select which users and groups are authorized to use this project profile) or **Allow all users and groups** (allow any user to use this project profile).

    > **Note**
    >
    > Projects do not provide strong security isolation. To limit cross-domain and cross-project resource discovery you can consider creating projects in separate accounts.

12. Choose **Create project profile**.

Create a SQL analytics project profile

Complete the following procedure to create a SQL analytics project profile for your Amazon SageMaker unified domain. Once this procedure is complete, your SQL analytics project profile will only include the capabilities defined in the Tooling blueprint. To configure the full data analytics and SQL analytics capability for your Amazon SageMaker unified domain, you must then use the **Blueprints** tab and configure the following blueprints for this project profile:

- LakehouseCatalog
- RedshiftServerless
- DataLake

> **Important**
>
> Note that when you enable a blueprint, by default, you are enabling it in the same region as your domain. When you are enabling blueprints for a project profile that is created and enabled in a different region from your domain, you must enable these blueprints in same region where this project profile is enabled (in addition to enabling this blueprint in the same region as your domain). You can do this via the **Regions** tab in the blueprint details page. This applies to all blueprints, including the Tooling blueprint.

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Either create a new domain or choose an existing domain where you want to create a SQL analytics project profile.
3. On the domain's details page, choose the **Project profiles** tab and then choose **Create**.
4. On the **Create project profile** page, in the **Project profile name and description** section, specify the name of the project profile and the description.
5. On the **Create project profile** page, in the **Project profile creation options** section, choose **Create from a template**, and then under **Project profile templates**, choose **SQL analytics**.
6. On the **Create project profile** page, in the **Default tooling blueprint deployment settings** section, review the selections for the default deployment settings for the Tooling blueprint and update them as needed.

   > **Important**
   >
   > Note that by creating this project profile from a template, you can either enable the Tooling blueprint in the same AWS account and region as your domain (prepopulated by default) or you can enable the Tooling blueprint in a different AWS account and region from this domain (an associated account).

7. On the **Create project profile** page, in the **Authorization - optional** section, specify who can use this project profile to create projects in all domain units. This can also be done per domain unit in Amazon SageMaker Unified Studio. You can specify **Selected users and groups** or **Allow all users and groups** options.

> **Note**
>
> Projects do not provide strong security isolation. To limit cross-domain and cross-project resource discovery you can consider creating projects in separate accounts.

8. On the **Create project profile** page, in the **Project profile readiness** section, specify whether you want to enable this project profile on creation. Unless you check the **Enable project profile on creation** checkbox, your project profile is disabled and not available to use for Amazon SageMaker Unified Studio projects after its creation. Leaving a project profile in a disabled state upon creation gives you the opportunity to customize your blueprints before making the project profile available.
9. Choose **Create project profile**.

> **Important**
>
> After you complete this procedure, your SQL project profile will only include the capabilities defined in the Tooling blueprint. You can further customize this project profile and configure it to include the full supported SQL analytics capability by using the **Bluerpints** tab to enable the rest of its required bluerpints. They are the following:
>
> - LakehouseCatalog
> - RedshiftServerless
> - DataLake

Custom project profile

Complete the following procedure to create a customr project profile for your Amazon SageMaker unified domain. With the Custom creation option, you can create a project profile from scratch with your own profile settings and a selection of blueprints.

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Either create a new domain or choose an existing domain where you want to create a custom project profile.

3. On the domain's details page, choose the **Project profiles** tab and then choose **Create**.
4. On the **Create project profile** page, in the **Project profile name and description** section, specify the name of the project profile and the description.
5. On the **Create project profile** page, in the **Project profile creation options** section, choose **Custom create**.
6. On the **Create project profile** page, in the **Default tooling blueprint deployment settings** section, review the selections for the default deployment settings for the Tooling blueprint and update them as needed.

> **Important**
>
> Note that by creating this project profile from a template, you can either enable the Tooling blueprint in the same AWS account and region as your domain (prepopulated by default) or you can enable the Tooling blueprint in a different AWS account and region from this domain (an associated account).

7. On the **Create project profile** page, in the **Additional blueprint deployment settings** section, specify the Amazon SageMaker Unified Studio blueprints to use in your project. You can customize each blueprint configuration after this custom project profile is created.

> **Important**
>
> Note that by creating this project profile from a template, you can either enable these additional blueprints in the same AWS account and region as your domain (prepopulated by default) or you can enable the Tooling blueprint in a different AWS account and region from this domain (an associated account).

8. On the **Create project profile** page, in the **Authorization - optional** section, specify who can use this project profile to create projects in all domain units. This can also be done per domain unit in Amazon SageMaker Unified Studio. You can specify **Selected users and groups** or **Allow all users and groups** options.

> **Note**
>
> Projects do not provide strong security isolation. To limit cross-domain and cross-project resource discovery you can consider creating projects in separate accounts.

9. On the **Create project profile** page, in the **Project profile readiness** section, specify whether you want to enable this project profile on creation. Unless you check the **Enable project profile on creation** checkbox, your project profile is disabled and not available to use for Amazon SageMaker Unified Studio projects after its creation. Leaving a project profile in a disabled state upon creation gives you the opportunity to customize your blueprints before making the project profile available.
10. Choose **Create project profile**.

Update project profiles

Complete the following procedure to update a project profile for your domain.

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose an existing domain where you want to update a project profile.
3. Choose the **Project profiles** tab and then choose the project profile that you want to update. You can choose the All capabilities project profile, the Generative AI application development project profile, the SQL analytics project profile, or your custom project profile.
4. In the project profile details page, choose **Edit**.
5. You can make changes to the project profile description, default Tooling blueprint deployment settings, including systems manager configuration parameters, the Tooling blueprint parameters, and notes for project owners.

   Once you're done making updates, choose **Save**.

Disable or enable project profiles

Complete the following procedure to disable or enable a project profile for your domain.

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose an existing domain where you want to disable or enable a project profile.

3. Choose the **Project profiles** tab and then choose a project profile. You can choose the All capabilities project profile, the Generative AI application development project profile, the SQL analytics project profile, or your custom project profile.
4. In the project profile details page, choose either **Disable** or **Enable**.

   When enabling a project profile, confirm the action in the pop up window by choosing **Enable**.

Delete project profiles

Complete the following procedure to delete a project profile for your domain.

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose an existing domain where you want to delete a project profile.
3. Choose the **Project profiles** tab and then choose the project profile that you want to delete. You can choose the All capabilities project profile, the Generative AI application development project profile, the SQL analytics project profile, or your custom project profile.
4. In the project profile details page, choose **Delete**.

   Confirm the action in the D**elete project profile** pop up window by typing the project profile name in the text field and choosing **Delete**.

   > **Note**
   >
   > Deleting a project profile is final. Deletion removes the project profile and its blueprint deployment settings from Amazon SageMaker Unified Studio. It does not delete the blueprints used to create the blueprint deployment settings which make up this project profile.

Edit blueprint deployment settings

Blueprint deployment settings contain parameters used to create project profiles for Amazon SageMaker Unified Studio projects. Complete the following procedure to edit deployment settings for any of the supported blueprints.

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose **View domains** and choose the domain's name from the list. The name is a hyperlink.
3. Choose the **Project profiles** tab and then choose the project profile that contains the blueprint the deployment settings of which you want to modify.
4. From the **Blueprint deployment settings** list, choose the blueprint the deployment settings of which you want to modify. The blueprint name is a hyperlink.
5. On the chose blueprint's **Blueprint deployment settings summary** page, choose **Edit**.

   You can make changes to the following:

   - The blueprint deployment settings description.
   - The AWS SSM Parameter Store path that contains parameters definition.
   - The blueprint parameters. You can use the table on this page to inspect and edit parameter values that will be used during project creation. To edit a parameter value, choose the parameter's radio button and choose **Edit**. You can override values that are set as blueprint or SSM values and check the **Editable** box if you want the values to be provided during project creation.
   - Notes for project owners - let project owners know why you made these changes and anything else they need to know about how this will impact their projects that use this project profile.

Add blueprint deployment settings

Blueprint deployment settings contain parameters used to create project profiles for Amazon SageMaker Unified Studio projects. Complete the following procedure to add deployment settings for any of the supported blueprints.

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose **View domains** and choose the domain's name from the list. The name is a hyperlink.
3. Choose the **Project profiles** tab and then choose the project profile that contains the blueprint to which you want to add a new deployment setting.

4. Choose the **Blueprints Deployment Settings** tab, and choose Add blueprint deployment settings.
5. On the **Add blueprint deployment settings** page, specify the following:

   - Blueprint deployment settings name.
   - The blueprint deployment settings description.
   - The blueprint to which these deployment settings will apply.
   - Deployment properties - the account and region where you want this blueprint deployment settings to be created. Note that the corresponding blueprint should be enabled in this account and region so that the blueprint deployment settings could be created successfully.
   - AWS SSM Parameter Store path in AWS Systems Manager Parameters Store that contains parameters definition.
   - Blueprint parameters - these parameter values that will be used during project creation. You can override values that are set as blueprint or SSM values and check the Editable box if you want the values to be provided during project creation.
   - Notes for project owners - let project owners know why you made these changes and anything else they need to know about how this will impact their projects that use this project profile.

Blueprints in Amazon SageMaker Unified Studio

A blueprint with which the project profile is created defines what AWS tools and services members of the project to which the project profile belongs can use as they work with data in the Amazon SageMaker catalog.

Topics

- Supported blueprints
- Enable or disable blueprints
- Specify PEM certificate for EmrOnEc2 blueprint
- Manage blueprint authorization
- Manage Tooling blueprint parameters
- Modify the OnDemandWorkflows blueprint for creating workflow environments in a shared VPC

Supported blueprints

In the current release of Amazon SageMaker Unified Studio, the following default blueprints are supported:

Blueprint name	Description	Resources created
AmazonBedrockGenerativeAI	This is the combined Amazon Bedrock blueprint which contains seven sub-Amazon Bedrock blueprints. It enables users to build generative AI applications using tools such as Agents, Knowledge Bases, Guardrails, Flows, Functions, and Model Evaluation.	
AmazonBedrockChatAgent	Provides a reusable AWS CloudFormation template to create an Amazon Bedrock Agent and supportin	Bedrock Agent, Bedrock Agent Execution role, Bedrock Agent Consumption role

Blueprint name	Description	Resources created
	g resources, including an execution role and a consumption role.	
AmazonBedrockEvaluation	Creates one IAM role as the service role for an Amazon Bedrock evaluation job.	Bedrock Evaluation job execution role
AmazonBedrockFlow	Provides a reusable AWS CloudFormation template to create an Amazon Bedrock Prompt Flow and supportin g resources such as an execution role.	Amazon Bedrock Flow, Amazon Bedrock Flow Execution role
AmazonBedrockFunction	Provides a reusable AWS CloudFormation template to create an AWS Lamda function and supportin g resources, such as an execution role, and a secret manager.	Secrets Manager secret, AWS Lambda function, AWS Lambda function execution role, Log group
AmazonBedrockGuardrail	Provides an AWS CloudForm ation template to create an Amazon Bedrock Guardrail and supporting resources such as an execution role.	Amazon Bedrock Guardrail

Blueprint name	Description	Resources created
AmazonBedrockKnowledgeBase	Provides an AWS CloudFormation template to create a reusable Amazon Bedrock Knowledge Base and supporting resources such as an execution role.	Amazon Bedrock Knowledge Base, OpenSearch Serverless collection, Amazon Bedrock Knowledge Base Execution role, AWS Lambdas, including OpenSearch Index Lambda and KB Ingestion Trigger Lambda, AWS Lambda Execution role, Amazon Bedrock Knowledge Base data source
AmazonBedrockPrompt	Provides a reusable AWS CloudFormation template to create an Amazon Bedrock Prompt and supporting resources, such as an execution role, and a consumption role.	Amazon Bedrock Prompt, Amazon Bedrock Prompt Consumption role
DataLake	Provides a reusable AWS CloudFormation template to create a data lake environment with a AWS Glue database for data management and an Amazon Athena workgroup for querying data.	AWS Glue databases, lake formation permissions, Amazon Athena workgroups

Blueprint name	Description	Resources created
EMROnEC2	Provides a reusable AWS CloudFormation template to create an Amazon EMR on EC2 cluster to run and scale Apache Spark, Hive, and other big data workloads. For more information about enabling this blueprint see, Specify PEM certificate for EmrOnEc2 blueprint	EMR on EC2 clusters
EMRServerless	Provides a reusable AWS CloudFormation template to create an Amazon EMR Serverless application that is ready to serve Apache Spark batch jobs and interactive sessions.	EMR on Serverless applicati ons
LakehouseCatalog	Provisions a new catalog in the Amazon SageMaker Lakehouse that is backed by Amazon Redshift Managed Storage	
MLExperiments	Provides OnDemand blueprint to enable MLflow tracking server for the experimentation inside a project.	MLflow tracking server (on demand)

Blueprint name	Description	Resources created
PartnerApps	Creates an IAM role and a Connection that enables access to Partner AI Apps. Through Partner AI Apps you can leverage integrate d and fully-managed thrid-party solutions for AI/Ml development.	Amazon SageMaker Partner AI Apps IAM role, Amazon SageMaker Partner AI Apps Connection
RedshiftServerless	Provides a reusable AWS CloudFormation template to create an Amazon Redshift Serverless environment to get insights from data without managing infrastructure.	Amazon Redshift Serverless warehouses
Tooling	Creates resources for the project, including IAM user roles, security groups, and Amazon SageMaker unified domains.	IAM user roles, Amazon SageMaker unified domains, security groups
Workflows	Provides an AWS CloudForm ation template to create the MWAA environment for Airflow based Workflows	Enables project workflows on MWAA

Enable or disable blueprints

You can complete the following procedure to enable or disable blueprints in the Amazon SageMaker management console:

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.

2. Choose **View domains** and choose the domain's name from the list. The name is a hyperlink.
3. On the domain's details page, navigate to the **Blueprints** tab.
4. In the **Blueprints** tab, use the radio buttons to select the blueprints that you want to enable or disable and then choose the **Enable** or **Disable** buttons to perform the action.

> **Important**
>
> When you enable a blueprint, by default, you are enabling it in the same region as your domain. When you are enabling blueprints for a project profile that is created and enabled in a different region from your domain, you must enable these blueprints in same region where this project profile is enabled (in addition to enabling this blueprint in the same region as your domain). You can do this via the **Regions** tab in the blueprint details page. This applies to all blueprints, including the Tooling blueprint.

Specify PEM certificate for EmrOnEc2 blueprint

In order to successfully enable the EmrOnEc2 blueprint, you must specify the location of your PEM certificate. To do this, complete the following procedure:

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose **View domains** and choose the domain's name from the list. The name is a hyperlink.
3. Choose the **Project profiles** tab and then choose the project profile where the EmrOnEc2 blueprint is used.
4. Choose the radio button for the EmrOnEc2 blueprint deployment setting and choose **Edit**.
5. Under the **Blueprint parameters** section, edit the **certificateLocation** parameter. Enter the S3 location of the ZIP file that contains PEM certificate file(s). You must enter the S3 location URL using the correct format of `s3://<DomainBucketName>/<AmazonDataZoneDomainID>/certificate_location/` Make sure to replace <DomainBucketName>/<AmazonDataZoneDomainID> with the correct values for those for your domain.

   For more information about PEM certificates, see Using PEM certificates.

Manage blueprint authorization

You can perform the following procedure to manage the authorization configuration of a blueprint.

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose **View domains** and choose the domain's name from the list. The name is a hyperlink.
3. On the domain's details page, navigate to the **Blueprints** tab.
4. In the **Blueprints** tab, choose the blueprint the authorization configuration of which you'd like to change. The name of the blueprint is a hyperlink.
5. On the bluprint's details page, navigate to the **Authorization** tab.
6. In the Authorization tab, you can use the Add and Remove buttons to add or remove domain units. By adding a domain unit, you're allowing projects that belong to this domain unit to use this blueprint. By removing a domain unit, you're removing the ability to use this blueprint from projects that belong to this domain unit.

   You can use the **Cascade to all child domain units** toggle to apply the authorization setting that you're configuring to all the child domain units of the domain unit that you're adding or removing.

Manage Tooling blueprint parameters

The tooling blueprint creates resources for the project, including IAM user roles, security groups, and Amazon SageMaker unified domains.

You can perform the following procedure to manage the parameters of the Tooling blueprint.

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose **View domains** and choose the domain's name from the list. The name is a hyperlink.
3. On the domain's details page, navigate to the **Project profiles** tab.
4. In the **Project profiles** tab, choose a project profile, for example, **All capabilities**. The name of the project profile is a hyperlink.

5. On the project profile details page, choose **Tooling configuration**.
6. In the Blueprint parameters section, review the parameter values that will be used during project creation.

   To modify a parameter value, first, on the **Tooling configuration** tab, choose **Edit**, then choose the parameter that you want to edit by checking its radio button, and then choose **Edit**.

   In the **Edit blueprint parameter** pop up window, modify the parameter value, and check the **Editable** box if you want the values to be provided during project creation.

   You can modify the following parameters:

   - `minIdleTimeoutInMinutes` - the minimum time (in minutes) that Amazon SageMaker waits after the application becomes idle before shutting the user's space down.
   - `maxEbsVolumeSize` - the maximum EBS storage volume size (in GB) for the user's private spaces.
   - `idleTimeoutInMinutes` - the time (in minutes) that Amazon SageMaker waits after the application becomes idle before shutting the user's space down.
   - `enableNetworkIsolation` - enable network isolation for training and deployed inference container.
   - `lifecycleManagement` - indicates whether idle shutdown is activated for this project's Amazon SageMaker unified domain.
   - `sagemakerDomainNetworkType` - The network type for this project's Amazon SageMaker unified domain.
   - `maxIdleTimeoutInMinutes` - the maximum time (in minutes) that Amazon SageMaker waits after the application becomes idle before shutting this project's Amazon SageMaker unified domain down.
   - `allowConnectionToUserGovernedEmrClusters` - allow connection creation to existing user governed EMR Clusters.
   - `enableSpaces` - enable creation of private compute spaces for development tools.
   - `enableProjectRepositoryAutoSync` - synchronise your Git repository code artifacts to your Amazon SageMaker Unified Studio project's S3 bucket at `s3://{bucket}/{domain_id}/{project_id}/sys/code/dev/{repository_id}/{branch}/`. This synchronisation can be triggered via Git `commit push` events. Keeping the S3 bucket in sync with the Git repository ensures that any changes pushed by the user are immediately available for utilization.

> **Note**
>
> Enabling `maxEbsVolumeSize`, `enableSpaces`, or `enableProjectRepositoryAutoSync` parameters might result in incurring additional costs. For more infromation, see Amazon SageMaker pricing.

Modify the OnDemandWorkflows blueprint for creating workflow environments in a shared VPC

In order to support creating workflow environments in a shared VPC setup, where the VPC is in one AWS account and the project and the Amazon Managed Workflows for Apache Airflow (Amazon MWAA) environment are in another AWS account, the domain administrator must complete the following procedure to modify the endpointManagement parameter of the OnDemand Workflows blueprint.

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose **View domains** and choose the domain's name from the list. The name is a hyperlink.
3. On the domain's details page, navigate to the **Project profiles** tab.
4. In the **Project profiles** tab, choose a project profile, for example, **All capabilities**. The name of the project profile is a hyperlink.
5. On the project profile details page, choose **OnDemand Workflows** blueprint.
6. In the **OnDemand Workflows** details page, choose **Edit**.
7. In the **Blueprint parameters** section, choose **endpointManagement** and then choose **Edit**.
8. In the **Edit blueprint parameter** pop up window, choose **Customer** in the **Value** drop-down.

   This value defines whether the VPC endpoints configured for the environment are created and managed by the customer or by Amazon MWAA. If **Value** is set to **SERVICE**, Amazon MWAA creates and manages the required VPC endpoints in your VPC. If **Value** is set to **CUSTOMER**, you must create and manage the VPC endpoints for your VPC. If you choose to create an environment in a shared VPC, you must set this value to **CUSTOMER**.

The domain users can then create workflow environments and the domain administrators then can follow the steps and procedures described here to automate deployment of Amazon Amazon MWAA environments using customer-managed endpoints in a VPC.

Git connections in Amazon SageMaker Unified Studio

Git connections enable you to check in and check out files, and manage your code repository. When you create an Amazon SageMaker unified domain, a default git connection to CodeCommit is provided for you to manage your code. You can also create and enable new 3P Git connections to GitHub, GitHub Enterprise Server, GitLab, and GitLab Self-Managed.

By default, all added Git connections are initially disabled and cannot be accessed by project users. Enabling a Git connection makes it accessible in all the domains that you own, and disabling a Git connection removes access to it in all the domains that you own.

You can use the following procedures to create 3P Git connections.

Topics

- Github connections
- Github Enterprise server connections
- GitLab connections
- GitLab self-managed connections
- Bitbucket connections
- Enable connections for project access

Github connections

Complete the following procedure to create a 3P Git connection to GitHub:

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose **View domains** and then choose the domain where you want to add a 3P Git connection to GitHub.
3. On the domain's details page, choose the **Connections** tab.
4. Expand the **Create Git connection** drop-down menu and then choose **Github**.
5. In the **Create a connection** window, in the **Connection name** field, specify the name of the connection. (Optional - enter in any AWS tags you want to add to the connection and then choose **Connect to Github**.

6. Enter in your GitHub credentials if you are prompted to provide them.
7. Optional - for the app installation, either choose an AWS application to connect to Amazon SageMaker Unified Studio that you previously installed, or install a new application.
   - If you have installed an AWS application, search for and select that application.
   - If you do not have an AWS application, choose **Install a new app**. A popup window appears.
     - Select the account you want to install the application and establish a connection to.
     - Select whether you want the app to connect to **All repositories** or **Only select repositories**.
     - Choose **Install**.
8. Choose **Connect**.
9. Close the popup window and refresh the **Connections** tab. The connection appears in the list with a connection status of **Available**. You then need to enable the connection for project access in the Amazon SageMaker Unified Studio.

Github Enterprise server connections

Complete the following procedure to create a 3P Git connection to GitHub Enterprise Server:

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose **View domains** and then choose the domain where you want to add a 3P Git connection to GitHub Enterprise Server.
3. On the domain's details page, choose the **Connections** tab.
4. Expand the **Create Git connection** drop-down menu and then choose **GitHub Enterprise**.
5. In **Connection name**, provide a name for the connection.
6. In **URL**, specify the URL of your GitHub Enterprise Server instance.
7. If your GitHub Enterprise Server instance is only available in a VPC, choose **Use a VPC** and then specify the VPC ID.
8. (Optional) Under **TLS certificate**, specify your TLS certificate.
9. (Optional) Specify any AWS tags you want to add to the connection.

10. Choose **Connect to GitHub Enterprise Server**. This brings you to the connection details page, and the status of the connection is **Pending**. You then need to update the pending connection to make it active.

Complete the following procedure to update a pending 3P Git connection to GitHub Enterprise Server:

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose **View domains** and then choose the domain where you want to add a 3P Git connection to GitHub.
3. On the domain's details page, choose the **Connections** tab and then choose the Git connection that you want to update.
4. Choose **Update pending connection**. A new popup window appears inviting you to enter information for your GitHub Enterprise Server.
5. If you have installed an AWS application to connect to Amazon SageMaker Unified Studio, search for it and select that application and choose **Connect**. If you do not have an AWS application to connect to Amazon SageMaker Unified Studio, choose **Install a new application**.
6. In the pop up window, choose **Leave page**. This takes you to the new application installation.
7. Select the organization in which you want to install the application and establish a connection.
8. Select whether you want the app to connect to **All repositories** or **Only select repositories**.
9. Choose **Install**.

This brings you to the connection details page, and the status of the connection changes to **Available**. You then need to enable the connection for project access in the Amazon SageMaker Unified Studio.

GitLab connections

Complete the following procedure to create a 3P Git connection to GitLab:

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose **View domains** and then choose the domain where you want to add a 3P Git connection to GitLab.
3. On the domain's details page, choose the **Connections** tab.
4. Expand the **Create Git connection** drop-down menu and then choose **GitLab**.
5. In **Connection name**, provide a name for the connection, optionally, enter in any AWS tags you want to add to the connection, and then choose **Connect to GitLab**.
6. Enter in your GitLab credentials when you are prompted to provide them. Once authenticated, choose **Authorize AWS connector for GitLab**.
7. On the **Connect to GitLab** page, choose **Connect**.
8. Close the popup window and refresh the **Connections** tab. The new GitLab connection appears in the list with a connection status of **Available**. You must then enable this connection for project access in the Amazon SageMaker Unified Studio.

GitLab self-managed connections

Complete the following procedure to create a 3P Git connection to GitLab Self-Managed:

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose **View domains** and then choose the domain where you want to add a 3P Git connection to GitLab self-managed.
3. On the domain's details page, choose the **Connections** tab.
4. Expand the **Create Git connection** drop-down menu and then choose **GitLab self-managed**.
5. On the **Connect to GitLab self-managed** page, in **Connection name**, specify the name for the connection, and in the **URL**, specify the endpoint of the server to connect to, and then choose **Connect to GitLab self-managed**. This brings you to the connection details page, and the status of the connection is **Pending**. You then need to update the pending connection to make it active.

Complete the following procedure to update a pending 3P Git connection to GitLab self-managed:

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose **View domains** and then choose the domain where you want to update your pending connection.
3. On the domain's details page, choose the **Connections** tab and then choose the Git connection that you want to update.
4. Choose **Update pending connection**. A new popup window appears inviting you to enter information for your GitLab self-managed.
5. If you have installed an AWS application to connect to Amazon SageMaker Unified Studio, search for it and select that application and choose **Connect**. If you do not have an AWS application to connect to Amazon SageMaker Unified Studio, choose **Install a new application**.
6. In the pop up window, choose **Leave page**. This takes you to the new application installation.
7. Select the organization in which you want to install the application and establish a connection.
8. Select whether you want the app to connect to **All repositories** or **Only select repositories**.
9. Choose **Install**.

Bitbucket connections

Complete the following procedure to create a 3P Git connection to Bitbucket:

> **Note**
>
> You must have an existing Bitbucket workspace before you can complete this procedure. Currently, Amazon SageMaker Unified Studio only supports the BitBucket Cloud hosting option. The Data Center hosting option is not supported in the currect release of Amazon SageMaker Unified Studio. For more information, see Bitbucket hosting options.

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose **View domains** and then choose the domain where you want to add a 3P Git connection to Bitbucket.

3. On the domain's details page, choose the **Connections** tab.
4. Expand the **Create Git connection** drop-down menu and then choose **Bitbucket**.
5. On the **Create a connection** page, in **Connection name**, specify the name for the connection, and then choose **Connect to Bitbucket**.
6. On the **Connect to Bitbucket** page, in **Bitbucket apps**, specify an existing app or choose **Install a new app** and then choose **Connect**. This redirects you to the bitbucket website where you can choose your existing **Bitbucket workspace** and grant Amazon SageMaker Unified Studio access to it by choosing **Grant access**.

Enable connections for project access

After a 3P Git connection is created and updated to become available, you can enable it for project members to use in your domain. Complete the following procedure to enable project access for a 3P Git connection:

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose **View domains** and then choose the domain where you want to enable your connections for project members to use.
3. On the domain's details page, choose the **Connections** tab.
4. Choose the connection that you want to enable, and then choose **Enable**. A popup window appears so that you can confirm the decision.
5. Choose **Enable**. When you refresh the page, the connection then appears as **Enabled**. This means that project members have access to the connection and can use it in projects within that domain.

> **Note**
>
> All tagged connections will be accessible from all domains in the account and all projects in the associated accounts.

Note

When you create and enable a connection for Git access and the user accesses this connection in the JupyterLab in SageMaker Unified Studio in Amazon SageMaker Unified Studio, the repository is cloned, in other words, a local copy of the repository is created in the Amazon SageMaker Unified Studio project. If the administrator later disables or deletes this Git connection, the local repository remains in the user's IDE, but users can no longer push or pull files to or from it. For more information about Git operations in Amazon SageMaker Unified Studio, see Performing Git operations.

Amazon Q in Amazon SageMaker Unified Studio

In the current release of Amazon SageMaker Unified Studio, by default, all users of an Amazon SageMaker unified domain have access to the Free Tier release of Amazon Q.

Amazon Q Developer is an AI coding assistant that can chat about code, provide inline code completions, and generate net new code. For more information, see What is Amazon Q Developer? in the Amazon Q Developer User Guide.

Topics

- Enable Amazon Q Developer Pro
- Disable Amazon Q Developer Pro
- Troubleshooting Amazon Q in Amazon SageMaker Unified Studio

Enable Amazon Q Developer Pro

To enable Amazon Q Developer Pro in Amazon SageMaker Unified Studio, you must do the following:

- Configure SSO user access to Amazon SageMaker Unified Studio for the users of your Amazon SageMaker unified domain.
- Subscribe to Amazon Q Developer Pro in the Amazon Q console in the same AWS Region and the same AWS account that you use for Amazon SageMaker Unified Studio. To do this, complete the following procedure:

  1. Navigate to the Amazon Q console.
  2. Confirm that Amazon Q is connected to an instance of IAM Identity Center. This should be displayed on the Getting started page in the Connect to Identity Center section. If it is not connected, follow the steps in the Set up IAM Identity Center section in this guide.
  3. On the **Subscriptions** page, choose **Subscribe**.
  4. If you have not yet subscribed a user to Q, a popup window appears informing you that Amazon Q will create a managed application instance on your behalf. Choose **Create and subscribe to Q Developer Pro**.
  5. A popup window appears inviting you to assign users and groups to Q for developer. Choose **Get started**.

6. In the search bar, type the first name of a user or the group name of a group you want to add to Q for developer. Then select the name of that user or group when it appears on the screen.
7. Repeat step 6 for all the users and groups that you want to have access to Q in Amazon SageMaker Unified Studio.
8. Choose **Assign**.

- Enable Amazon Q Developer Pro in the Amazon SageMaker management console. To do this, complete the following procedure.

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose a domain where you want to enable Amazon Q Developer Pro and then on the domain's details page, choose the **Amazon Q** tab.
3. In the **Amazon Q** tab, expand the **Actions** drop-down and choose **Edit**.
4. On the **Edit Amazon Q subscription** page, choose **Q Developer Pro** and then choose **Update**.

Disable Amazon Q Developer Pro

In order to disable Amazon Q in your domain, you must update your permissions to use deny statements and update your domain level configuration. Do this by completing the following steps:

- Update your permissions in the AWS policy: SageMakerStudioDomainExecutionRolePolicy to Deny “q:*”.

```
{
   "Version": "2012-10-17",
   "Statement": [
       {
           "Effect": "Deny",
           "Action": [
               "q:*",
               "glue:StartCompletion",
               "glue:GetCompletion",
           ],
```

```
            "Resource": "*"
        }
    ]
```

- Update your permissions in the AWS policy: SageMakerStudioProjectUserRolePolicy to Deny “q:*”.

```
{
        "Sid": "AmazonQChatPermissions",
        "Effect": "Deny",
        "Action": [
            "q:*",
            "glue:StartCompletion",
           "glue:GetCompletion",
           "codewhisperer:GenerateRecommendations",
           "sqlworkbench:PutQCustomContext",
           "sqlworkbench:GetQCustomContext",
           "sqlworkbench:DeleteQCustomContext",
           "sqlworkbench:GetQSqlRecommendations",
           "sqlworkbench:GetQSqlPromptQuotas"
        ],
        "Resource": "*"
    },
```

- Update the Q setting in the domain level configuration.

```
arn:aws:ssm:<region>:<account-id>:parameter/amazon/datazone/q/<domain-id> to empty
arn:aws:ssm:<region>:<account-id>:parameter/amazon/datazone/q/<domain-id>/q-enabled
 to false
```

Troubleshooting Amazon Q in Amazon SageMaker Unified Studio

This section lists potential issues you may encounter when configuring Amazon Q for use. Follow the suggested steps to resolve the issues.

- **Amazon Q Q&A chat failing**

  The Q&A chat may fail if you log-in using IAM Identity Center with an Amazon Q subscription in a standalone account. This is because Q&A chat only supports subscriptions in Organization accounts (management or member accounts). Only the free tier for Q&A is offered in standalone accounts. In cases where the Amazon Q profile is in a different account than the domain (e.g., Q in management, domain in member), you may need to provide the Q profile ARN explicitly. We recommend the following actions:

  - It is recommended to keep the Q profile in the same account as the domain.
  - If using a management account for the Q profile in an organizational setup, be prepared to provide the Q profile ARN.
  - Allow up to 10 minutes for Q services to fully initialize after creating a Q profile.

Amazon Bedrock in SageMaker Unified Studio

Amazon Bedrock in SageMaker Unified Studio enables you to easily build and scale generative AI applications. Amazon Bedrock in SageMaker Unified Studio provides a web interface that allow users to interact with Amazon Bedrock foundation models and use Amazon Bedrock tools, such as Agents, Guardrails, Prompts, Flows, Evaluation, and Functions in a seamless unified fashion. Users can interact with models in a generative AI playground or collaborate on developing generative AI applications in projects.

Amazon Bedrock in SageMaker Unified Studio can be only used by the members of the Amazon SageMaker unified domains. For more information, see Amazon Bedrock in SageMaker Unified Studio.

In the current release of Amazon SageMaker Unified Studio, there are the following configuration paths available for setting up Amazon Bedrock in SageMaker Unified Studio in your domain, each offering a different level of customization:

- **Quick setup** - you can use this option as part of creating an Amazon SageMaker unified domain. Quick setup option simplifies the process of setting up Amazon Bedrock in SageMaker Unified Studio by automating key steps without requiring user input. When selected during domain creation, the **Quick setup** performs the following:
  - Creates the **Generative AI application development project profile** that the Amazon SageMaker Unified Studio user then uses to create Amazon SageMaker in SageMaker Unified Studio projects.
  - Activates all generative AI blueprints and the default Tooling blueprint needed to provision resources for the Amazon Bedrock capabilities.
  - Configures permissions for all enabled Amazon Bedrock serverless models accessible in the AWS account and Region, enabling their use in the generative AI projects and playgrounds.

  For more informaiton about creating an Amazon SageMaker unified domain with **Quick setup**, see Create a Amazon SageMaker Unified Studio domain - quick setup.
- **Guided setup** - this is the guided setup with a step-by-step walkthrough of configuring Generative AI capabilities for your Amazon SageMaker unified domains. You can use this option only after you've created your Amazon SageMaker unified domain by navigating to the domain details page and using the **Next steps for your domain** section. It pre-populates system-recommended configurations which you can review and modify. Key steps include:

- Creating the **Generative AI application development project profile** - the system generates a project profile specific to the domain's AWS account and Region. This step also automatically enables the generative AI blueprints if they are not already enabled. If the Tooling blueprint is not yet enabled in the domain, the system augments steps to enable it as well.
- Configuring model access - the system identifies all Amazon Bedrock serverless models available in the account and Region, then configures access permissions for these models. You can review the model list and selectively enable models for use in Amazon Bedrock in SageMaker Unified Studio projects and domain playgrounds.

  For detailed steps of using the guided setup of Generative AI capabilities for your Amazon SageMaker unified domain, see Configure Amazon Bedrock in SageMaker Unified Studio for your domain.

- **Manual setup** - this is a step-by-step configuration of project profiles, blueprints, and model access with granular control over configurations. You can use this option only after you've created your Amazon SageMaker unified domain by navigating to the domain details page and using the configuration settings under the **Project profiles**, **Blueprints**, and **Amazon Bedrock models** tabs. Manual setup is recommended for advanced scenarios, such as enabling generative AI in a different Region or account from the domain. Manual setup includes:
  - Manually creating custom project profiles
  - Enabling specific blueprints
  - Configuring access to your Amazon Bedrock serverless models for the selected AWS accounts and regions

Once Amazon Bedrock in SageMaker Unified Studio for a domain is set up, you can perform the following procedures to further customize and configure it.

Topics

- Configure access to your Amazon Bedrock serverless models for the selected AWS accounts and regions
- Enable or disable chat history
- Set default models for the generative AI playgrounds in Amazon SageMaker Unified Studio
- Publishing models from associated accounts

Configure access to your Amazon Bedrock serverless models for the selected AWS accounts and regions

You can configure access to your Amazon Bedrock serverless models for Amazon Bedrock in SageMaker Unified Studio projects and playgrounds by enabling or disabling access in the **Amazon Bedrock models** tab. To configure access, follow these steps:

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose **View domains** and then choose the domain where you want to manage your Amazon Bedrock serverless models.
3. Choose the **Amazon Bedrock models** tab.
4. Amazon Bedrock in SageMaker Unified Studio uses the Amazon Bedrock to enable model interaction. The in SageMaker Unified Studio allows you to use the model that you have granted access in Amazon Bedrock. An Amazon Bedrock in SageMaker Unified Studio project can only access models from the project's AWS account and AWS Region. A playground can access models from any account and region. On the **Amazon Bedrock models** page, under the **Select account and region** section, choose the AWS account and Region where you want to manage your serverless models.
5. On the **Amazon Bedrock models** page, under the **Models enabled for the selected account and region** section, choose the refresh icon.

   The system queries Amazon Bedrock and displays a list of Amazon Bedrock serverless models to which you have access. If no models are listed or if a specific model is missing, visit the Amazon Bedrock management console for the appropriate account and Region to grant access. If you have updated model access in Amazon Bedrock, choose the refresh icon in the **Amazon Bedrock Models** tab to refresh the updated list of accessible models

   The following are important elements to consider as you review the generated list of models:

   - Every model in the list is prepopulated with certain details, including modality, inference type, whether it's enabled in projects and playground, and roles for model access. A model's modality indicates the type of output data it can generate. Amazon Bedrock in SageMaker Unified Studio supports Amazon Bedrock foundation models with on-demand throughput and on-demand cross-region inference. If a model supports both on-demand and on-

demand cross-region inference, it appears in the list twice with the appropraite value listed in the **Inference** column. You have the flexibility to enable your preferred inference type for use in projects and playgrounds. Amazon Bedrock in SageMaker Unified Studio does NOT support provisioned throughput, custom models, or imported models.

- For easy setup, the system pre-selects accessible models that support on-demand throughput, excluding legacy models, to enable in projects and playground. Review and adjust the list to enable models for projects and playgrounds based on your specific requirements.
- The models that you have not yet enabled for projects and playground access are grayed out in the list. To enable or disable access, choose **Manage** and then use the checkboxes in the **Enable in project** and **Enable in playground** columns. If you choose to disable project access of a model, confirm the disable action in the pop up window that appears.

6. To enable or disable your models in the Amazon SageMaker Unified Studio projects and playgrounds, choose **Manage** and then use the checkboxes in the **Enable in project** and **Enable in playground** columns to enable or disable your models. If you choose to disable a model in a project, confirm the disable action in the pop up window that appears.

Enable or disable chat history

Chat history for the Amazon Bedrock in SageMaker Unified Studio chat playground is enabled by default. To disable chat history for your users, use the **Enable chat history** toggle in the **Chat history section** of the **Playground settings**.

> **Important**
>
> Chat history for the Amazon Bedrock in SageMaker Unified Studio playground is in preview and should be used as a development aid rather than a definitive record of model behavior. While we strive to maintain accuracy in session records, the integrity of stored chat interactions cannot be guaranteed. Users and organizations should not rely on chat history for critical business decisions, compliance purposes, or official documentation.

Set default models for the generative AI playgrounds in Amazon SageMaker Unified Studio

Amazon Bedrock in SageMaker Unified Studio supports generative AI playgrounds that enable the Amazon SageMaker unified domain users to easily experiment with Amazon Bedrock models. Users can send prompt requests to various models and view the responses. There are two types of playgrounds in the Amazon Bedrock in SageMaker Unified Studio: the chat playground and the image and video playground.

As the administrator of an Amazon SageMaker unified domain, you can complete the following procedure to set default chat and video and image generative AI playgrounds in the Amazon SageMaker Unified Studio for your domain and their respective default models. When users access the playground, the default model is preselected for them to begin interacting.

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose **View domains** and then choose the domain where you want to configure the detaul playgrounds and models.
3. Choose the **Amazon Bedrock models** tab.
4. In the **Default models** section, choose **Manage**.
5. On the **Default models - optional** page:

    - For the **Chat playground - optional**, select a default model from the drop-down menu. The drop-down menu includes only the models that support **Text** as the output modality and are enabled for playground use.
    - For the **Image and video playground - optional**, select a default model from the drop-down menu. The drop-down menu will include only the models that support either **Image** or **Video** as the output modality and are enabled for playground use.
    - Choose **Save** to save your choices for the default playgrounds and their respective default models.

Publishing models from associated accounts

Amazon Bedrock models are published to the domain as model assets through the **GenerativeAIModelGovernanceProject** project. This project is is created by Amazon SageMaker

Unified Studio automatically and by default, the IAM identity (IAM user or role) who configures Amazon Bedrock in SageMaker Unified Studio for the domain is the owner of this project. If the domain was created via Quick setup, SSO users that were configured during Quick setup are also owners of the **GenerativeAIModelGovernanceProject** project.

If you want to publish models from your associated account, the IAM identity of the associated account must be added to the **GenerativeAIModelGovernanceProject** project. In the current release of Amazon SageMaker Unified Studio, you must complete the following procedure to do this:

1. Navigate to the Amazon SageMaker management console at https://console.aws.amazon.com/datazone and use the region selector in the top navigation bar to choose the appropriate AWS Region.
2. Choose **View domains** and then choose the domain where you want to add an associated account user to the model governance project.
3. Choose the **Amazon Bedrock models** tab and locate the **Model governance project section**.
4. In the **Model governance project section**, choose **Add IAM users or roles**, then choose **Associated account**, specify the ARN of the user that you want to add from the associated account, then choose **Add**, and then choose **Add user(s)**.

Security in Amazon SageMaker Unified Studio

Cloud security at AWS is the highest priority. As an AWS customer, you benefit from data centers and network architectures that are built to meet the requirements of the most security-sensitive organizations.

Security is a shared responsibility between AWS and you. The shared responsibility model describes this as security *of* the cloud and security *in* the cloud:

- **Security of the cloud** – AWS is responsible for protecting the infrastructure that runs AWS services in the AWS Cloud. AWS also provides you with services that you can use securely. Third-party auditors regularly test and verify the effectiveness of our security as part of the AWS Compliance Programs. To learn about the compliance programs that apply to Amazon SageMaker Unified Studio, see AWS Services in Scope by Compliance Program.
- **Security in the cloud** – Your responsibility is determined by the AWS service that you use. You are also responsible for other factors including the sensitivity of your data, your company's requirements, and applicable laws and regulations.

This documentation helps you understand how to apply the shared responsibility model when using Amazon SageMaker Unified Studio. The following topics show you how to configure Amazon SageMaker Unified Studio to meet your security and compliance objectives. You also learn how to use other AWS services that help you to monitor and secure your Amazon SageMaker Unified Studio resources.

Topics

- Identity and access management for Amazon SageMaker Unified Studio
- Data protection in Amazon SageMaker Unified Studio
- Authorization in Amazon SageMaker Unified Studio
- Compliance validation for Amazon SageMaker Unified Studio
- Security Best Practices for Amazon SageMaker Unified Studio
- Resilience in Amazon SageMaker Unified Studio
- Infrastructure Security in Amazon SageMaker Unified Studio
- Configuration and vulnerability analysis for Amazon SageMaker Unified Studio
- Cross-service confused deputy prevention

Identity and access management for Amazon SageMaker Unified Studio

AWS Identity and Access Management (IAM) is an AWS service that helps an administrator securely control access to AWS resources. IAM administrators control who can be *authenticated* (signed in) and *authorized* (have permissions) to use Amazon SageMaker Unified Studio resources. IAM is an AWS service that you can use with no additional charge.

Note

Note that certain features in Amazon SageMaker Unified Studio may maintain active sessions even after you log out of the Amazon SageMaker Unified Studio. Sometimes, these disconnected sessions can persist for up to 12 hours. Affected features include:

- Spaces
- Workflows
- ML Experiments (MLFlow)
- Connections
- Hyperpod
- Amazon SageMaker partner applications

To ensure the security of your environment, administrators must review and adjust session duration settings where possible and be cautious when using shared workstations or public networks.

Topics

- Audience
- Authenticating with identities
- Managing access using policies
- How Amazon SageMaker Unified Studio works with IAM
- Identity-based policy examples for Amazon SageMaker Unified Studio
- AWS managed policies for Amazon SageMaker Unified Studio
- IAM roles for Amazon SageMaker Unified Studio

- Access control patterns Amazon SageMaker Unified Studio
- Troubleshooting Amazon SageMaker Unified Studio identity and access

Audience

How you use AWS Identity and Access Management (IAM) differs, depending on the work that you do in Amazon SageMaker Unified Studio.

Service user – If you use the Amazon SageMaker Unified Studio service to do your job, then your administrator provides you with the credentials and permissions that you need. As you use more Amazon SageMaker Unified Studio features to do your work, you might need additional permissions. Understanding how access is managed can help you request the right permissions from your administrator. If you cannot access a feature in Amazon SageMaker Unified Studio, see Troubleshooting Amazon SageMaker Unified Studio identity and access.

Service administrator – If you're in charge of Amazon SageMaker Unified Studio resources at your company, you probably have full access to Amazon SageMaker Unified Studio. It's your job to determine which Amazon SageMaker Unified Studio features and resources your service users should access. You must then submit requests to your IAM administrator to change the permissions of your service users. Review the information on this page to understand the basic concepts of IAM. To learn more about how your company can use IAM with Amazon SageMaker Unified Studio, see How Amazon SageMaker Unified Studio works with IAM.

IAM administrator – If you're an IAM administrator, you might want to learn details about how you can write policies to manage access to Amazon SageMaker Unified Studio. To view example Amazon SageMaker Unified Studio identity-based policies that you can use in IAM, see Identity-based policy examples for Amazon SageMaker Unified Studio.

Authenticating with identities

Authentication is how you sign in to AWS using your identity credentials. You must be *authenticated* (signed in to AWS) as the AWS account root user, as an IAM user, or by assuming an IAM role.

You can sign in to AWS as a federated identity by using credentials provided through an identity source. AWS IAM Identity Center (IAM Identity Center) users, your company's single sign-on authentication, and your Google or Facebook credentials are examples of federated identities. When you sign in as a federated identity, your administrator previously set up identity federation using IAM roles. When you access AWS by using federation, you are indirectly assuming a role.

Depending on the type of user you are, you can sign in to the AWS Management Console or the AWS access portal. For more information about signing in to AWS, see How to sign in to your AWS account in the *AWS Sign-In User Guide*.

If you access AWS programmatically, AWS provides a software development kit (SDK) and a command line interface (CLI) to cryptographically sign your requests by using your credentials. If you don't use AWS tools, you must sign requests yourself. For more information about using the recommended method to sign requests yourself, see AWS Signature Version 4 for API requests in the *IAM User Guide*.

Regardless of the authentication method that you use, you might be required to provide additional security information. For example, AWS recommends that you use multi-factor authentication (MFA) to increase the security of your account. To learn more, see Multi-factor authentication in the *AWS IAM Identity Center User Guide* and AWS Multi-factor authentication in IAM in the *IAM User Guide*.

AWS account root user

When you create an AWS account, you begin with one sign-in identity that has complete access to all AWS services and resources in the account. This identity is called the AWS account *root user* and is accessed by signing in with the email address and password that you used to create the account. We strongly recommend that you don't use the root user for your everyday tasks. Safeguard your root user credentials and use them to perform the tasks that only the root user can perform. For the complete list of tasks that require you to sign in as the root user, see Tasks that require root user credentials in the *IAM User Guide*.

Federated identity

As a best practice, require human users, including users that require administrator access, to use federation with an identity provider to access AWS services by using temporary credentials.

A *federated identity* is a user from your enterprise user directory, a web identity provider, the AWS Directory Service, the Identity Center directory, or any user that accesses AWS services by using credentials provided through an identity source. When federated identities access AWS accounts, they assume roles, and the roles provide temporary credentials.

For centralized access management, we recommend that you use AWS IAM Identity Center. You can create users and groups in IAM Identity Center, or you can connect and synchronize to a set of users and groups in your own identity source for use across all your AWS accounts and applications. For

information about IAM Identity Center, see What is IAM Identity Center? in the *AWS IAM Identity Center User Guide*.

IAM users and groups

An *IAM user* is an identity within your AWS account that has specific permissions for a single person or application. Where possible, we recommend relying on temporary credentials instead of creating IAM users who have long-term credentials such as passwords and access keys. However, if you have specific use cases that require long-term credentials with IAM users, we recommend that you rotate access keys. For more information, see Rotate access keys regularly for use cases that require long-term credentials in the *IAM User Guide*.

An *IAM group* is an identity that specifies a collection of IAM users. You can't sign in as a group. You can use groups to specify permissions for multiple users at a time. Groups make permissions easier to manage for large sets of users. For example, you could have a group named *IAMAdmins* and give that group permissions to administer IAM resources.

Users are different from roles. A user is uniquely associated with one person or application, but a role is intended to be assumable by anyone who needs it. Users have permanent long-term credentials, but roles provide temporary credentials. To learn more, see Use cases for IAM users in the *IAM User Guide*.

IAM roles

An *IAM role* is an identity within your AWS account that has specific permissions. It is similar to an IAM user, but is not associated with a specific person. To temporarily assume an IAM role in the AWS Management Console, you can switch from a user to an IAM role (console). You can assume a role by calling an AWS CLI or AWS API operation or by using a custom URL. For more information about methods for using roles, see Methods to assume a role in the *IAM User Guide*.

IAM roles with temporary credentials are useful in the following situations:

- **Federated user access** – To assign permissions to a federated identity, you create a role and define permissions for the role. When a federated identity authenticates, the identity is associated with the role and is granted the permissions that are defined by the role. For information about roles for federation, see Create a role for a third-party identity provider (federation) in the *IAM User Guide*. If you use IAM Identity Center, you configure a permission set. To control what your identities can access after they authenticate, IAM Identity Center correlates the permission set to a role in IAM. For information about permissions sets, see Permission sets in the *AWS IAM Identity Center User Guide*.

- **Temporary IAM user permissions** – An IAM user or role can assume an IAM role to temporarily take on different permissions for a specific task.
- **Cross-account access** – You can use an IAM role to allow someone (a trusted principal) in a different account to access resources in your account. Roles are the primary way to grant cross-account access. However, with some AWS services, you can attach a policy directly to a resource (instead of using a role as a proxy). To learn the difference between roles and resource-based policies for cross-account access, see Cross account resource access in IAM in the *IAM User Guide*.
- **Cross-service access** – Some AWS services use features in other AWS services. For example, when you make a call in a service, it's common for that service to run applications in Amazon EC2 or store objects in Amazon S3. A service might do this using the calling principal's permissions, using a service role, or using a service-linked role.
  - **Forward access sessions (FAS)** – When you use an IAM user or role to perform actions in AWS, you are considered a principal. When you use some services, you might perform an action that then initiates another action in a different service. FAS uses the permissions of the principal calling an AWS service, combined with the requesting AWS service to make requests to downstream services. FAS requests are only made when a service receives a request that requires interactions with other AWS services or resources to complete. In this case, you must have permissions to perform both actions. For policy details when making FAS requests, see Forward access sessions.
  - **Service role** – A service role is an IAM role that a service assumes to perform actions on your behalf. An IAM administrator can create, modify, and delete a service role from within IAM. For more information, see Create a role to delegate permissions to an AWS service in the *IAM User Guide*.
  - **Service-linked role** – A service-linked role is a type of service role that is linked to an AWS service. The service can assume the role to perform an action on your behalf. Service-linked roles appear in your AWS account and are owned by the service. An IAM administrator can view, but not edit the permissions for service-linked roles.
- **Applications running on Amazon EC2** – You can use an IAM role to manage temporary credentials for applications that are running on an EC2 instance and making AWS CLI or AWS API requests. This is preferable to storing access keys within the EC2 instance. To assign an AWS role to an EC2 instance and make it available to all of its applications, you create an instance profile that is attached to the instance. An instance profile contains the role and enables programs that are running on the EC2 instance to get temporary credentials. For more information, see Use an IAM role to grant permissions to applications running on Amazon EC2 instances in the *IAM User Guide*.

Managing access using policies

You control access in AWS by creating policies and attaching them to AWS identities or resources. A policy is an object in AWS that, when associated with an identity or resource, defines their permissions. AWS evaluates these policies when a principal (user, root user, or role session) makes a request. Permissions in the policies determine whether the request is allowed or denied. Most policies are stored in AWS as JSON documents. For more information about the structure and contents of JSON policy documents, see Overview of JSON policies in the *IAM User Guide*.

Administrators can use AWS JSON policies to specify who has access to what. That is, which **principal** can perform **actions** on what **resources**, and under what **conditions**.

By default, users and roles have no permissions. To grant users permission to perform actions on the resources that they need, an IAM administrator can create IAM policies. The administrator can then add the IAM policies to roles, and users can assume the roles.

IAM policies define permissions for an action regardless of the method that you use to perform the operation. For example, suppose that you have a policy that allows the `iam:GetRole` action. A user with that policy can get role information from the AWS Management Console, the AWS CLI, or the AWS API.

Identity-based policies

Identity-based policies are JSON permissions policy documents that you can attach to an identity, such as an IAM user, group of users, or role. These policies control what actions users and roles can perform, on which resources, and under what conditions. To learn how to create an identity-based policy, see Define custom IAM permissions with customer managed policies in the *IAM User Guide*.

Identity-based policies can be further categorized as *inline policies* or *managed policies*. Inline policies are embedded directly into a single user, group, or role. Managed policies are standalone policies that you can attach to multiple users, groups, and roles in your AWS account. Managed policies include AWS managed policies and customer managed policies. To learn how to choose between a managed policy or an inline policy, see Choose between managed policies and inline policies in the *IAM User Guide*.

Resource-based policies

Resource-based policies are JSON policy documents that you attach to a resource. Examples of resource-based policies are IAM *role trust policies* and Amazon S3 *bucket policies*. In services that

support resource-based policies, service administrators can use them to control access to a specific resource. For the resource where the policy is attached, the policy defines what actions a specified principal can perform on that resource and under what conditions. You must specify a principal in a resource-based policy. Principals can include accounts, users, roles, federated users, or AWS services.

Resource-based policies are inline policies that are located in that service. You can't use AWS managed policies from IAM in a resource-based policy.

Access control lists (ACLs)

Access control lists (ACLs) control which principals (account members, users, or roles) have permissions to access a resource. ACLs are similar to resource-based policies, although they do not use the JSON policy document format.

Amazon S3, AWS WAF, and Amazon VPC are examples of services that support ACLs. To learn more about ACLs, see Access control list (ACL) overview in the *Amazon Simple Storage Service Developer Guide*.

Other policy types

AWS supports additional, less-common policy types. These policy types can set the maximum permissions granted to you by the more common policy types.

- **Permissions boundaries** – A permissions boundary is an advanced feature in which you set the maximum permissions that an identity-based policy can grant to an IAM entity (IAM user or role). You can set a permissions boundary for an entity. The resulting permissions are the intersection of an entity's identity-based policies and its permissions boundaries. Resource-based policies that specify the user or role in the `Principal` field are not limited by the permissions boundary. An explicit deny in any of these policies overrides the allow. For more information about permissions boundaries, see Permissions boundaries for IAM entities in the *IAM User Guide*.
- **Service control policies (SCPs)** – SCPs are JSON policies that specify the maximum permissions for an organization or organizational unit (OU) in AWS Organizations. AWS Organizations is a service for grouping and centrally managing multiple AWS accounts that your business owns. If you enable all features in an organization, then you can apply service control policies (SCPs) to any or all of your accounts. The SCP limits permissions for entities in member accounts, including each AWS account root user. For more information about Organizations and SCPs, see Service control policies in the *AWS Organizations User Guide*.

- **Resource control policies (RCPs)** – RCPs are JSON policies that you can use to set the maximum available permissions for resources in your accounts without updating the IAM policies attached to each resource that you own. The RCP limits permissions for resources in member accounts and can impact the effective permissions for identities, including the AWS account root user, regardless of whether they belong to your organization. For more information about Organizations and RCPs, including a list of AWS services that support RCPs, see Resource control policies (RCPs) in the *AWS Organizations User Guide*.
- **Session policies** – Session policies are advanced policies that you pass as a parameter when you programmatically create a temporary session for a role or federated user. The resulting session's permissions are the intersection of the user or role's identity-based policies and the session policies. Permissions can also come from a resource-based policy. An explicit deny in any of these policies overrides the allow. For more information, see Session policies in the *IAM User Guide*.

Multiple policy types

When multiple types of policies apply to a request, the resulting permissions are more complicated to understand. To learn how AWS determines whether to allow a request when multiple policy types are involved, see Policy evaluation logic in the *IAM User Guide*.

How Amazon SageMaker Unified Studio works with IAM

Before you use IAM to manage access to Amazon SageMaker Unified Studio, learn what IAM features are available to use with Amazon SageMaker Unified Studio.

IAM features you can use with Amazon SageMaker Unified Studio

IAM feature	Amazon SageMaker Unified Studio support
Identity-based policies	Yes
Resource-based policies	No
Policy actions	Yes
Policy resources	Yes
Policy condition keys	Yes

IAM feature	Amazon SageMaker Unified Studio support
ACLs	No
ABAC (tags in policies)	Partial
Temporary credentials	Yes
Principal permissions	Yes
Service roles	Yes
Service-linked roles	No

To get a high-level view of how Amazon SageMaker Unified Studio and other AWS services work with most IAM features, see AWS services that work with IAM in the *IAM User Guide*.

Identity-based policies for Amazon SageMaker Unified Studio

Supports identity-based policies: Yes

Identity-based policies are JSON permissions policy documents that you can attach to an identity, such as an IAM user, group of users, or role. These policies control what actions users and roles can perform, on which resources, and under what conditions. To learn how to create an identity-based policy, see Define custom IAM permissions with customer managed policies in the *IAM User Guide*.

With IAM identity-based policies, you can specify allowed or denied actions and resources as well as the conditions under which actions are allowed or denied. You can't specify the principal in an identity-based policy because it applies to the user or role to which it is attached. To learn about all of the elements that you can use in a JSON policy, see IAM JSON policy elements reference in the *IAM User Guide*.

Identity-based policy examples for Amazon SageMaker Unified Studio

To view examples of Amazon SageMaker Unified Studio identity-based policies, see Identity-based policy examples for Amazon SageMaker Unified Studio.

Resource-based policies within Amazon SageMaker Unified Studio

Supports resource-based policies: No

Resource-based policies are JSON policy documents that you attach to a resource. Examples of resource-based policies are IAM *role trust policies* and Amazon S3 *bucket policies*. In services that support resource-based policies, service administrators can use them to control access to a specific resource. For the resource where the policy is attached, the policy defines what actions a specified principal can perform on that resource and under what conditions. You must specify a principal in a resource-based policy. Principals can include accounts, users, roles, federated users, or AWS services.

To enable cross-account access, you can specify an entire account or IAM entities in another account as the principal in a resource-based policy. Adding a cross-account principal to a resource-based policy is only half of establishing the trust relationship. When the principal and the resource are in different AWS accounts, an IAM administrator in the trusted account must also grant the principal entity (user or role) permission to access the resource. They grant permission by attaching an identity-based policy to the entity. However, if a resource-based policy grants access to a principal in the same account, no additional identity-based policy is required. For more information, see Cross account resource access in IAM in the *IAM User Guide*.

Policy actions for Amazon SageMaker Unified Studio

Supports policy actions: Yes

Administrators can use AWS JSON policies to specify who has access to what. That is, which **principal** can perform **actions** on what **resources**, and under what **conditions**.

The `Action` element of a JSON policy describes the actions that you can use to allow or deny access in a policy. Policy actions usually have the same name as the associated AWS API operation. There are some exceptions, such as *permission-only actions* that don't have a matching API operation. There are also some operations that require multiple actions in a policy. These additional actions are called *dependent actions*.

Include actions in a policy to grant permissions to perform the associated operation.

To see a list of Amazon SageMaker Unified Studio actions, see Actions Defined by Amazon SageMaker Unified Studio in the *Service Authorization Reference*.

Policy actions in Amazon SageMaker Unified Studio use the following prefix before the action:

To specify multiple actions in a single statement, separate them with commas.

```
"Action": [
      ":action1",
      ":action2"
         ]
```

To view examples of Amazon SageMaker Unified Studio identity-based policies, see Identity-based policy examples for Amazon SageMaker Unified Studio.

Policy resources for Amazon SageMaker Unified Studio

Supports policy resources: Yes

Administrators can use AWS JSON policies to specify who has access to what. That is, which **principal** can perform **actions** on what **resources**, and under what **conditions**.

The `Resource` JSON policy element specifies the object or objects to which the action applies. Statements must include either a `Resource` or a `NotResource` element. As a best practice, specify a resource using its Amazon Resource Name (ARN). You can do this for actions that support a specific resource type, known as *resource-level permissions*.

For actions that don't support resource-level permissions, such as listing operations, use a wildcard (*) to indicate that the statement applies to all resources.

```
"Resource": "*"
```

To see a list of Amazon SageMaker Unified Studio resource types and their ARNs, see Resources Defined by Amazon SageMaker Unified Studio in the *Service Authorization Reference*. To learn with which actions you can specify the ARN of each resource, see Actions Defined by Amazon SageMaker Unified Studio .

To view examples of Amazon SageMaker Unified Studio identity-based policies, see Identity-based policy examples for Amazon SageMaker Unified Studio.

Policy condition keys for Amazon SageMaker Unified Studio

Supports service-specific policy condition keys: Yes

Administrators can use AWS JSON policies to specify who has access to what. That is, which **principal** can perform **actions** on what **resources**, and under what **conditions**.

The `Condition` element (or `Condition` *block*) lets you specify conditions in which a statement is in effect. The `Condition` element is optional. You can create conditional expressions that use condition operators, such as equals or less than, to match the condition in the policy with values in the request.

If you specify multiple `Condition` elements in a statement, or multiple keys in a single `Condition` element, AWS evaluates them using a logical `AND` operation. If you specify multiple values for a single condition key, AWS evaluates the condition using a logical `OR` operation. All of the conditions must be met before the statement's permissions are granted.

You can also use placeholder variables when you specify conditions. For example, you can grant an IAM user permission to access a resource only if it is tagged with their IAM user name. For more information, see IAM policy elements: variables and tags in the *IAM User Guide*.

AWS supports global condition keys and service-specific condition keys. To see all AWS global condition keys, see AWS global condition context keys in the *IAM User Guide*.

To see a list of Amazon SageMaker Unified Studio condition keys, see Condition Keys for Amazon SageMaker Unified Studio in the *Service Authorization Reference*. To learn with which actions and resources you can use a condition key, see Actions Defined by Amazon SageMaker Unified Studio .

To view examples of Amazon SageMaker Unified Studio identity-based policies, see Identity-based policy examples for Amazon SageMaker Unified Studio.

ACLs in Amazon SageMaker Unified Studio

Supports ACLs: No

Access control lists (ACLs) control which principals (account members, users, or roles) have permissions to access a resource. ACLs are similar to resource-based policies, although they do not use the JSON policy document format.

ABAC with Amazon SageMaker Unified Studio

Supports ABAC (tags in policies): Partial

Attribute-based access control (ABAC) is an authorization strategy that defines permissions based on attributes. In AWS, these attributes are called *tags*. You can attach tags to IAM entities (users or roles) and to many AWS resources. Tagging entities and resources is the first step of ABAC. Then

you design ABAC policies to allow operations when the principal's tag matches the tag on the resource that they are trying to access.

ABAC is helpful in environments that are growing rapidly and helps with situations where policy management becomes cumbersome.

To control access based on tags, you provide tag information in the condition element of a policy using the `aws:ResourceTag/key-name`, `aws:RequestTag/key-name`, or `aws:TagKeys` condition keys.

If a service supports all three condition keys for every resource type, then the value is **Yes** for the service. If a service supports all three condition keys for only some resource types, then the value is **Partial**.

For more information about ABAC, see Define permissions with ABAC authorization in the *IAM User Guide*. To view a tutorial with steps for setting up ABAC, see Use attribute-based access control (ABAC) in the *IAM User Guide*.

Using temporary credentials with Amazon SageMaker Unified Studio

Supports temporary credentials: Yes

Some AWS services don't work when you sign in using temporary credentials. For additional information, including which AWS services work with temporary credentials, see AWS services that work with IAM in the *IAM User Guide*.

You are using temporary credentials if you sign in to the AWS Management Console using any method except a user name and password. For example, when you access AWS using your company's single sign-on (SSO) link, that process automatically creates temporary credentials. You also automatically create temporary credentials when you sign in to the console as a user and then switch roles. For more information about switching roles, see Switch from a user to an IAM role (console) in the *IAM User Guide*.

You can manually create temporary credentials using the AWS CLI or AWS API. You can then use those temporary credentials to access AWS. AWS recommends that you dynamically generate temporary credentials instead of using long-term access keys. For more information, see Temporary security credentials in IAM.

Cross-service principal permissions for Amazon SageMaker Unified Studio

Supports forward access sessions (FAS): Yes

When you use an IAM user or role to perform actions in AWS, you are considered a principal. When you use some services, you might perform an action that then initiates another action in a different service. FAS uses the permissions of the principal calling an AWS service, combined with the requesting AWS service to make requests to downstream services. FAS requests are only made when a service receives a request that requires interactions with other AWS services or resources to complete. In this case, you must have permissions to perform both actions. For policy details when making FAS requests, see Forward access sessions.

Service roles for Amazon SageMaker Unified Studio

Supports service roles: Yes

A service role is an IAM role that a service assumes to perform actions on your behalf. An IAM administrator can create, modify, and delete a service role from within IAM. For more information, see Create a role to delegate permissions to an AWS service in the *IAM User Guide*.

> **Warning**
>
> Changing the permissions for a service role might break Amazon SageMaker Unified Studio functionality. Edit service roles only when Amazon SageMaker Unified Studio provides guidance to do so.

Service-linked roles for Amazon SageMaker Unified Studio

Supports service-linked roles: No

A service-linked role is a type of service role that is linked to an AWS service. The service can assume the role to perform an action on your behalf. Service-linked roles appear in your AWS account and are owned by the service. An IAM administrator can view, but not edit the permissions for service-linked roles.

For details about creating or managing service-linked roles, see AWS services that work with IAM. Find a service in the table that includes a Yes in the **Service-linked role** column. Choose the **Yes** link to view the service-linked role documentation for that service.

Identity-based policy examples for Amazon SageMaker Unified Studio

By default, users and roles don't have permission to create or modify Amazon SageMaker Unified Studio resources. They also can't perform tasks by using the AWS Management Console, AWS

Command Line Interface (AWS CLI), or AWS API. To grant users permission to perform actions on the resources that they need, an IAM administrator can create IAM policies. The administrator can then add the IAM policies to roles, and users can assume the roles.

To learn how to create an IAM identity-based policy by using these example JSON policy documents, see Create IAM policies (console) in the *IAM User Guide*.

For details about actions and resource types defined by Amazon SageMaker Unified Studio, including the format of the ARNs for each of the resource types, see Actions, Resources, and Condition Keys for Amazon SageMaker Unified Studio in the *Service Authorization Reference*.

Topics

- Policy best practices
- Using the Amazon SageMaker Unified Studio console
- Allow users to view their own permissions

Policy best practices

Identity-based policies determine whether someone can create, access, or delete Amazon SageMaker Unified Studio resources in your account. These actions can incur costs for your AWS account. When you create or edit identity-based policies, follow these guidelines and recommendations:

- **Get started with AWS managed policies and move toward least-privilege permissions** – To get started granting permissions to your users and workloads, use the *AWS managed policies* that grant permissions for many common use cases. They are available in your AWS account. We recommend that you reduce permissions further by defining AWS customer managed policies that are specific to your use cases. For more information, see AWS managed policies or AWS managed policies for job functions in the *IAM User Guide*.
- **Apply least-privilege permissions** – When you set permissions with IAM policies, grant only the permissions required to perform a task. You do this by defining the actions that can be taken on specific resources under specific conditions, also known as *least-privilege permissions*. For more information about using IAM to apply permissions, see Policies and permissions in IAM in the *IAM User Guide*.
- **Use conditions in IAM policies to further restrict access** – You can add a condition to your policies to limit access to actions and resources. For example, you can write a policy condition to specify that all requests must be sent using SSL. You can also use conditions to grant access to

service actions if they are used through a specific AWS service, such as AWS CloudFormation. For more information, see IAM JSON policy elements: Condition in the *IAM User Guide*.

- **Use IAM Access Analyzer to validate your IAM policies to ensure secure and functional permissions** – IAM Access Analyzer validates new and existing policies so that the policies adhere to the IAM policy language (JSON) and IAM best practices. IAM Access Analyzer provides more than 100 policy checks and actionable recommendations to help you author secure and functional policies. For more information, see Validate policies with IAM Access Analyzer in the *IAM User Guide*.
- **Require multi-factor authentication (MFA)** – If you have a scenario that requires IAM users or a root user in your AWS account, turn on MFA for additional security. To require MFA when API operations are called, add MFA conditions to your policies. For more information, see Secure API access with MFA in the *IAM User Guide*.

For more information about best practices in IAM, see Security best practices in IAM in the *IAM User Guide*.

Using the Amazon SageMaker Unified Studio console

To access the Amazon SageMaker Unified Studio console, you must have a minimum set of permissions. These permissions must allow you to list and view details about the Amazon SageMaker Unified Studio resources in your AWS account. If you create an identity-based policy that is more restrictive than the minimum required permissions, the console won't function as intended for entities (users or roles) with that policy.

You don't need to allow minimum console permissions for users that are making calls only to the AWS CLI or the AWS API. Instead, allow access to only the actions that match the API operation that they're trying to perform.

To ensure that users and roles can still use the Amazon SageMaker Unified Studio console, also attach the Amazon SageMaker Unified Studio `ConsoleAccess` or `ReadOnly` AWS managed policy to the entities. For more information, see Adding permissions to a user in the *IAM User Guide*.

Allow users to view their own permissions

This example shows how you might create a policy that allows IAM users to view the inline and managed policies that are attached to their user identity. This policy includes permissions to complete this action on the console or programmatically using the AWS CLI or AWS API.

```
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "ViewOwnUserInfo",
            "Effect": "Allow",
            "Action": [
                "iam:GetUserPolicy",
                "iam:ListGroupsForUser",
                "iam:ListAttachedUserPolicies",
                "iam:ListUserPolicies",
                "iam:GetUser"
            ],
            "Resource": ["arn:aws:iam::*:user/${aws:username}"]
        },
        {
            "Sid": "NavigateInConsole",
            "Effect": "Allow",
            "Action": [
                "iam:GetGroupPolicy",
                "iam:GetPolicyVersion",
                "iam:GetPolicy",
                "iam:ListAttachedGroupPolicies",
                "iam:ListGroupPolicies",
                "iam:ListPolicyVersions",
                "iam:ListPolicies",
                "iam:ListUsers"
            ],
            "Resource": "*"
        }
    ]
}
```

AWS managed policies for Amazon SageMaker Unified Studio

To add permissions to users, groups, and roles, it is easier to use AWS managed policies than to write policies yourself. It takes time and expertise to create IAM customer managed policies that provide your team with only the permissions they need. To get started quickly, you can use our AWS managed policies. These policies cover common use cases and are available in your AWS

account. For more information about AWS managed policies, see AWS managed policies in the *IAM User Guide*.

AWS services maintain and update AWS managed policies. You can't change the permissions in AWS managed policies. Services occasionally add additional permissions to an AWS managed policy to support new features. This type of update affects all identities (users, groups, and roles) where the policy is attached. Services are most likely to update an AWS managed policy when a new feature is launched or when new operations become available. Services do not remove permissions from an AWS managed policy, so policy updates won't break your existing permissions.

Additionally, AWS supports managed policies for job functions that span multiple services. For example, the **ReadOnlyAccess** AWS managed policy provides read-only access to all AWS services and resources. When a service launches a new feature, AWS adds read-only permissions for new operations and resources. For a list and descriptions of job function policies, see AWS managed policies for job functions in the *IAM User Guide*.

Topics

- AWS policy: SageMakerStudioFullAccess
- AWS policy: SageMakerStudioProjectUserRolePermissionsBoundary
- AWS policy: SageMakerStudioDomainExecutionRolePolicy
- AWS policy: SageMakerStudioProjectUserRolePolicy
- AWS policy: SageMakerStudioProjectRoleMachineLearningPolicy
- AWS policy: SageMakerStudioDomainServiceRolePolicy
- AWS policy: SageMakerStudioProjectProvisioningRolePolicy
- AWS policy: AmazonDataZoneBedrockModelManagementPolicy
- AWS policy: SageMakerStudioQueryExecutionRolePolicy
- AWS policy: SageMakerStudioEMRServiceRolePolicy
- AWS policy: AmazonDataZoneBedrockModelConsumptionPolicy
- AWS policy: SageMakerStudioEMRInstanceRolePolicy
- AWS policy: SageMakerStudioBedrockAgentServiceRolePolicy
- AWS policy: SageMakerStudioBedrockChatAgentUserRolePolicy
- AWS policy: SageMakerStudioBedrockPromptUserRolePolicy
- AWS policy: SageMakerStudioBedrockFlowServiceRolePolicy
- AWS policy: SageMakerStudioBedrockEvaluationJobServiceRolePolicy

- AWS policy: SageMakerStudioBedrockKnowledgeBaseCustomResourcePolicy
- AWS policy: SageMakerStudioBedrockKnowledgeBaseServiceRolePolicy
- AWS policy: SageMakerStudioBedrockFunctionExecutionRolePolicy
- Amazon SageMaker Unified Studio updates to AWS managed policies

AWS policy: SageMakerStudioFullAccess

This policy provides full access to Amazon SageMaker Unified Studio via the Amazon SageMaker management console.

```
{
 "Version": "2012-10-17",
 "Statement": [
  {
   "Sid": "AmazonDataZoneStatement",
   "Effect": "Allow",
   "Action": [
    "datazone:*"
   ],
   "Resource": [
    "*"
   ]
  },
  {
   "Sid": "ReadOnlyStatement",
   "Effect": "Allow",
   "Action": [
    "kms:DescribeKey",
    "kms:ListAliases",
    "iam:ListRoles",
    "sso:DescribeRegisteredRegions",
    "s3:ListAllMyBuckets",
    "redshift:DescribeClusters",
    "redshift-serverless:ListWorkgroups",
    "ec2:DescribeSecurityGroups",
    "ec2:DescribeSubnets",
    "ec2:DescribeVpcs",
    "secretsmanager:ListSecrets",
    "iam:ListUsers",
    "glue:GetDatabases",
```

```
    "codeconnections:ListConnections",
    "codeconnections:ListTagsForResource",
    "codewhisperer:ListProfiles",
    "bedrock:ListInferenceProfiles",
    "bedrock:ListFoundationModels",
    "bedrock:ListTagsForResource",
    "aoss:ListSecurityPolicies"
   ],
   "Resource": [
    "*"
   ]
  },
  {
   "Sid": "BucketReadOnlyStatement",
   "Effect": "Allow",
   "Action": [
    "s3:ListBucket",
    "s3:GetBucketLocation"
   ],
   "Resource": "arn:aws:s3:::*"
  },
  {
   "Sid": "CreateBucketStatement",
   "Effect": "Allow",
   "Action": [
    "s3:CreateBucket"
   ],
   "Resource": [
    "arn:aws:s3:::amazon-datazone*",
    "arn:aws:s3:::amazon-sagemaker*"
   ]
  },
  {
   "Sid": "ConfigureBucketStatement",
   "Effect": "Allow",
   "Action": [
    "s3:PutBucketCORS",
    "s3:PutBucketPolicy",
    "s3:PutBucketVersioning"
   ],
   "Resource": [
    "arn:aws:s3:::amazon-sagemaker*"
   ],
   "Condition": {
```

```
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "RamCreateResourceStatement",
   "Effect": "Allow",
   "Action": [
    "ram:CreateResourceShare"
   ],
   "Resource": "*",
   "Condition": {
    "StringEqualsIfExists": {
     "ram:RequestedResourceType": "datazone:Domain"
    }
   }
  },
  {
   "Sid": "RamResourceStatement",
   "Effect": "Allow",
   "Action": [
    "ram:DeleteResourceShare",
    "ram:AssociateResourceShare",
    "ram:DisassociateResourceShare",
    "ram:RejectResourceShareInvitation"
   ],
   "Resource": "*",
   "Condition": {
    "StringLike": {
     "ram:ResourceShareName": [
      "DataZone*"
     ]
    }
   }
  },
  {
   "Sid": "RamResourceReadOnlyStatement",
   "Effect": "Allow",
   "Action": [
    "ram:GetResourceShares",
    "ram:GetResourceShareInvitations",
    "ram:GetResourceShareAssociations",
    "ram:ListResourceSharePermissions"
```

```
    ],
    "Resource": "*"
   },
   {
    "Sid": "RamAssociateResourceSharePermissionStatement",
    "Effect": "Allow",
    "Action": "ram:AssociateResourceSharePermission",
    "Resource": "*",
    "Condition": {
     "StringEquals": {
      "ram:PermissionArn": [
       "arn:aws:ram::aws:permission/AWSRAMDefaultPermissionAmazonDataZoneDomain",
       "arn:aws:ram::aws:permission/
AWSRAMPermissionAmazonDataZoneDomainFullAccessWithPortalAccess",
       "arn:aws:ram::aws:permission/
AWSRAMPermissionsAmazonDatazoneDomainExtendedServiceAccess",
       "arn:aws:ram::aws:permission/
AWSRAMPermissionsAmazonDatazoneDomainExtendedServiceWithPortalAccess"
      ]
     }
    }
   },
   {
    "Sid": "IAMPassRoleStatement",
    "Effect": "Allow",
    "Action": "iam:PassRole",
    "Resource": [
     "arn:aws:iam::*:role/AmazonDataZone*",
     "arn:aws:iam::*:role/service-role/AmazonDataZone*",
     "arn:aws:iam::*:role/service-role/AmazonSageMaker*"
    ],
    "Condition": {
     "StringEquals": {
      "iam:passedToService": "datazone.amazonaws.com"
     }
    }
   },
   {
    "Sid": "IAMGetPolicyStatement",
    "Effect": "Allow",
    "Action": "iam:GetPolicy",
    "Resource": [
     "arn:aws:iam::*:policy/service-role/AmazonDataZoneRedshiftAccessPolicy*"
    ]
```

```
  },
  {
   "Sid": "DataZoneTagOnCreateDomainProjectTags",
   "Effect": "Allow",
   "Action": [
    "secretsmanager:TagResource"
   ],
   "Resource": "arn:aws:secretsmanager:*:*:secret:AmazonDataZone-*",
   "Condition": {
    "ForAllValues:StringEquals": {
     "aws:TagKeys": [
      "AmazonDataZoneDomain",
      "AmazonDataZoneProject"
     ]
    },
    "StringLike": {
     "aws:RequestTag/AmazonDataZoneDomain": "dzd_*",
     "aws:ResourceTag/AmazonDataZoneDomain": "dzd_*"
    }
   }
  },
  {
   "Sid": "DataZoneTagOnCreate",
   "Effect": "Allow",
   "Action": [
    "secretsmanager:TagResource"
   ],
   "Resource": "arn:aws:secretsmanager:*:*:secret:AmazonDataZone-*",
   "Condition": {
    "ForAllValues:StringEquals": {
     "aws:TagKeys": [
      "AmazonDataZoneDomain"
     ]
    },
    "StringLike": {
     "aws:RequestTag/AmazonDataZoneDomain": "dzd_*",
     "aws:ResourceTag/AmazonDataZoneDomain": "dzd_*"
    }
   }
  },
  {
   "Sid": "CreateSecretStatement",
   "Effect": "Allow",
   "Action": [
```

```
    "secretsmanager:CreateSecret"
   ],
   "Resource": "arn:aws:secretsmanager:*:*:secret:AmazonDataZone-*",
   "Condition": {
    "StringLike": {
     "aws:RequestTag/AmazonDataZoneDomain": "dzd_*"
    }
   }
  },
  {
   "Sid": "ConnectionStatement",
   "Effect": "Allow",
   "Action": [
    "codeconnections:GetConnection"
   ],
   "Resource": [
    "arn:aws:codeconnections:*:*:connection/*"
   ]
  },
  {
   "Sid": "TagCodeConnectionsStatement",
   "Effect": "Allow",
   "Action": [
    "codeconnections:TagResource"
   ],
   "Resource": [
    "arn:aws:codeconnections:*:*:connection/*",
    "arn:aws:codeconnections:*:*:host/*"
   ],
   "Condition": {
    "ForAllValues:StringEquals": {
     "aws:TagKeys": [
      "for-use-with-all-datazone-projects"
     ]
    },
    "StringEquals": {
     "aws:RequestTag/for-use-with-all-datazone-projects": "true"
    }
   }
  },
  {
   "Sid": "UntagCodeConnectionsStatement",
   "Effect": "Allow",
   "Action": [
```

```
    "codeconnections:UntagResource"
   ],
   "Resource": [
    "arn:aws:codeconnections:*:*:connection/*",
    "arn:aws:codeconnections:*:*:host/*"
   ],
   "Condition": {
    "ForAllValues:StringEquals": {
     "aws:TagKeys": "for-use-with-all-datazone-projects"
    }
   }
  },
  {
   "Sid": "SSMParameterStatement",
   "Effect": "Allow",
   "Action": [
    "ssm:GetParameter",
    "ssm:GetParametersByPath",
    "ssm:PutParameter",
    "ssm:DeleteParameter"
   ],
   "Resource": [
    "arn:aws:ssm:*:*:parameter/amazon/datazone/q*",
    "arn:aws:ssm:*:*:parameter/amazon/datazone/genAI*",
    "arn:aws:ssm:*:*:parameter/amazon/datazone/profiles*"
   ]
  },
  {
   "Sid": "UseKMSKeyPermissionsStatement",
   "Effect": "Allow",
   "Action": [
    "kms:Decrypt"
   ],
   "Resource": [
    "*"
   ],
   "Condition": {
    "StringEquals": {
     "aws:ResourceTag/EnableKeyForAmazonDataZone": "true"
    },
    "Null": {
     "aws:ResourceTag/EnableKeyForAmazonDataZone": "false"
    },
    "StringLike": {
```

```
      "kms:ViaService": "ssm.*.amazonaws.com"
     }
    }
   },
   {
    "Sid": "SecurityPolicyStatement",
    "Effect": "Allow",
    "Action": [
     "aoss:GetSecurityPolicy",
     "aoss:CreateSecurityPolicy"
    ],
    "Resource": [
     "*"
    ],
    "Condition": {
     "StringLike": {
      "aoss:collection": "bedrock-ide-*"
     }
    }
   },
   {
    "Sid": "GetFoundationModelStatement",
    "Effect": "Allow",
    "Action": [
     "bedrock:GetFoundationModel",
     "bedrock:GetFoundationModelAvailability"
    ],
    "Resource": [
     "arn:aws:bedrock:*::foundation-model/*"
    ]
   },
   {
    "Sid": "GetInferenceProfileStatement",
    "Effect": "Allow",
    "Action": [
     "bedrock:GetInferenceProfile"
    ],
    "Resource": [
     "arn:aws:bedrock:*:*:inference-profile/*",
     "arn:aws:bedrock:*:*:application-inference-profile/*"
    ]
   },
   {
    "Sid": "ApplicationInferenceProfileStatement",
```

```
    "Effect": "Allow",
    "Action": [
     "bedrock:CreateInferenceProfile"
    ],
    "Resource": [
     "arn:aws:bedrock:*:*:application-inference-profile/*"
    ],
    "Condition": {
     "Null": {
      "aws:RequestTag/AmazonDataZoneProject": "true",
      "aws:RequestTag/AmazonDataZoneDomain": "false"
     }
    }
   },
   {
    "Sid": "TagApplicationInferenceProfileStatement",
    "Effect": "Allow",
    "Action": [
     "bedrock:TagResource"
    ],
    "Resource": [
     "arn:aws:bedrock:*:*:application-inference-profile/*"
    ],
    "Condition": {
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "true",
      "aws:RequestTag/AmazonDataZoneProject": "true",
      "aws:ResourceTag/AmazonDataZoneDomain": "false",
      "aws:RequestTag/AmazonDataZoneDomain": "false"
     }
    }
   },
   {
    "Sid": "DeleteApplicationInferenceProfileStatement",
    "Effect": "Allow",
    "Action": [
     "bedrock:DeleteInferenceProfile"
    ],
    "Resource": [
     "arn:aws:bedrock:*:*:application-inference-profile/*"
    ],
    "Condition": {
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "true",
```

```
      "aws:ResourceTag/AmazonDataZoneDomain": "false"
     }
    }
   }
  ]
}
```

AWS policy: SageMakerStudioProjectUserRolePermissionsBoundary

Amazon SageMaker Unified Studio creates IAM roles for Projects users to perform data analytics, artificial intelligence, and machine learning actions, and uses this policy when creating these roles to define the boundary of their permissions.

This policy is a permissions boundary. A permissions boundary sets the maximum permissions that an identity-based policy can grant to an IAM entity. You should not use and attach Amazon SageMaker Unified Studio permissions boundary policies on your own. Amazon SageMaker Unified Studio permissions boundary policies should only be attached to Amazon SageMaker Unified Studio managed roles.

When you create a project via the Amazon SageMaker Unified Studio, it applies this permissions boundary to the IAM roles that are provisioned during project creation. The permissions boundary limits the scope of the roles that Amazon SageMaker Unified Studio creates and any roles that you add.

Amazon SageMaker Unified Studio uses the SageMakerStudioProjectUserRolePermissionsBoundary managed policy to limit the provisioned IAM principal to which it is attached. The principals might take the form of the user roles that Amazon SageMaker Unified Studiocan assume on behalf of interactive enterprise users or analytic services (AWS Glue, for example), and then conduct actions to process data such as reading and writing from Amazon S3 or running AWS Glue crawler.

The SageMakerStudioProjectUserRolePermissionsBoundary policy grants read and write access for Amazon SageMaker Unified Studioto services such as Amazon SageMaker, AWS Glue, Amazon S3, AWS Lake Formation, Amazon Redshift, Amazon Athena, Amazon Q, Amazon EMR. The policy also gives read and write permissions to some infrastructure resources that are required to use these services such as network interfaces, AWS KMS keys, AWS CodeCommit, and AWS Secrets Manager.

- Amazon SageMaker permissions are required for users to use the Amazon SageMaker Domain and Spaces provisioned by default by the Tooling blueprint.

- AWS Glue permissions are required for users to use the default AWS Glue Connection and create AWS Glue Sessions.
- Amazon S3 permissions are required for users to access the project's Amazon S3 bucket.
- AWS Lake Formation permissions are required for users to access underlying data in Amazon S3.
- Amazon Redshift permissions are required for users to perform SQL queries against Amazon Redshift, and to allow access to the project's Amazon Redshift clusters.
- Amazon Athena permissions are required for users to use the provisioned Amazon Athena workgroup and to perform SQL queries.
- Amazon Q permissions are required for users to interact with Amazon Q within Amazon SageMaker Unified Studio.
- Amazon EMR permissions are required for users to create and access EMR clusters. AWS KMS permissions are required to use CMK in the various services integrated with Amazon SageMaker Unified Studio.
- AWS CodeCommit permissions are required for users to use the default Git repository, and perform operations such as committing changes.
- AWS Secrets Manager permissions are required for accessing the secret for various services, such as Amazon Redshift, AWS Glue federated data connections, and Amazon Bedrock.
- Amazon Bedrock permissions are required to allow users access to Amazon Bedrock IDE, a development experience in Amazon SageMaker Unified Studio that lets you easily discover Amazon Bedrock models and build generative AI apps that use Amazon Bedrock models and features.

```
{
 "Version": "2012-10-17",
 "Statement": [
  {
   "Sid": "DenyAllNonMatchingProjectTag",
   "Effect": "Deny",
   "Action": "*",
   "NotResource": [
    "arn:*:sagemaker:*:*:model-package-group/*",
    "arn:*:sagemaker:*:*:model-package/*",
    "arn:*:glue:*:*:catalog/*",
    "arn:*:glue:*:*:database/*"
   ],
```

```
    "Condition": {
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false",
      "aws:PrincipalTag/AmazonDataZoneProject": "false",
      "aws:PrincipalTag/SageMakerStudioQueryExecutionRole": "true"
     },
     "StringNotEquals": {
      "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
     }
    }
   },
   {
    "Sid": "AmazonQChatPermissions",
    "Effect": "Allow",
    "Action": [
     "q:StartConversation",
     "q:SendMessage"
    ],
    "Resource": "*"
   },
   {
    "Sid": "DataLakeS3BucketActions",
    "Effect": "Allow",
    "Action": [
     "s3:GetBucketLocation"
    ],
    "Resource": "*",
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   },
   {
    "Sid": "SameAccountKMSPermissions",
    "Effect": "Allow",
    "Action": [
     "kms:CreateGrant",
     "kms:ReEncryptFrom",
     "kms:ReEncryptTo",
     "kms:Decrypt",
     "kms:Encrypt",
     "kms:GenerateDataKey",
```

```
    "kms:GenerateDataKeyWithoutPlaintext"
   ],
   "Resource": "arn:aws:kms:*:*:key/${aws:PrincipalTag/KmsKeyId}",
   "Condition": {
    "StringLike": {
     "kms:ViaService": [
      "sqs.*.amazonaws.com",
      "sagemaker.*.amazonaws.com",
      "emr-serverless.*.amazonaws.com",
      "s3.*.amazonaws.com",
      "redshift.*.amazonaws.com",
      "redshift-serverless.*.amazonaws.com",
      "bedrock.*.amazonaws.com",
      "secretsmanager.*.amazonaws.com",
      "ec2.*.amazonaws.com",
      "codecommit.*.amazonaws.com",
      "glue.*.amazonaws.com"
     ]
    },
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "Null": {
     "kms:EncryptionContextKeys": "false"
    }
   }
  },
  {
   "Sid": "AllowGenerateDataKeyForEmrEbsEncryption",
   "Effect": "Allow",
   "Action": "kms:GenerateDataKey",
   "Resource": "arn:aws:kms:*:*:key/${aws:PrincipalTag/KmsKeyId}",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "SameAccountKMSManagementPermissions",
   "Effect": "Allow",
   "Action": [
    "kms:ListGrants",
    "kms:RevokeGrant",
```

```
    "kms:DescribeKey"
   ],
   "Resource": "arn:aws:kms:*:*:key/${aws:PrincipalTag/KmsKeyId}",
   "Condition": {
    "StringLike": {
     "kms:ViaService": [
      "sqs.*.amazonaws.com",
      "sagemaker.*.amazonaws.com",
      "emr-serverless.*.amazonaws.com",
      "s3.*.amazonaws.com",
      "redshift.*.amazonaws.com",
      "bedrock.*.amazonaws.com",
      "secretsmanager.*.amazonaws.com",
      "codecommit.*.amazonaws.com"
     ]
    },
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "ListKMSPermissions",
   "Effect": "Allow",
   "Action": [
    "kms:ListAliases"
   ],
   "Resource": "*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "CrossAccountS3Permissions",
   "Effect": "Allow",
   "Action": [
    "s3:GetObject*",
    "s3:PutObject",
    "s3:PutObjectRetention",
    "s3:RestoreObject",
    "s3:ReplicateObject",
    "s3:DeleteObject",
```

```
    "s3:DeleteObjectVersion",
    "s3:ListMultipartUploadParts",
    "s3:ListBucket",
    "s3:AbortMultipartUpload"
   ],
   "Resource": "*",
   "Condition": {
    "StringNotEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "CrossAccountKMSPermissions",
   "Effect": "Allow",
   "Action": [
    "kms:CreateGrant",
    "kms:Decrypt",
    "kms:Encrypt",
    "kms:GenerateDataKey",
    "kms:GenerateDataKeyWithoutPlaintext"
   ],
   "Resource": "*",
   "Condition": {
    "StringNotEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "StringLike": {
     "kms:ViaService": [
      "s3.*.amazonaws.com",
      "sqs.*.amazonaws.com",
      "sagemaker.*.amazonaws.com"
     ]
    },
    "Null": {
     "kms:EncryptionContextKeys": "false"
    }
   }
  },
  {
   "Sid": "CrossAccountKMSManagementPermissions",
   "Effect": "Allow",
   "Action": [
    "kms:DescribeKey",
```

```
    "kms:ListGrants",
    "kms:GetPublicKey"
   ],
   "Resource": "*",
   "Condition": {
    "StringNotEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "StringLike": {
     "kms:ViaService": [
      "s3.*.amazonaws.com",
      "sqs.*.amazonaws.com",
      "sagemaker.*.amazonaws.com"
     ]
    }
   }
  },
  {
   "Sid": "DataZoneKMSPermissions",
   "Effect": "Allow",
   "Action": [
    "kms:CreateGrant",
    "kms:Decrypt",
    "kms:GenerateDataKey"
   ],
   "Resource": [
    "*"
   ],
   "Condition": {
    "StringLike": {
     "kms:ViaService": [
      "datazone.*.amazonaws.com"
     ]
    },
    "Null": {
     "kms:EncryptionContextKeys": "false"
    }
   }
  },
  {
   "Sid": "DataZoneDescribeKMSPermissions",
   "Effect": "Allow",
   "Action": [
    "kms:DescribeKey"
```

```
    ],
    "Resource": "*",
    "Condition": {
     "StringLike": {
      "kms:ViaService": [
       "datazone.*.amazonaws.com"
      ]
     }
    }
   },
   {
    "Sid": "ListDomainS3BucketPermissions",
    "Effect": "Allow",
    "Action": [
     "s3:ListBucket",
     "s3:ListBucketVersions"
    ],
    "Resource": "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}",
    "Condition": {
     "StringLike": {
      "s3:prefix": [
       "${aws:PrincipalTag/AmazonDataZoneDomain}/${aws:PrincipalTag/
AmazonDataZoneProject}",
       "${aws:PrincipalTag/AmazonDataZoneDomain}/${aws:PrincipalTag/
AmazonDataZoneProject}/*"
      ]
     },
     "StringNotEquals": {
      "aws:PrincipalTag/DomainBucketName": "",
      "aws:PrincipalTag/AmazonDataZoneDomain": "",
      "aws:PrincipalTag/AmazonDataZoneProject": ""
     },
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   },
   {
    "Sid": "AirflowListDomainS3BucketPermissions",
    "Effect": "Allow",
    "Action": [
     "s3:ListBucket"
    ],
    "Resource": "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}",
```

```
    "Condition": {
     "StringNotEquals": {
      "aws:PrincipalTag/DomainBucketName": ""
     },
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   },
   {
    "Sid": "ListDomainBucketFromAthenaFederatedCatalog",
    "Effect": "Allow",
    "Action": [
     "s3:ListBucket"
    ],
    "Resource": [
     "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}"
    ],
    "Condition": {
     "ArnEquals": {
      "lambda:SourceFunctionArn": "arn:aws:lambda:*:*:function:athenafederatedcatalog_*"
     },
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   },
   {
    "Sid": "AccessDomainS3BucketPermissions",
    "Effect": "Allow",
    "Action": [
     "s3:GetObject*",
     "s3:PutObject",
     "s3:PutObjectRetention",
     "s3:RestoreObject",
     "s3:ReplicateObject",
     "s3:DeleteObject",
     "s3:DeleteObjectVersion",
     "s3:ListMultipartUploadParts",
     "s3:AbortMultipartUpload"
    ],
    "Resource": "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}/${aws:PrincipalTag/
AmazonDataZoneDomain}/${aws:PrincipalTag/AmazonDataZoneProject}/*",
    "Condition": {
```

```
    "StringNotEquals": {
     "aws:PrincipalTag/DomainBucketName": "",
     "aws:PrincipalTag/AmazonDataZoneDomain": "",
     "aws:PrincipalTag/AmazonDataZoneProject": ""
    },
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "AccessCertificateS3LocationPermissions",
   "Effect": "Allow",
   "Action": "s3:GetObject",
   "Resource": "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}/${aws:PrincipalTag/
AmazonDataZoneDomain}/certificate_location/*",
   "Condition": {
    "StringNotEquals": {
     "aws:PrincipalTag/DomainBucketName": "",
     "aws:PrincipalTag/AmazonDataZoneDomain": ""
    },
    "Null": {
     "aws:PrincipalTag/AmazonDataZoneProject": "false"
    },
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "TagS3ObjectPermissionsForBedrockEvaluation",
   "Effect": "Allow",
   "Action": "s3:PutObjectTagging",
   "Resource": "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}/${aws:PrincipalTag/
AmazonDataZoneDomain}/${aws:PrincipalTag/AmazonDataZoneProject}/genAI/assets/
evaluations/*",
   "Condition": {
    "StringNotEquals": {
     "aws:PrincipalTag/DomainBucketName": "",
     "aws:PrincipalTag/AmazonDataZoneDomain": "",
     "aws:PrincipalTag/AmazonDataZoneProject": ""
    },
    "StringEquals": {
     "s3:RequestObjectTag/BasicValidationStatus": [
```

```
      "valid",
      "invalid"
     ],
     "s3:RequestObjectTag/ContainsReferenceResponseForAllPrompts": [
      "true",
      "false"
     ]
    },
    "ForAllValues:StringEquals": {
     "s3:RequestObjectTagKeys": [
      "BasicValidationStatus",
      "ContainsReferenceResponseForAllPrompts"
     ]
    }
   }
  },
  {
   "Sid": "CloudWatchDescribeLogGroups",
   "Effect": "Allow",
   "Action": [
    "logs:DescribeLogGroups"
   ],
   "Resource": "*"
  },
  {
   "Sid": "CloudWatchLogsPermissions",
   "Effect": "Allow",
   "Action": [
    "logs:DescribeLogStreams",
    "logs:PutLogEvents",
    "logs:CreateLogStream",
    "logs:CreateLogGroup",
    "logs:StartQuery",
    "logs:FilterLogEvents",
    "logs:GetLogEvents",
    "logs:GetLogRecord",
    "logs:GetLogGroupFields",
    "logs:GetQueryResults"
   ],
   "Resource": [
    "arn:aws:logs:*:*:log-group:/aws/*",
    "arn:aws:logs:*:*:log-group:airflow*",
    "arn:aws:logs:*:*:log-group:datazone*"
   ]
```

```
  },
  {
   "Sid": "CloudWatchStopQuery",
   "Effect": "Allow",
   "Action": [
    "logs:StopQuery"
   ],
   "Resource": "*"
  },
  {
   "Sid": "AthenaPermissions",
   "Effect": "Allow",
   "Action": [
    "athena:GetDatabase",
    "athena:GetDataCatalog",
    "athena:GetTableMetadata",
    "athena:ListDatabases",
    "athena:ListDataCatalogs",
    "athena:ListEngineVersions",
    "athena:ListNamedQueries",
    "athena:ListPreparedStatements",
    "athena:ListQueryExecutions",
    "athena:ListTableMetadata",
    "athena:ListTagsForResource",
    "athena:ListWorkGroups"
   ],
   "Resource": "*"
  },
  {
   "Sid": "AthenaPermissionsWithResourceTag",
   "Effect": "Allow",
   "Action": [
    "athena:TerminateSession",
    "athena:CreatePreparedStatement",
    "athena:StopCalculationExecution",
    "athena:StartQueryExecution",
    "athena:UpdatePreparedStatement",
    "athena:BatchGetNamedQuery",
    "athena:BatchGetPreparedStatement",
    "athena:BatchGetQueryExecution",
    "athena:UpdateNotebook",
    "athena:DeleteNotebook",
    "athena:DeletePreparedStatement",
    "athena:UpdateNotebookMetadata",
```

```
    "athena:DeleteNamedQuery",
    "athena:GetCalculationExecution",
    "athena:GetCalculationExecutionCode",
    "athena:GetCalculationExecutionStatus",
    "athena:GetNamedQuery",
    "athena:GetNotebookMetadata",
    "athena:GetPreparedStatement",
    "athena:GetQueryExecution",
    "athena:GetQueryResults",
    "athena:GetQueryResultsStream",
    "athena:GetQueryRuntimeStatistics",
    "athena:GetSession",
    "athena:GetSessionStatus",
    "athena:GetWorkGroup",
    "athena:UpdateNamedQuery",
    "athena:CreateNamedQuery",
    "athena:ExportNotebook",
    "athena:StopQueryExecution",
    "athena:StartCalculationExecution",
    "athena:StartSession",
    "athena:CreatePresignedNotebookUrl",
    "athena:CreateNotebook",
    "athena:ImportNotebook",
    "athena:ListQueryExecutions",
    "athena:ListTagsForResource",
    "athena:ListNamedQueries",
    "athena:ListPreparedStatements"
   ],
   "Resource": "*",
   "Condition": {
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false"
    }
   }
  },
  {
   "Sid": "DataZonePermissions",
   "Effect": "Allow",
   "Action": [
    "datazone:CreateConnection",
    "datazone:DeleteConnection",
    "datazone:GetConnection",
    "datazone:GetDomain",
    "datazone:GetDomainExecutionRoleCredentials",
```

```
    "datazone:GetEnvironment",
    "datazone:GetEnvironmentBlueprintConfiguration",
    "datazone:GetProject",
    "datazone:GetUserProfile",
    "datazone:ListConnections",
    "datazone:ListEnvironments",
    "datazone:ListEnvironmentBlueprints",
    "datazone:ListProjects",
    "datazone:UpdateConnection"
   ],
   "Resource": "*"
  },
  {
   "Sid": "GlueDatalakePermissions",
   "Effect": "Allow",
   "Action": [
    "glue:CreateTable",
    "glue:DeleteTable",
    "glue:BatchDeleteTable",
    "glue:UpdateTable",
    "glue:BatchCreatePartition",
    "glue:CreatePartition",
    "glue:DeletePartition",
    "glue:BatchDeletePartition",
    "glue:UpdatePartition",
    "glue:BatchGetPartition",
    "glue:BatchGetTableOptimizer",
    "glue:GetCatalogImportStatus",
    "glue:GetColumnStatisticsForPartition",
    "glue:GetColumnStatisticsForTable",
    "glue:GetColumnStatisticsTaskRun",
    "glue:GetColumnStatisticsTaskRuns",
    "glue:GetDatabase",
    "glue:GetDatabases",
    "glue:GetPartition",
    "glue:GetPartitionIndexes",
    "glue:GetPartitions",
    "glue:GetTable",
    "glue:GetTableOptimizer",
    "glue:GetTableVersion",
    "glue:GetTableVersions",
    "glue:GetTables",
    "glue:SearchTables",
    "glue:ListTableOptimizerRuns",
```

```
    "glue:CreatePartitionIndex",
    "glue:BatchUpdatePartition",
    "glue:DeleteTableVersion",
    "glue:DeleteColumnStatisticsForPartition",
    "glue:DeleteColumnStatisticsForTable",
    "glue:DeletePartitionIndex",
    "glue:UpdateColumnStatisticsForPartition",
    "glue:UpdateColumnStatisticsForTable",
    "glue:BatchDeleteTableVersion",
    "glue:GetCatalogs",
    "glue:GetCatalog",
    "glue:UpdateCatalog"
   ],
   "Resource": "*"
  },
  {
   "Sid": "GlueCrawlerPermissions",
   "Effect": "Allow",
   "Action": "glue:ListCrawls",
   "Resource": "arn:aws:glue:*:*:crawler/*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "GlueGlobalTempDatabasePermissions",
   "Effect": "Allow",
   "Action": [
    "glue:CreateDatabase",
    "glue:DeleteDatabase",
    "glue:GetDatabase"
   ],
   "Resource": [
    "arn:aws:glue:*:*:database/global_temp",
    "arn:aws:glue:*:*:catalog"
   ]
  },
  {
   "Sid": "GlueCatalogDatabasePermissions",
   "Effect": "Allow",
   "Action": [
    "glue:CreateDatabase",
```

```
    "glue:DeleteDatabase",
    "glue:GetDatabase"
   ],
   "Resource": [
    "arn:aws:glue:*:*:database/*",
    "arn:aws:glue:*:*:catalog/*"
   ]
  },
  {
   "Sid": "GlueUnrestrictedPermissions",
   "Effect": "Allow",
   "Action": [
    "glue:GetClassifier",
    "glue:GetClassifiers",
    "glue:GetConnection",
    "glue:GetConnections",
    "glue:GetDatabase",
    "glue:GetDatabases",
    "glue:UseGlueStudio",
    "glue:ListSessions",
    "glue:StartCompletion",
    "glue:GetCompletion",
    "glue:GetGeneratedCode",
    "glue:GetTags"
   ],
   "Resource": "*"
  },
  {
   "Sid": "GluePermissionsWithResourceTag",
   "Effect": "Allow",
   "Action": [
    "glue:PassConnection",
    "glue:GetSession",
    "glue:GetStatement",
    "glue:CancelStatement",
    "glue:ListStatements",
    "glue:TagResource",
    "glue:UntagResource",
    "glue:DeleteSession",
    "glue:RunStatement",
    "glue:StopSession",
    "glue:GetDashboardUrl",
    "glue:NotifyEvent",
    "glue:StartBlueprintRun",
```

```
    "glue:PutWorkflowRunProperties",
    "glue:DeleteJob",
    "glue:DeleteWorkflow",
    "glue:DeleteBlueprint",
    "glue:UpdateWorkflow",
    "glue:UpdateJob",
    "glue:StartWorkflowRun",
    "glue:ResumeWorkflowRun",
    "glue:UpdateBlueprint",
    "glue:BatchStopJobRun",
    "glue:StopWorkflowRun",
    "glue:StartJobRun",
    "glue:CancelDataQualityRuleRecommendationRun",
    "glue:CancelDataQualityRulesetEvaluationRun",
    "glue:DeleteDataQualityRuleset",
    "glue:GetDataQualityModel",
    "glue:GetDataQualityModelResult",
    "glue:GetDataQualityResult",
    "glue:GetDataQualityRuleRecommendationRun",
    "glue:GetDataQualityRuleset",
    "glue:GetDataQualityRulesetEvaluationRun",
    "glue:ListDataQualityResults",
    "glue:ListDataQualityRuleRecommendationRuns",
    "glue:ListDataQualityRulesetEvaluationRuns",
    "glue:ListDataQualityRulesets",
    "glue:PublishDataQuality",
    "glue:PutDataQualityProfileAnnotation",
    "glue:PutDataQualityStatisticAnnotation",
    "glue:StartDataQualityRuleRecommendationRun",
    "glue:StartDataQualityRulesetEvaluationRun",
    "glue:UpdateDataQualityRuleset"
   ],
   "Resource": "*",
   "Condition": {
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false"
    }
   }
  },
  {
   "Sid": "GlueCreateAndTagPermissions",
   "Effect": "Allow",
   "Action": [
    "glue:CreateSession",
```

```
    "glue:CreateBlueprint",
    "glue:CreateJob",
    "glue:CreateDataQualityRuleset",
    "glue:CreateWorkflow",
    "glue:TagResource"
   ],
   "Resource": "*",
   "Condition": {
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false"
    }
   }
  },
  {
   "Sid": "IAMListRoles",
   "Effect": "Allow",
   "Action": [
    "iam:ListRoles"
   ],
   "Resource": "*"
  },
  {
   "Sid": "IAMGetRole",
   "Effect": "Allow",
   "Action": [
    "iam:GetRole"
   ],
   "Resource": "*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "IAMPassRolePermission",
   "Effect": "Allow",
   "Action": [
    "iam:PassRole"
   ],
   "Resource": [
    "arn:aws:iam::*:role/datazone*"
   ],
   "Condition": {
```

```
    "StringEquals": {
     "iam:PassedToService": [
      "glue.amazonaws.com",
      "sagemaker.amazonaws.com",
      "ec2.amazonaws.com",
      "emr-serverless.amazonaws.com"
     ]
    }
   }
  },
  {
   "Sid": "RedshiftDataActionsIAMSessionRestriction",
   "Effect": "Allow",
   "Action": [
    "redshift-data:DescribeStatement",
    "redshift-data:GetStatementResult",
    "redshift-data:CancelStatement",
    "redshift-data:ListStatements"
   ],
   "Resource": "*",
   "Condition": {
    "StringEquals": {
     "redshift-data:statement-owner-iam-userid": "${aws:userid}"
    }
   }
  },
  {
   "Sid": "RedshiftUnrestrictedPermissions",
   "Effect": "Allow",
   "Action": [
    "redshift-serverless:ListNamespaces",
    "redshift-serverless:ListWorkgroups",
    "redshift:DescribeClusters",
    "sqlworkbench:PutTab",
    "sqlworkbench:DeleteTab",
    "sqlworkbench:DriverExecute",
    "sqlworkbench:GetUserInfo",
    "sqlworkbench:ListTabs",
    "sqlworkbench:GetAutocompletionMetadata",
    "sqlworkbench:GetAutocompletionResource",
    "sqlworkbench:PassAccountSettings",
    "sqlworkbench:ListQueryExecutionHistory",
    "sqlworkbench:GetQueryExecutionHistory",
    "sqlworkbench:CreateConnection",
```

```
    "sqlworkbench:PutQCustomContext",
    "sqlworkbench:GetQCustomContext",
    "sqlworkbench:DeleteQCustomContext",
    "sqlworkbench:GetQSqlRecommendations",
    "sqlworkbench:GetQSqlPromptQuotas",
    "tag:GetResources"
   ],
   "Resource": "*"
  },
  {
   "Sid": "RedshiftPermissionsWithResourceTag",
   "Effect": "Allow",
   "Action": [
    "redshift-serverless:GetNamespace",
    "redshift-serverless:GetWorkgroup",
    "redshift-serverless:ListTagsForResource",
    "redshift:DescribeTags"
   ],
   "Resource": "*",
   "Condition": {
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false"
    }
   }
  },
  {
   "Sid": "AllowAccessExistingRedshiftCompute",
   "Effect": "Allow",
   "Action": [
    "redshift-serverless:GetWorkgroup",
    "redshift-serverless:GetNamespace",
    "redshift-serverless:ListTagsForResource",
    "redshift-serverless:GetCredentials",
    "redshift:DescribeTags",
    "redshift:GetClusterCredentialsWithIAM",
    "redshift-data:BatchExecuteStatement",
    "redshift-data:ExecuteStatement",
    "redshift-data:DescribeTable",
    "redshift-data:ListDatabases",
    "redshift-data:ListSchemas",
    "redshift-data:ListTables"
   ],
   "Resource": "*",
   "Condition": {
```

```
    "StringEquals": {
     "aws:ResourceTag/for-use-with-all-datazone-projects": "true"
    }
   }
  },
  {
   "Sid": "RedshiftDataActionsForManagedWorkgroup",
   "Effect": "Allow",
   "Action": [
    "redshift-data:BatchExecuteStatement",
    "redshift-data:ExecuteStatement",
    "redshift-data:DescribeStatement",
    "redshift-data:GetStatementResult",
    "redshift-data:CancelStatement",
    "redshift-data:GetStagingBucketLocation",
    "redshift-serverless:GetManagedWorkgroup"
   ],
   "Resource": "*",
   "Condition": {
    "StringLike": {
     "redshift-data:glue-catalog-arn": "arn:aws:glue:*:*:catalog/*"
    }
   }
  },
  {
   "Sid": "RedshifServerlessCredentialsForManagedWorkgroup",
   "Effect": "Allow",
   "Action": [
    "redshift-serverless:GetCredentials"
   ],
   "Resource": "arn:aws:redshift-serverless:*:*:workgroup/*",
   "Condition": {
    "ForAnyValue:StringEquals": {
     "aws:CalledVia": "redshift-data.amazonaws.com"
    },
    "Bool": {
     "aws:ViaAWSService": "true"
    }
   }
  },
  {
   "Sid": "RedshiftExistingComputeConnectToCatalog",
   "Effect": "Allow",
   "Action": [
```

```
    "redshift:GetClusterCredentialsWithIAM"
   ],
   "Resource": "arn:aws:redshift:*:*:dbname:*/*",
   "Condition": {
    "Bool": {
     "aws:ViaAWSService": "true"
    }
   }
  },
  {
   "Sid": "GenerativeAIPermissions",
   "Effect": "Allow",
   "Action": [
    "codewhisperer:GenerateRecommendations"
   ],
   "Resource": "*"
  },
  {
   "Sid": "BedrockAppInferenceProfileInvocationPermissions",
   "Effect": "Allow",
   "Action": [
    "bedrock:GetInferenceProfile",
    "bedrock:InvokeModel",
    "bedrock:InvokeModelWithResponseStream"
   ],
   "Resource": "arn:aws:bedrock:*:*:application-inference-profile/*",
   "Condition": {
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false"
    }
   }
  },
  {
   "Sid": "BedrockModelInvocationPermissions",
   "Effect": "Allow",
   "Action": [
    "bedrock:InvokeModel",
    "bedrock:InvokeModelWithResponseStream"
   ],
   "Resource": [
    "arn:aws:bedrock:*:*:*-model/*"
   ],
   "Condition": {
    "Null": {
```

```
      "bedrock:InferenceProfileArn": "false"
     }
    }
   },
   {
    "Sid": "ManageNetworkPermissions",
    "Effect": "Allow",
    "Action": [
     "ec2:AttachNetworkInterface",
     "ec2:CreateNetworkInterface",
     "ec2:CreateNetworkInterfacePermission",
     "ec2:CreateTags",
     "ec2:CreateVpcEndpoint",
     "ec2:DescribeNetworkInterfaces",
     "ec2:DescribeDhcpOptions",
     "ec2:DescribeVpcs",
     "ec2:DescribeVpcEndpoints",
     "ec2:DescribeSubnets",
     "ec2:DescribeRouteTables",
     "ec2:DescribeSecurityGroups",
     "ec2:DeleteNetworkInterface",
     "ec2:DetachNetworkInterface",
     "ec2:DeleteNetworkInterfacePermission",
     "ec2:DeleteTags"
    ],
    "Resource": "*"
   },
   {
    "Sid": "SageMakerPermissions",
    "Effect": "Allow",
    "Action": [
     "sagemaker:ListImageVersions",
     "sagemaker:ListTrainingJobs",
     "sagemaker:ListTransformJobs",
     "sagemaker:ListProcessingJobs",
     "sagemaker:ListAutoMLJobs",
     "sagemaker:ListCandidatesForAutoMLJob",
     "sagemaker:ListContexts",
     "sagemaker:ListHyperParameterTuningJobs",
     "sagemaker:ListTrainingJobsForHyperParameterTuningJob",
     "sagemaker:ListInferenceComponents",
     "sagemaker:ListEndpoints",
     "sagemaker:ListEndpointConfigs",
     "sagemaker:ListModels",
```

```
    "sagemaker:ListModelPackages",
    "sagemaker:ListModelPackageGroups",
    "sagemaker:ListModelMetadata",
    "sagemaker:ListMlflowTrackingServers",
    "sagemaker:ListArtifacts",
    "sagemaker:ListAssociations",
    "sagemaker:ListHubContents",
    "sagemaker:ListHubs",
    "sagemaker:ListPipelineExecutionSteps",
    "sagemaker:ListPipelineExecutions",
    "sagemaker:ListPipelineParametersForExecution",
    "sagemaker:ListPipelines",
    "sagemaker:ListApps",
    "sagemaker:ListDomains",
    "sagemaker:ListUserProfiles",
    "sagemaker:ListSpaces",
    "sagemaker:ListTags",
    "sagemaker:DescribeMlflowTrackingServer",
    "sagemaker:DescribeImageVersion",
    "sagemaker:DescribeImage",
    "sagemaker:DescribeInferenceComponent",
    "sagemaker:DescribeEndpointConfig",
    "sagemaker:DescribeModel",
    "sagemaker:DescribeOptimizationJob",
    "sagemaker:DescribeEndpoint",
    "sagemaker:DescribeInferenceRecommendationsJob",
    "sagemaker:DescribeModelPackage",
    "sagemaker:DescribeModelPackageGroup",
    "sagemaker:DescribePipeline",
    "sagemaker:DescribePipelineExecution",
    "sagemaker:DescribePipelineDefinitionForExecution",
    "sagemaker:DescribeHyperParameterTuningJob",
    "sagemaker:DescribeAutoMLJob",
    "sagemaker:DescribeAutoMLJobV2",
    "sagemaker:DescribeProcessingJob",
    "sagemaker:DescribeTrainingJob",
    "sagemaker:DescribeAction",
    "sagemaker:DescribeArtifact",
    "sagemaker:DescribeTrialComponent",
    "sagemaker:DescribeContext",
    "sagemaker:DescribeDomain",
    "sagemaker:DescribeApp",
    "sagemaker:DescribeUserProfile",
    "sagemaker:DescribeSpace",
```

```
    "sagemaker:AddTags",
    "sagemaker:AddAssociation",
    "sagemaker:DeleteAssociation",
    "sagemaker:DeleteContext",
    "sagemaker:DeleteAction",
    "sagemaker:DeleteArtifact",
    "sagemaker:DeleteUserProfile",
    "sagemaker:UpdateSpace",
    "sagemaker:DeleteSpace",
    "sagemaker:DeleteApp",
    "sagemaker:CreatePresignedDomainUrl",
    "sagemaker:CreateUserProfile",
    "sagemaker:CreateSpace",
    "sagemaker:CreateApp",
    "sagemaker:CreateTrainingJob",
    "sagemaker:CreateTransformJob",
    "sagemaker:CreateProcessingJob",
    "sagemaker:CreateAutoMLJob",
    "sagemaker:CreateAutoMLJobV2",
    "sagemaker:CreateHyperParameterTuningJob",
    "sagemaker:CreateEndpointConfig",
    "sagemaker:CreateEndpoint",
    "sagemaker:CreateModel",
    "sagemaker:CreateModelPackage",
    "sagemaker:CreateModelPackageGroup",
    "sagemaker:CreatePipeline",
    "sagemaker:CreateContext",
    "sagemaker:CreateArtifact",
    "sagemaker:CreateAction",
    "sagemaker:CreateInferenceComponent",
    "sagemaker:UpdateInferenceComponentRuntimeConfig",
    "sagemaker:StopTrainingJob",
    "sagemaker:StopProcessingJob",
    "sagemaker:StopAutoMLJob",
    "sagemaker:StopHyperParameterTuningJob",
    "sagemaker:DescribeTransformJob",
    "sagemaker:StopTransformJob",
    "sagemaker:UpdateTrainingJob",
    "sagemaker:BatchGetMetrics",
    "sagemaker:BatchPutMetrics",
    "sagemaker:DeleteEndpointConfig",
    "sagemaker:DeleteEndpoint",
    "sagemaker:UpdateEndpoint",
    "sagemaker:UpdateEndpointWeightsAndCapacities",
```

```
    "sagemaker:BatchDescribeModelPackage",
    "sagemaker:UpdateModelPackage",
    "sagemaker:DeleteModel",
    "sagemaker:DeleteModelPackage",
    "sagemaker:DeleteModelPackageGroup",
    "sagemaker:DeleteTags",
    "sagemaker:DeleteInferenceComponent",
    "sagemaker:CreateInferenceRecommendationsJob",
    "sagemaker:InvokeEndpoint",
    "sagemaker:InvokeEndpointAsync",
    "sagemaker:InvokeEndpointWithResponseStream",
    "sagemaker:QueryLineage",
    "sagemaker:UpdatePipeline",
    "sagemaker:DeletePipeline",
    "sagemaker:UpdatePipelineExecution",
    "sagemaker:StartPipelineExecution",
    "sagemaker:StopPipelineExecution",
    "sagemaker:RetryPipelineExecution",
    "sagemaker:SendPipelineExecutionStepSuccess",
    "sagemaker:SendPipelineExecutionStepFailure",
    "sagemaker:GetSearchSuggestions",
    "sagemaker:Search",
    "sagemaker:UpdateMlflowTrackingServer",
    "sagemaker:StartMlflowTrackingServer",
    "sagemaker:StopMlflowTrackingServer",
    "sagemaker:CreatePresignedMlflowTrackingServerUrl",
    "sagemaker:ListPartnerApps",
    "sagemaker:CreatePartnerAppPresignedUrl",
    "sagemaker:DescribePartnerApp",
    "sagemaker:CallPartnerAppApi",
    "sagemaker-mlflow:AccessUI",
    "sagemaker-mlflow:CreateExperiment",
    "sagemaker-mlflow:SearchExperiments",
    "sagemaker-mlflow:GetExperiment",
    "sagemaker-mlflow:GetExperimentByName",
    "sagemaker-mlflow:DeleteExperiment",
    "sagemaker-mlflow:RestoreExperiment",
    "sagemaker-mlflow:UpdateExperiment",
    "sagemaker-mlflow:CreateRun",
    "sagemaker-mlflow:DeleteRun",
    "sagemaker-mlflow:RestoreRun",
    "sagemaker-mlflow:GetRun",
    "sagemaker-mlflow:LogMetric",
    "sagemaker-mlflow:LogBatch",
```

```
    "sagemaker-mlflow:LogModel",
    "sagemaker-mlflow:LogInputs",
    "sagemaker-mlflow:SetExperimentTag",
    "sagemaker-mlflow:SetTag",
    "sagemaker-mlflow:DeleteTag",
    "sagemaker-mlflow:LogParam",
    "sagemaker-mlflow:GetMetricHistory",
    "sagemaker-mlflow:SearchRuns",
    "sagemaker-mlflow:ListArtifacts",
    "sagemaker-mlflow:UpdateRun",
    "sagemaker-mlflow:CreateRegisteredModel",
    "sagemaker-mlflow:GetRegisteredModel",
    "sagemaker-mlflow:RenameRegisteredModel",
    "sagemaker-mlflow:UpdateRegisteredModel",
    "sagemaker-mlflow:DeleteRegisteredModel",
    "sagemaker-mlflow:GetLatestModelVersions",
    "sagemaker-mlflow:CreateModelVersion",
    "sagemaker-mlflow:GetModelVersion",
    "sagemaker-mlflow:UpdateModelVersion",
    "sagemaker-mlflow:DeleteModelVersion",
    "sagemaker-mlflow:SearchModelVersions",
    "sagemaker-mlflow:GetDownloadURIForModelVersionArtifacts",
    "sagemaker-mlflow:TransitionModelVersionStage",
    "sagemaker-mlflow:SearchRegisteredModels",
    "sagemaker-mlflow:SetRegisteredModelTag",
    "sagemaker-mlflow:DeleteRegisteredModelTag",
    "sagemaker-mlflow:DeleteModelVersionTag",
    "sagemaker-mlflow:DeleteRegisteredModelAlias",
    "sagemaker-mlflow:SetRegisteredModelAlias",
    "sagemaker-mlflow:GetModelVersionByAlias",
    "ecr:GetAuthorizationToken",
    "ecr:BatchGetImage",
    "ecr:GetDownloadUrlForLayer",
    "ecr:DescribeImages",
    "elasticfilesystem:DescribeMountTargets",
    "ssm:GetParameter",
    "ssm:GetParameters",
    "ssm:GetParametersByPath",
    "ec2:DescribeInstanceTypes"
   ],
   "Resource": "*"
  },
  {
   "Sid": "SageMakerSLRForAutoScalingPermissions",
```

```
    "Effect": "Allow",
    "Action": "iam:CreateServiceLinkedRole",
    "Resource": "arn:aws:iam::*:role/aws-service-role/sagemaker.application-
autoscaling.amazonaws.com/AWSServiceRoleForApplicationAutoScaling_SageMakerEndpoint",
    "Condition": {
     "StringLike": {
      "iam:AWSServiceName": "sagemaker.application-autoscaling.amazonaws.com"
     }
    }
   },
   {
    "Sid": "ComputePermissions",
    "Effect": "Allow",
    "Action": [
     "cloudwatch:PutMetricData",
     "cloudwatch:GetMetricStatistics",
     "cloudwatch:GetMetricData",
     "sts:GetCallerIdentity",
     "sts:TagSession",
     "emr-serverless:GetApplication",
     "emr-serverless:GetDashboardForJobRun",
     "emr-serverless:GetJobRun",
     "emr-serverless:ListApplications",
     "emr-serverless:ListJobRunAttempts",
     "emr-serverless:ListJobRuns",
     "emr-serverless:StartApplication",
     "emr-serverless:StartJobRun",
     "emr-serverless:StopApplication",
     "emr-serverless:AccessInteractiveEndpoints",
     "emr-serverless:AccessLivyEndpoints",
     "elasticmapreduce:ListReleaseLabels",
     "elasticmapreduce:ListSupportedInstanceTypes",
     "elasticmapreduce:ListClusters",
     "elasticmapreduce:CreatePersistentAppUI",
     "elasticmapreduce:DescribePersistentAppUI",
     "elasticmapreduce:GetPersistentAppUIPresignedURL",
     "pricing:GetProducts"
    ],
    "Resource": "*"
   },
   {
    "Sid": "AllowAssumeAccessRole",
    "Effect": "Allow",
    "Action": [
```

```
    "sts:AssumeRole"
   ],
   "Resource": "*",
   "Condition": {
    "StringNotEquals": {
     "aws:PrincipalTag/AmazonDataZoneProject": ""
    }
   }
  },
  {
   "Sid": "SetSourceIdentityForAssumeAccessRole",
   "Effect": "Allow",
   "Action": "sts:SetSourceIdentity",
   "Resource": "*",
   "Condition": {
    "StringLike": {
     "sts:SourceIdentity": "${aws:PrincipalTag/datazone:userId}"
    }
   }
  },
  {
   "Sid": "AllowListSecrets",
   "Effect": "Allow",
   "Action": "secretsmanager:ListSecrets",
   "Resource": "*"
  },
  {
   "Sid": "ComputePermissionsWithResourceTag",
   "Effect": "Allow",
   "Action": [
    "secretsmanager:GetSecretValue",
    "ec2:AuthorizeSecurityGroupEgress",
    "ec2:AuthorizeSecurityGroupIngress",
    "ec2:RevokeSecurityGroupEgress",
    "ec2:RevokeSecurityGroupIngress",
    "redshift-serverless:GetWorkgroup",
    "redshift-serverless:GetNamespace",
    "redshift-serverless:ListTagsForResource",
    "redshift-serverless:GetCredentials",
    "redshift-data:BatchExecuteStatement",
    "redshift-data:ExecuteStatement",
    "redshift-data:DescribeTable",
    "redshift-data:ListDatabases",
    "redshift-data:ListSchemas",
```

```
    "redshift-data:ListTables",
    "elasticmapreduce:GetClusterSessionCredentials",
    "elasticmapreduce:GetManagedScalingPolicy",
    "elasticmapreduce:GetOnClusterAppUIPresignedURL",
    "elasticmapreduce:DescribeCluster",
    "elasticmapreduce:ListInstances",
    "elasticmapreduce:ListInstanceFleets",
    "elasticmapreduce:ListInstanceGroups",
    "elasticmapreduce:ListBootstrapActions",
    "elasticmapreduce:TerminateJobFlows",
    "redshift:GetClusterCredentialsWithIAM"
   ],
   "Resource": "*",
   "Condition": {
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false"
    }
   }
  },
  {
   "Sid": "DataLakePermissions",
   "Effect": "Allow",
   "Action": [
    "lakeformation:GetDataAccess"
   ],
   "Resource": "*"
  },
  {
   "Sid": "CodeCommitPermissions",
   "Effect": "Allow",
   "Action": [
    "codecommit:BatchGetCommits",
    "codecommit:BatchGetPullRequests",
    "codecommit:BatchGetRepositories",
    "codecommit:BatchDescribeMergeConflicts",
    "codecommit:CreateBranch",
    "codecommit:CreateCommit",
    "codecommit:CreatePullRequest",
    "codecommit:DeleteBranch",
    "codecommit:DeleteFile",
    "codecommit:DescribeMergeConflicts",
    "codecommit:DescribePullRequestEvents",
    "codecommit:GetBlob",
    "codecommit:GetBranch",
```

```
    "codecommit:GetComment",
    "codecommit:GetCommentReactions",
    "codecommit:GetCommentsForComparedCommit",
    "codecommit:GetCommentsForPullRequest",
    "codecommit:GetCommit",
    "codecommit:GetCommitHistory",
    "codecommit:GetCommitsFromMergeBase",
    "codecommit:GetDifferences",
    "codecommit:GetFile",
    "codecommit:GetFolder",
    "codecommit:GetMergeCommit",
    "codecommit:GetMergeConflicts",
    "codecommit:GetMergeOptions",
    "codecommit:GetObjectIdentifier",
    "codecommit:GetPullRequest",
    "codecommit:GetPullRequestApprovalStates",
    "codecommit:GetPullRequestOverrideState",
    "codecommit:GetReferences",
    "codecommit:GetRepository",
    "codecommit:GetRepositoryTriggers",
    "codecommit:GetTree",
    "codecommit:GetUploadArchiveStatus",
    "codecommit:GitPull",
    "codecommit:GitPush",
    "codecommit:ListAssociatedApprovalRuleTemplatesForRepository",
    "codecommit:ListBranches",
    "codecommit:ListFileCommitHistory",
    "codecommit:ListPullRequests",
    "codecommit:ListTagsForResource",
    "codecommit:MergeBranchesByFastForward",
    "codecommit:MergeBranchesBySquash",
    "codecommit:MergeBranchesByThreeWay",
    "codecommit:MergePullRequestByFastForward",
    "codecommit:MergePullRequestBySquash",
    "codecommit:MergePullRequestByThreeWay",
    "codecommit:UpdateComment",
    "codecommit:UpdateDefaultBranch",
    "codecommit:UpdatePullRequestApprovalRuleContent",
    "codecommit:UpdatePullRequestApprovalState",
    "codecommit:UpdatePullRequestDescription",
    "codecommit:UpdatePullRequestStatus",
    "codecommit:UpdatePullRequestTitle",
    "codecommit:UpdateRepositoryDescription",
    "codecommit:PostCommentForComparedCommit",
```

```
    "codecommit:PostCommentForPullRequest",
    "codecommit:PostCommentReply",
    "codecommit:PutCommentReaction",
    "codecommit:PutFile"
   ],
   "Resource": "*",
   "Condition": {
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false"
    }
   }
  },
  {
   "Sid": "EMRServicePermissions",
   "Effect": "Allow",
   "Action": [
    "application-autoscaling:DeleteScalingPolicy",
    "application-autoscaling:DeregisterScalableTarget",
    "application-autoscaling:DescribeScalableTargets",
    "application-autoscaling:DescribeScalingPolicies",
    "application-autoscaling:PutScalingPolicy",
    "application-autoscaling:RegisterScalableTarget",
    "application-autoscaling:DeleteScheduledAction",
    "application-autoscaling:DescribeScalingActivities",
    "application-autoscaling:DescribeScheduledActions",
    "application-autoscaling:PutScheduledAction",
    "cloudwatch:PutMetricAlarm",
    "cloudwatch:DeleteAlarms",
    "cloudwatch:DescribeAlarms",
    "ec2:RunInstances",
    "ec2:CreateFleet",
    "ec2:CreateLaunchTemplate",
    "ec2:CreateLaunchTemplateVersion",
    "ec2:CreatePlacementGroup",
    "ec2:CreateSecurityGroup",
    "ec2:DeleteLaunchTemplate",
    "ec2:DeletePlacementGroup",
    "ec2:ModifyInstanceAttribute",
    "ec2:TerminateInstances",
    "ec2:DescribeAccountAttributes",
    "ec2:DescribeCapacityReservations",
    "ec2:DescribeImages",
    "ec2:DescribeInstances",
    "ec2:DescribeInstanceTypeOfferings",
```

```
    "ec2:DescribeLaunchTemplates",
    "ec2:DescribeNetworkAcls",
    "ec2:DescribePlacementGroups",
    "ec2:DescribeVolumes",
    "ec2:DescribeVolumeStatus",
    "ec2:DescribeVpcAttribute",
    "resource-groups:ListGroupResources"
   ],
   "Resource": "*"
  },
  {
   "Sid": "ModelRegistryResourceGroupGetPermissions",
   "Effect": "Allow",
   "Action": [
    "resource-groups:GetGroupQuery"
   ],
   "Resource": "*"
  },
  {
   "Sid": "ModelRegistryResourceGroupMutatePermissions",
   "Effect": "Allow",
   "Action": [
    "resource-groups:CreateGroup",
    "resource-groups:DeleteGroup",
    "resource-groups:Tag"
   ],
   "Resource": "*",
   "Condition": {
    "Null": {
     "aws:ResourceTag/sagemaker:collection": "false"
    }
   }
  },
  {
   "Sid": "ModelRegistryBedRockPermissions",
   "Effect": "Allow",
   "Action": [
    "bedrock:ListFoundationModels"
   ],
   "Resource": "*"
  },
  {
   "Sid": "AccessAossCollectionsForBedrock",
   "Effect": "Allow",
```

```
    "Action": "aoss:APIAccessAll",
    "Resource": "*"
   },
   {
    "Sid": "AccessBedrockResources",
    "Effect": "Allow",
    "Action": [
     "bedrock:GetAgent",
     "bedrock:GetAgentActionGroup",
     "bedrock:GetAgentKnowledgeBase",
     "bedrock:InvokeAgent",
     "bedrock:ListAgentActionGroups",
     "bedrock:ListAgentKnowledgeBases",
     "bedrock:Retrieve",
     "bedrock:StartIngestionJob",
     "bedrock:GetIngestionJob",
     "bedrock:ListIngestionJobs",
     "bedrock:ApplyGuardrail",
     "bedrock:ListPrompts",
     "bedrock:GetPrompt",
     "bedrock:CreatePrompt",
     "bedrock:DeletePrompt",
     "bedrock:CreatePromptVersion",
     "bedrock:InvokeFlow",
     "bedrock:GetEvaluationJob",
     "bedrock:CreateEvaluationJob",
     "bedrock:StopEvaluationJob",
     "bedrock:BatchDeleteEvaluationJob",
     "bedrock:ListTagsForResource",
     "bedrock:CreateAgentAlias",
     "bedrock:ListAgentAliases",
     "bedrock:GetAgentVersion",
     "bedrock:ListAgentVersions",
     "bedrock:DeleteAgentVersion",
     "bedrock:DeleteAgentAlias",
     "bedrock:GetAgentAlias",
     "bedrock:UpdateAgentAlias"
    ],
    "Resource": "*",
    "Condition": {
     "StringEquals": {
      "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
     }
```

```
    }
   },
   {
    "Sid": "CreateEvaluationJobForFoundationModel",
    "Effect": "Allow",
    "Action": "bedrock:CreateEvaluationJob",
    "Resource": [
     "arn:aws:bedrock:*::foundation-model/*",
     "arn:aws:bedrock:*:*:custom-model/*"
    ]
   },
   {
    "Sid": "InvokeBedrockInlineAgentPermissions",
    "Effect": "Allow",
    "Action": "bedrock:InvokeInlineAgent",
    "Resource": "*"
   },
   {
    "Sid": "BedrockRetrieveAndGeneratePermissions",
    "Effect": "Allow",
    "Action": "bedrock:RetrieveAndGenerate",
    "Resource": "*"
   },
   {
    "Sid": "ListBedrockEvaluationJobPermissions",
    "Effect": "Allow",
    "Action": "bedrock:ListEvaluationJobs",
    "Resource": "*"
   },
   {
    "Sid": "PassRoleToBedrockEvaluation",
    "Effect": "Allow",
    "Action": [
     "iam:PassRole"
    ],
    "Resource": [
     "arn:aws:iam::*:role/AmazonBedrockEvaluationRole-${aws:PrincipalTag/
AmazonDataZoneProject}-*"
    ],
    "Condition": {
     "StringEquals": {
      "iam:PassedToService": [
       "bedrock.amazonaws.com"
      ]
```

```
    }
   }
  },
  {
   "Sid": "TagBedrockResourcePermissions",
   "Effect": "Allow",
   "Action": "bedrock:TagResource",
   "Resource": "*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
    }
   }
  },
  {
   "Sid": "BedrockKnowledgeBaseDataIngestionKmsPermissions",
   "Effect": "Allow",
   "Action": [
    "kms:GenerateDataKey",
    "kms:Decrypt"
   ],
   "Resource": "arn:aws:kms:*:*:key/${aws:PrincipalTag/KmsKeyId}",
   "Condition": {
    "StringEquals": {
     "aws:PrincipalTag/AmazonBedrockManaged": "true"
    },
    "Null": {
     "kms:ViaService": "true",
     "kms:EncryptionContext:aws:bedrock:arn": "false"
    }
   }
  },
  {
   "Sid": "AccessSecretPermissionsForBedrockApp",
   "Effect": "Allow",
   "Action": [
    "secretsmanager:DescribeSecret",
    "secretsmanager:GetSecretValue",
    "secretsmanager:PutSecretValue"
   ],
   "Resource": "arn:aws:secretsmanager:*:*:secret:amazon-bedrock-ide/*",
   "Condition": {
    "StringEquals": {
```

```
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
    }
   }
  },
  {
   "Sid": "InvokeFunctionPermissionsForBedrockApp",
   "Effect": "Allow",
   "Action": "lambda:InvokeFunction",
   "Resource": "arn:aws:lambda:*:*:function:amazon-bedrock-ide-*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
    }
   }
  },
  {
   "Sid": "GetDataZoneEnvironmentCfnStackPermissionsForBedrockAppExport",
   "Effect": "Allow",
   "Action": [
    "cloudformation:GetTemplate",
    "cloudformation:DescribeStacks"
   ],
   "Resource": "arn:aws:cloudformation:*:*:stack/DataZone-Env-*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
    }
   }
  },
  {
   "Sid": "MWAAPermissions",
   "Effect": "Allow",
   "Action": [
    "airflow:ListEnvironments",
    "airflow:GetEnvironment",
    "airflow:UpdateEnvironment",
    "airflow:CreateWebLoginToken",
    "airflow:InvokeRestApi"
   ],
   "Resource": "*"
  },
```

```
{
 "Sid": "AirflowS3GetAccountPublicAccessBlock",
 "Effect": "Allow",
 "Action": "s3:GetAccountPublicAccessBlock",
 "Resource": "*",
 "Condition": {
  "StringEquals": {
   "aws:ResourceAccount": "${aws:PrincipalAccount}"
  }
 }
},
{
 "Sid": "AirflowS3BucketActions",
 "Effect": "Allow",
 "Action": [
  "s3:GetEncryptionConfiguration"
 ],
 "Resource": "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}"
},
{
 "Sid": "SQSPermissionsForMWAA",
 "Effect": "Allow",
 "Action": [
  "sqs:ChangeMessageVisibility",
  "sqs:DeleteMessage",
  "sqs:GetQueueAttributes",
  "sqs:GetQueueUrl",
  "sqs:ReceiveMessage",
  "sqs:SendMessage"
 ],
 "Resource": "arn:aws:sqs:*:*:airflow-celery-*"
},
{
 "Sid": "FederatedDataConnectionGlueSecret",
 "Effect": "Allow",
 "Action": [
  "secretsmanager:DescribeSecret",
  "secretsmanager:GetSecretValue"
 ],
 "Resource": "*",
 "Condition": {
  "StringEquals": {
   "aws:ResourceAccount": "${aws:PrincipalAccount}",
```

```
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
    }
   }
  },
  {
   "Sid": "GlueConnectionAccessForFederatedDatabase",
   "Effect": "Allow",
   "Action": [
    "glue:ListConnectionTypes",
    "glue:DescribeConnectionType"
   ],
   "Resource": "*"
  },
  {
   "Sid": "GlueEntitiesAccessForFederatedDatabase",
   "Effect": "Allow",
   "Action": [
    "glue:ListEntities",
    "glue:DescribeEntity",
    "glue:GetEntityRecords"
   ],
   "Resource": "*"
  },
  {
   "Sid": "SecretAccessForForUseWithAllDataZoneProjectsSecrets",
   "Effect": "Allow",
   "Action": [
    "secretsmanager:GetSecretValue"
   ],
   "Resource": "*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceTag/for-use-with-all-datazone-projects": "true"
    }
   }
  },
  {
   "Sid": "AccessForDynamoDbConnections",
   "Effect": "Allow",
   "Action": [
    "dynamodb:ListTables"
   ],
   "Resource": "*"
```

```
  },
  {
   "Sid": "InvokeFunctionPermissionsForAthenaCatalogLambda",
   "Effect": "Allow",
   "Action": "lambda:InvokeFunction",
   "Resource": "arn:aws:lambda:*:*:function:*",
   "Condition": {
    "StringEquals": {
     "aws:PrincipalTag/SageMakerStudioQueryExecutionRole": "true",
     "aws:ResourceTag/federated_athena_datacatalog": "true"
    }
   }
  },
  {
   "Sid": "ListDomainS3BucketForQueryExecutionRolePermissions",
   "Effect": "Allow",
   "Action": "s3:ListBucket",
   "Resource": "arn:aws:s3:::*",
   "Condition": {
    "StringEquals": {
     "aws:PrincipalTag/SageMakerStudioQueryExecutionRole": "true",
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "S3PermissionsForAthenaCatalog",
   "Effect": "Allow",
   "Action": [
    "s3:ListBucket",
    "s3:PutObject",
    "s3:GetObject",
    "s3:DeleteObject"
   ],
   "Resource": [
    "arn:aws:s3:::redshift-staging-bucket-*/*",
    "arn:aws:s3:::redshift-staging-bucket-*"
   ],
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
```

```
{
 "Sid": "GetS3ObjectForQueryExecutionRolePermissions",
 "Effect": "Allow",
 "Action": "s3:GetObject",
 "Resource": "arn:aws:s3:::*/dzd_*/*/dev/sys/athena/*",
 "Condition": {
  "StringEquals": {
   "aws:PrincipalTag/SageMakerStudioQueryExecutionRole": "true",
   "aws:ResourceAccount": "${aws:PrincipalAccount}"
  }
 }
},
{
 "Sid": "GetGlueUserDefinedFuncLakeFormationPermissions",
 "Effect": "Allow",
 "Action": [
  "glue:GetUserDefinedFunction",
  "glue:GetUserDefinedFunctions"
 ],
 "Resource": [
  "arn:aws:glue:*:*:catalog",
  "arn:aws:glue:*:*:catalog/*",
  "arn:aws:glue:*:*:database/*"
 ],
 "Condition": {
  "StringEquals": {
   "aws:ResourceAccount": "${aws:PrincipalAccount}",
   "glue:LakeFormationPermissions": "Enabled"
  }
 }
},
{
 "Sid": "GetGlueUserDefinedFuncPermissions",
 "Effect": "Allow",
 "Action": [
  "glue:GetUserDefinedFunction",
  "glue:GetUserDefinedFunctions"
 ],
 "Resource": [
  "arn:aws:glue:*:*:userDefinedFunction/*"
 ],
 "Condition": {
  "StringEquals": {
   "aws:ResourceAccount": "${aws:PrincipalAccount}"
```

```
    }
   }
  },
  {
   "Sid": "NotDeniedOperations",
   "Effect": "Deny",
   "NotAction": [
    "airflow:CreateWebLoginToken",
    "airflow:GetEnvironment",
    "airflow:InvokeRestApi",
    "airflow:ListEnvironments",
    "airflow:UpdateEnvironment",
    "aoss:APIAccessAll",
    "application-autoscaling:DeleteScalingPolicy",
    "application-autoscaling:DeleteScheduledAction",
    "application-autoscaling:DeregisterScalableTarget",
    "application-autoscaling:DescribeScalableTargets",
    "application-autoscaling:DescribeScalingActivities",
    "application-autoscaling:DescribeScalingPolicies",
    "application-autoscaling:DescribeScheduledActions",
    "application-autoscaling:PutScalingPolicy",
    "application-autoscaling:PutScheduledAction",
    "application-autoscaling:RegisterScalableTarget",
    "athena:BatchGetNamedQuery",
    "athena:BatchGetPreparedStatement",
    "athena:BatchGetQueryExecution",
    "athena:CreateNamedQuery",
    "athena:CreateNotebook",
    "athena:CreatePreparedStatement",
    "athena:CreatePresignedNotebookUrl",
    "athena:DeleteNamedQuery",
    "athena:DeleteNotebook",
    "athena:DeletePreparedStatement",
    "athena:ExportNotebook",
    "athena:GetCalculationExecution",
    "athena:GetCalculationExecutionCode",
    "athena:GetCalculationExecutionStatus",
    "athena:GetDatabase",
    "athena:GetDataCatalog",
    "athena:GetNamedQuery",
    "athena:GetNotebookMetadata",
    "athena:GetPreparedStatement",
    "athena:GetQueryExecution",
    "athena:GetQueryResults",
```

```
    "athena:GetQueryResultsStream",
    "athena:GetQueryRuntimeStatistics",
    "athena:GetSession",
    "athena:GetSessionStatus",
    "athena:GetTableMetadata",
    "athena:GetWorkGroup",
    "athena:ImportNotebook",
    "athena:ListDatabases",
    "athena:ListDataCatalogs",
    "athena:ListEngineVersions",
    "athena:ListNamedQueries",
    "athena:ListPreparedStatements",
    "athena:ListQueryExecutions",
    "athena:ListTableMetadata",
    "athena:ListTagsForResource",
    "athena:ListWorkGroups",
    "athena:StartCalculationExecution",
    "athena:StartQueryExecution",
    "athena:StartSession",
    "athena:StopCalculationExecution",
    "athena:StopQueryExecution",
    "athena:TerminateSession",
    "athena:UpdateNamedQuery",
    "athena:UpdateNotebook",
    "athena:UpdateNotebookMetadata",
    "athena:UpdatePreparedStatement",
    "bedrock:ApplyGuardrail",
    "bedrock:BatchDeleteEvaluationJob",
    "bedrock:CreateAgentAlias",
    "bedrock:CreateEvaluationJob",
    "bedrock:CreatePrompt",
    "bedrock:CreatePromptVersion",
    "bedrock:DeleteAgentAlias",
    "bedrock:DeleteAgentVersion",
    "bedrock:DeletePrompt",
    "bedrock:GetAgent",
    "bedrock:GetAgentActionGroup",
    "bedrock:GetAgentAlias",
    "bedrock:GetAgentKnowledgeBase",
    "bedrock:GetAgentVersion",
    "bedrock:GetEvaluationJob",
    "bedrock:GetInferenceProfile",
    "bedrock:GetIngestionJob",
    "bedrock:GetPrompt",
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```
    "bedrock:InvokeAgent",
    "bedrock:InvokeFlow",
    "bedrock:InvokeInlineAgent",
    "bedrock:InvokeModel",
    "bedrock:InvokeModelWithResponseStream",
    "bedrock:ListAgentActionGroups",
    "bedrock:ListAgentAliases",
    "bedrock:ListAgentKnowledgeBases",
    "bedrock:ListAgentVersions",
    "bedrock:ListEvaluationJobs",
    "bedrock:ListFoundationModels",
    "bedrock:ListIngestionJobs",
    "bedrock:ListPrompts",
    "bedrock:ListTagsForResource",
    "bedrock:Retrieve",
    "bedrock:RetrieveAndGenerate",
    "bedrock:StartIngestionJob",
    "bedrock:StopEvaluationJob",
    "bedrock:TagResource",
    "bedrock:UpdateAgentAlias",
    "cloudformation:DescribeStacks",
    "cloudformation:GetTemplate",
    "cloudwatch:DeleteAlarms",
    "cloudwatch:DescribeAlarms",
    "cloudwatch:GetMetricData",
    "cloudwatch:GetMetricStatistics",
    "cloudwatch:PutMetricAlarm",
    "cloudwatch:PutMetricData",
    "codecommit:BatchDescribeMergeConflicts",
    "codecommit:BatchGetCommits",
    "codecommit:BatchGetPullRequests",
    "codecommit:BatchGetRepositories",
    "codecommit:CreateBranch",
    "codecommit:CreateCommit",
    "codecommit:CreatePullRequest",
    "codecommit:DeleteBranch",
    "codecommit:DeleteFile",
    "codecommit:DescribeMergeConflicts",
    "codecommit:DescribePullRequestEvents",
    "codecommit:GetBlob",
    "codecommit:GetBranch",
    "codecommit:GetComment",
    "codecommit:GetCommentReactions",
    "codecommit:GetCommentsForComparedCommit",
```

```
    "codecommit:GetCommentsForPullRequest",
    "codecommit:GetCommit",
    "codecommit:GetCommitHistory",
    "codecommit:GetCommitsFromMergeBase",
    "codecommit:GetDifferences",
    "codecommit:GetFile",
    "codecommit:GetFolder",
    "codecommit:GetMergeCommit",
    "codecommit:GetMergeConflicts",
    "codecommit:GetMergeOptions",
    "codecommit:GetObjectIdentifier",
    "codecommit:GetPullRequest",
    "codecommit:GetPullRequestApprovalStates",
    "codecommit:GetPullRequestOverrideState",
    "codecommit:GetReferences",
    "codecommit:GetRepository",
    "codecommit:GetRepositoryTriggers",
    "codecommit:GetTree",
    "codecommit:GetUploadArchiveStatus",
    "codecommit:GitPull",
    "codecommit:GitPush",
    "codecommit:ListAssociatedApprovalRuleTemplatesForRepository",
    "codecommit:ListBranches",
    "codecommit:ListFileCommitHistory",
    "codecommit:ListPullRequests",
    "codecommit:ListTagsForResource",
    "codecommit:MergeBranchesByFastForward",
    "codecommit:MergeBranchesBySquash",
    "codecommit:MergeBranchesByThreeWay",
    "codecommit:MergePullRequestByFastForward",
    "codecommit:MergePullRequestBySquash",
    "codecommit:MergePullRequestByThreeWay",
    "codecommit:PostCommentForComparedCommit",
    "codecommit:PostCommentForPullRequest",
    "codecommit:PostCommentReply",
    "codecommit:PutCommentReaction",
    "codecommit:PutFile",
    "codecommit:UpdateComment",
    "codecommit:UpdateDefaultBranch",
    "codecommit:UpdatePullRequestApprovalRuleContent",
    "codecommit:UpdatePullRequestApprovalState",
    "codecommit:UpdatePullRequestDescription",
    "codecommit:UpdatePullRequestStatus",
    "codecommit:UpdatePullRequestTitle",
```

```
    "codecommit:UpdateRepositoryDescription",
    "codewhisperer:GenerateRecommendations",
    "datazone:CreateConnection",
    "datazone:DeleteConnection",
    "datazone:GetConnection",
    "datazone:GetDomain",
    "datazone:GetDomainExecutionRoleCredentials",
    "datazone:GetEnvironment",
    "datazone:GetEnvironmentBlueprintConfiguration",
    "datazone:GetProject",
    "datazone:GetUserProfile",
    "datazone:ListConnections",
    "datazone:ListEnvironmentBlueprints",
    "datazone:ListEnvironments",
    "datazone:ListProjects",
    "datazone:UpdateConnection",
    "dynamodb:BatchGetItem",
    "dynamodb:BatchWriteItem",
    "dynamodb:Scan",
    "dynamodb:Query",
    "dynamodb:DescribeBackup",
    "dynamodb:DescribeContributorInsights",
    "dynamodb:DescribeContinuousBackups",
    "dynamodb:DescribeEndpoints",
    "dynamodb:DescribeExport",
    "dynamodb:DescribeGlobalTable",
    "dynamodb:DescribeGlobalTableSettings",
    "dynamodb:DescribeImport",
    "dynamodb:DescribeKinesisStreamingDestination",
    "dynamodb:DescribeLimits",
    "dynamodb:DescribeReservedCapacity",
    "dynamodb:DescribeReservedCapacityOfferings",
    "dynamodb:DescribeStream",
    "dynamodb:DescribeTable",
    "dynamodb:DescribeTableReplicaAutoScaling",
    "dynamodb:DescribeTimeToLive",
    "dynamodb:GetItem",
    "dynamodb:GetRecords",
    "dynamodb:ListExports",
    "dynamodb:ListGlobalTables",
    "dynamodb:ListImports",
    "dynamodb:ListTables",
    "dynamodb:ListTagsOfResource",
    "dynamodb:PutItem",
```

```
    "dynamodb:PartiQLSelect",
    "dynamodb:PartiQLInsert",
    "dynamodb:PartiQLUpdate",
    "dynamodb:PartiQLDelete",
    "dynamodb:UpdateItem",
    "dynamodb:UpdateGlobalTable",
    "dynamodb:UpdateTable",
    "ec2:AttachNetworkInterface",
    "ec2:AuthorizeSecurityGroupEgress",
    "ec2:AuthorizeSecurityGroupIngress",
    "ec2:CreateFleet",
    "ec2:CreateLaunchTemplate",
    "ec2:CreateLaunchTemplateVersion",
    "ec2:CreateNetworkInterface",
    "ec2:CreateNetworkInterfacePermission",
    "ec2:CreatePlacementGroup",
    "ec2:CreateSecurityGroup",
    "ec2:CreateTags",
    "ec2:CreateVpcEndpoint",
    "ec2:DeleteLaunchTemplate",
    "ec2:DeleteNetworkInterface",
    "ec2:DeleteNetworkInterfacePermission",
    "ec2:DeletePlacementGroup",
    "ec2:DeleteTags",
    "ec2:DescribeAccountAttributes",
    "ec2:DescribeCapacityReservations",
    "ec2:DescribeDhcpOptions",
    "ec2:DescribeImages",
    "ec2:DescribeInstances",
    "ec2:DescribeInstanceTypeOfferings",
    "ec2:DescribeInstanceTypes",
    "ec2:DescribeLaunchTemplates",
    "ec2:DescribeNetworkAcls",
    "ec2:DescribeNetworkInterfaces",
    "ec2:DescribePlacementGroups",
    "ec2:DescribeRouteTables",
    "ec2:DescribeSecurityGroups",
    "ec2:DescribeSubnets",
    "ec2:DescribeVolumes",
    "ec2:DescribeVolumeStatus",
    "ec2:DescribeVpcAttribute",
    "ec2:DescribeVpcEndpoints",
    "ec2:DescribeVpcs",
    "ec2:DetachNetworkInterface",
```

```
    "ec2:ModifyInstanceAttribute",
    "ec2:RevokeSecurityGroupEgress",
    "ec2:RevokeSecurityGroupIngress",
    "ec2:RunInstances",
    "ec2:TerminateInstances",
    "ecr:BatchGetImage",
    "ecr:DescribeImages",
    "ecr:GetAuthorizationToken",
    "ecr:GetDownloadUrlForLayer",
    "elasticfilesystem:DescribeMountTargets",
    "elasticmapreduce:CreatePersistentAppUI",
    "elasticmapreduce:DescribeCluster",
    "elasticmapreduce:DescribePersistentAppUI",
    "elasticmapreduce:GetClusterSessionCredentials",
    "elasticmapreduce:GetManagedScalingPolicy",
    "elasticmapreduce:GetOnClusterAppUIPresignedURL",
    "elasticmapreduce:GetPersistentAppUIPresignedURL",
    "elasticmapreduce:ListBootstrapActions",
    "elasticmapreduce:ListClusters",
    "elasticmapreduce:ListInstanceFleets",
    "elasticmapreduce:ListInstanceGroups",
    "elasticmapreduce:ListInstances",
    "elasticmapreduce:ListReleaseLabels",
    "elasticmapreduce:ListSupportedInstanceTypes",
    "elasticmapreduce:TerminateJobFlows",
    "emr-serverless:AccessInteractiveEndpoints",
    "emr-serverless:AccessLivyEndpoints",
    "emr-serverless:GetApplication",
    "emr-serverless:GetDashboardForJobRun",
    "emr-serverless:GetJobRun",
    "emr-serverless:ListApplications",
    "emr-serverless:ListJobRunAttempts",
    "emr-serverless:ListJobRuns",
    "emr-serverless:StartApplication",
    "emr-serverless:StartJobRun",
    "emr-serverless:StopApplication",
    "glue:BatchCreatePartition",
    "glue:BatchDeletePartition",
    "glue:BatchDeleteTable",
    "glue:BatchDeleteTableVersion",
    "glue:BatchGetPartition",
    "glue:BatchGetTableOptimizer",
    "glue:BatchStopJobRun",
    "glue:BatchUpdatePartition",
```

```
    "glue:CancelDataQualityRuleRecommendationRun",
    "glue:CancelDataQualityRulesetEvaluationRun",
    "glue:CancelStatement",
    "glue:CreateBlueprint",
    "glue:CreateDatabase",
    "glue:CreateDataQualityRuleset",
    "glue:CreateJob",
    "glue:CreatePartition",
    "glue:CreatePartitionIndex",
    "glue:CreateSession",
    "glue:CreateTable",
    "glue:CreateWorkflow",
    "glue:DeleteBlueprint",
    "glue:DeleteColumnStatisticsForPartition",
    "glue:DeleteColumnStatisticsForTable",
    "glue:DeleteDatabase",
    "glue:DeleteDataQualityRuleset",
    "glue:DeleteJob",
    "glue:DeletePartition",
    "glue:DeletePartitionIndex",
    "glue:DeleteSession",
    "glue:DeleteTable",
    "glue:DeleteTableVersion",
    "glue:DeleteWorkflow",
    "glue:DescribeConnectionType",
    "glue:DescribeEntity",
    "glue:GetCatalog",
    "glue:GetCatalogImportStatus",
    "glue:GetCatalogs",
    "glue:GetClassifier",
    "glue:GetClassifiers",
    "glue:GetColumnStatisticsForPartition",
    "glue:GetColumnStatisticsForTable",
    "glue:GetColumnStatisticsTaskRun",
    "glue:GetColumnStatisticsTaskRuns",
    "glue:GetCompletion",
    "glue:GetConnection",
    "glue:GetConnections",
    "glue:GetDashboardUrl",
    "glue:GetDatabase",
    "glue:GetDatabases",
    "glue:GetDataQualityModel",
    "glue:GetDataQualityModelResult",
    "glue:GetDataQualityResult",
```

```
    "glue:GetDataQualityRuleRecommendationRun",
    "glue:GetDataQualityRuleset",
    "glue:GetDataQualityRulesetEvaluationRun",
    "glue:GetEntityRecords",
    "glue:GetGeneratedCode",
    "glue:GetPartition",
    "glue:GetPartitionIndexes",
    "glue:GetPartitions",
    "glue:GetSession",
    "glue:GetStatement",
    "glue:GetTable",
    "glue:GetTableOptimizer",
    "glue:GetTables",
    "glue:GetTableVersion",
    "glue:GetTableVersions",
    "glue:GetTags",
    "glue:GetUserDefinedFunction",
    "glue:GetUserDefinedFunctions",
    "glue:ListConnectionTypes",
    "glue:ListCrawls",
    "glue:ListDataQualityResults",
    "glue:ListDataQualityRuleRecommendationRuns",
    "glue:ListDataQualityRulesetEvaluationRuns",
    "glue:ListDataQualityRulesets",
    "glue:ListEntities",
    "glue:ListSessions",
    "glue:ListStatements",
    "glue:ListTableOptimizerRuns",
    "glue:NotifyEvent",
    "glue:PassConnection",
    "glue:PublishDataQuality",
    "glue:PutDataQualityProfileAnnotation",
    "glue:PutDataQualityStatisticAnnotation",
    "glue:PutWorkflowRunProperties",
    "glue:ResumeWorkflowRun",
    "glue:RunStatement",
    "glue:SearchTables",
    "glue:StartBlueprintRun",
    "glue:StartCompletion",
    "glue:StartDataQualityRuleRecommendationRun",
    "glue:StartDataQualityRulesetEvaluationRun",
    "glue:StartJobRun",
    "glue:StartWorkflowRun",
    "glue:StopSession",
```

```
    "glue:StopWorkflowRun",
    "glue:TagResource",
    "glue:UntagResource",
    "glue:UpdateBlueprint",
    "glue:UpdateCatalog",
    "glue:UpdateColumnStatisticsForPartition",
    "glue:UpdateColumnStatisticsForTable",
    "glue:UpdateDataQualityRuleset",
    "glue:UpdateJob",
    "glue:UpdatePartition",
    "glue:UpdateTable",
    "glue:UpdateWorkflow",
    "glue:UseGlueStudio",
    "iam:CreateServiceLinkedRole",
    "iam:GetRole",
    "iam:ListRoles",
    "iam:PassRole",
    "kms:CreateGrant",
    "kms:Decrypt",
    "kms:DescribeKey",
    "kms:Encrypt",
    "kms:GenerateDataKey",
    "kms:GenerateDataKeyWithoutPlaintext",
    "kms:GetPublicKey",
    "kms:ListAliases",
    "kms:ListGrants",
    "kms:ReEncryptFrom",
    "kms:ReEncryptTo",
    "kms:RevokeGrant",
    "lakeformation:GetDataAccess",
    "lambda:InvokeFunction",
    "logs:CreateLogGroup",
    "logs:CreateLogStream",
    "logs:DescribeLogGroups",
    "logs:DescribeLogStreams",
    "logs:FilterLogEvents",
    "logs:GetLogEvents",
    "logs:GetLogGroupFields",
    "logs:GetLogRecord",
    "logs:GetQueryResults",
    "logs:PutLogEvents",
    "logs:StartQuery",
    "logs:StopQuery",
    "pricing:GetProducts",
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    "q:SendMessage",
    "q:StartConversation",
    "redshift-data:BatchExecuteStatement",
    "redshift-data:CancelStatement",
    "redshift-data:DescribeStatement",
    "redshift-data:DescribeTable",
    "redshift-data:ExecuteStatement",
    "redshift-data:GetStagingBucketLocation",
    "redshift-data:GetStatementResult",
    "redshift-data:ListDatabases",
    "redshift-data:ListSchemas",
    "redshift-data:ListStatements",
    "redshift-data:ListTables",
    "redshift-serverless:GetCredentials",
    "redshift-serverless:GetManagedWorkgroup",
    "redshift-serverless:GetNamespace",
    "redshift-serverless:GetWorkgroup",
    "redshift-serverless:ListNamespaces",
    "redshift-serverless:ListTagsForResource",
    "redshift-serverless:ListWorkgroups",
    "redshift:DescribeClusters",
    "redshift:DescribeTags",
    "redshift:GetClusterCredentialsWithIAM",
    "resource-groups:CreateGroup",
    "resource-groups:DeleteGroup",
    "resource-groups:GetGroupQuery",
    "resource-groups:ListGroupResources",
    "resource-groups:Tag",
    "s3:AbortMultipartUpload",
    "s3:DeleteObject",
    "s3:DeleteObjectVersion",
    "s3:GetAccountPublicAccessBlock",
    "s3:GetBucketLocation",
    "s3:GetEncryptionConfiguration",
    "s3:GetObject*",
    "s3:ListBucket",
    "s3:ListBucketVersions",
    "s3:ListMultipartUploadParts",
    "s3:PutObject",
    "s3:PutObjectRetention",
    "s3:PutObjectTagging",
    "s3:ReplicateObject",
    "s3:RestoreObject",
    "sagemaker-mlflow:AccessUI",
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```
    "sagemaker-mlflow:CreateExperiment",
    "sagemaker-mlflow:CreateModelVersion",
    "sagemaker-mlflow:CreateRegisteredModel",
    "sagemaker-mlflow:CreateRun",
    "sagemaker-mlflow:DeleteExperiment",
    "sagemaker-mlflow:DeleteModelVersion",
    "sagemaker-mlflow:DeleteModelVersionTag",
    "sagemaker-mlflow:DeleteRegisteredModel",
    "sagemaker-mlflow:DeleteRegisteredModelAlias",
    "sagemaker-mlflow:DeleteRegisteredModelTag",
    "sagemaker-mlflow:DeleteRun",
    "sagemaker-mlflow:DeleteTag",
    "sagemaker-mlflow:GetDownloadURIForModelVersionArtifacts",
    "sagemaker-mlflow:GetExperiment",
    "sagemaker-mlflow:GetExperimentByName",
    "sagemaker-mlflow:GetLatestModelVersions",
    "sagemaker-mlflow:GetMetricHistory",
    "sagemaker-mlflow:GetModelVersion",
    "sagemaker-mlflow:GetModelVersionByAlias",
    "sagemaker-mlflow:GetRegisteredModel",
    "sagemaker-mlflow:GetRun",
    "sagemaker-mlflow:ListArtifacts",
    "sagemaker-mlflow:LogBatch",
    "sagemaker-mlflow:LogInputs",
    "sagemaker-mlflow:LogMetric",
    "sagemaker-mlflow:LogModel",
    "sagemaker-mlflow:LogParam",
    "sagemaker-mlflow:RenameRegisteredModel",
    "sagemaker-mlflow:RestoreExperiment",
    "sagemaker-mlflow:RestoreRun",
    "sagemaker-mlflow:SearchExperiments",
    "sagemaker-mlflow:SearchModelVersions",
    "sagemaker-mlflow:SearchRegisteredModels",
    "sagemaker-mlflow:SearchRuns",
    "sagemaker-mlflow:SetExperimentTag",
    "sagemaker-mlflow:SetRegisteredModelAlias",
    "sagemaker-mlflow:SetRegisteredModelTag",
    "sagemaker-mlflow:SetTag",
    "sagemaker-mlflow:TransitionModelVersionStage",
    "sagemaker-mlflow:UpdateExperiment",
    "sagemaker-mlflow:UpdateModelVersion",
    "sagemaker-mlflow:UpdateRegisteredModel",
    "sagemaker-mlflow:UpdateRun",
    "sagemaker:AddAssociation",
```

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    "sagemaker:AddTags",
    "sagemaker:BatchDescribeModelPackage",
    "sagemaker:BatchGetMetrics",
    "sagemaker:BatchPutMetrics",
    "sagemaker:CallPartnerAppApi",
    "sagemaker:CreateAction",
    "sagemaker:CreateApp",
    "sagemaker:CreateArtifact",
    "sagemaker:CreateAutoMLJob",
    "sagemaker:CreateAutoMLJobV2",
    "sagemaker:CreateContext",
    "sagemaker:CreateEndpoint",
    "sagemaker:CreateEndpointConfig",
    "sagemaker:CreateHyperParameterTuningJob",
    "sagemaker:CreateInferenceComponent",
    "sagemaker:CreateInferenceRecommendationsJob",
    "sagemaker:CreateModel",
    "sagemaker:CreateModelPackage",
    "sagemaker:CreateModelPackageGroup",
    "sagemaker:CreatePartnerAppPresignedUrl",
    "sagemaker:CreatePipeline",
    "sagemaker:CreatePresignedDomainUrl",
    "sagemaker:CreatePresignedMlflowTrackingServerUrl",
    "sagemaker:CreateProcessingJob",
    "sagemaker:CreateSpace",
    "sagemaker:CreateTrainingJob",
    "sagemaker:CreateTransformJob",
    "sagemaker:CreateUserProfile",
    "sagemaker:DeleteAction",
    "sagemaker:DeleteApp",
    "sagemaker:DeleteArtifact",
    "sagemaker:DeleteAssociation",
    "sagemaker:DeleteContext",
    "sagemaker:DeleteEndpoint",
    "sagemaker:DeleteEndpointConfig",
    "sagemaker:DeleteInferenceComponent",
    "sagemaker:DeleteModel",
    "sagemaker:DeleteModelPackage",
    "sagemaker:DeleteModelPackageGroup",
    "sagemaker:DeletePipeline",
    "sagemaker:DeleteSpace",
    "sagemaker:DeleteTags",
    "sagemaker:DeleteUserProfile",
    "sagemaker:DescribeAction",
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    "sagemaker:DescribeApp",
    "sagemaker:DescribeArtifact",
    "sagemaker:DescribeAutoMLJob",
    "sagemaker:DescribeAutoMLJobV2",
    "sagemaker:DescribeContext",
    "sagemaker:DescribeDomain",
    "sagemaker:DescribeEndpoint",
    "sagemaker:DescribeEndpointConfig",
    "sagemaker:DescribeHyperParameterTuningJob",
    "sagemaker:DescribeImage",
    "sagemaker:DescribeImageVersion",
    "sagemaker:DescribeInferenceComponent",
    "sagemaker:DescribeInferenceRecommendationsJob",
    "sagemaker:DescribeMlflowTrackingServer",
    "sagemaker:DescribeModel",
    "sagemaker:DescribeModelPackage",
    "sagemaker:DescribeModelPackageGroup",
    "sagemaker:DescribeOptimizationJob",
    "sagemaker:DescribePartnerApp",
    "sagemaker:DescribePipeline",
    "sagemaker:DescribePipelineDefinitionForExecution",
    "sagemaker:DescribePipelineExecution",
    "sagemaker:DescribeProcessingJob",
    "sagemaker:DescribeSpace",
    "sagemaker:DescribeTrainingJob",
    "sagemaker:DescribeTransformJob",
    "sagemaker:DescribeTrialComponent",
    "sagemaker:DescribeUserProfile",
    "sagemaker:GetSearchSuggestions",
    "sagemaker:InvokeEndpoint",
    "sagemaker:InvokeEndpointAsync",
    "sagemaker:InvokeEndpointWithResponseStream",
    "sagemaker:ListApps",
    "sagemaker:ListArtifacts",
    "sagemaker:ListAssociations",
    "sagemaker:ListAutoMLJobs",
    "sagemaker:ListCandidatesForAutoMLJob",
    "sagemaker:ListContexts",
    "sagemaker:ListDomains",
    "sagemaker:ListEndpointConfigs",
    "sagemaker:ListEndpoints",
    "sagemaker:ListHubContents",
    "sagemaker:ListHubs",
    "sagemaker:ListHyperParameterTuningJobs",
```

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    "sagemaker:ListImageVersions",
    "sagemaker:ListInferenceComponents",
    "sagemaker:ListMlflowTrackingServers",
    "sagemaker:ListModelMetadata",
    "sagemaker:ListModelPackageGroups",
    "sagemaker:ListModelPackages",
    "sagemaker:ListModels",
    "sagemaker:ListPartnerApps",
    "sagemaker:ListPipelineExecutions",
    "sagemaker:ListPipelineExecutionSteps",
    "sagemaker:ListPipelineParametersForExecution",
    "sagemaker:ListPipelines",
    "sagemaker:ListProcessingJobs",
    "sagemaker:ListSpaces",
    "sagemaker:ListTags",
    "sagemaker:ListTrainingJobs",
    "sagemaker:ListTrainingJobsForHyperParameterTuningJob",
    "sagemaker:ListTransformJobs",
    "sagemaker:ListUserProfiles",
    "sagemaker:QueryLineage",
    "sagemaker:RetryPipelineExecution",
    "sagemaker:Search",
    "sagemaker:SendPipelineExecutionStepFailure",
    "sagemaker:SendPipelineExecutionStepSuccess",
    "sagemaker:StartMlflowTrackingServer",
    "sagemaker:StartPipelineExecution",
    "sagemaker:StopAutoMLJob",
    "sagemaker:StopHyperParameterTuningJob",
    "sagemaker:StopMlflowTrackingServer",
    "sagemaker:StopPipelineExecution",
    "sagemaker:StopProcessingJob",
    "sagemaker:StopTrainingJob",
    "sagemaker:StopTransformJob",
    "sagemaker:UpdateEndpoint",
    "sagemaker:UpdateEndpointWeightsAndCapacities",
    "sagemaker:UpdateInferenceComponentRuntimeConfig",
    "sagemaker:UpdateMlflowTrackingServer",
    "sagemaker:UpdateModelPackage",
    "sagemaker:UpdatePipeline",
    "sagemaker:UpdatePipelineExecution",
    "sagemaker:UpdateSpace",
    "sagemaker:UpdateTrainingJob",
    "secretsmanager:DescribeSecret",
    "secretsmanager:GetSecretValue",
```

```
    "secretsmanager:ListSecrets",
    "secretsmanager:PutSecretValue",
    "sqlworkbench:CreateConnection",
    "sqlworkbench:DeleteQCustomContext",
    "sqlworkbench:DeleteTab",
    "sqlworkbench:DriverExecute",
    "sqlworkbench:GetAutocompletionMetadata",
    "sqlworkbench:GetAutocompletionResource",
    "sqlworkbench:GetQCustomContext",
    "sqlworkbench:GetQSqlPromptQuotas",
    "sqlworkbench:GetQSqlRecommendations",
    "sqlworkbench:GetQueryExecutionHistory",
    "sqlworkbench:GetUserInfo",
    "sqlworkbench:ListQueryExecutionHistory",
    "sqlworkbench:ListTabs",
    "sqlworkbench:PassAccountSettings",
    "sqlworkbench:PutQCustomContext",
    "sqlworkbench:PutTab",
    "sqs:ChangeMessageVisibility",
    "sqs:DeleteMessage",
    "sqs:GetQueueAttributes",
    "sqs:GetQueueUrl",
    "sqs:ReceiveMessage",
    "sqs:SendMessage",
    "ssm:GetParameter",
    "ssm:GetParameters",
    "ssm:GetParametersByPath",
    "sts:AssumeRole",
    "sts:GetCallerIdentity",
    "sts:SetSourceIdentity",
    "sts:TagSession",
    "tag:GetResources"
   ],
   "Resource": "*"
  }
 ]
}
```

AWS policy: SageMakerStudioDomainExecutionRolePolicy

Default policy for the SageMakerUnifiedStudioDomainExecutionRole service role. This role is used by Amazon SageMaker Unified Studio to catalog, discover, govern, share, and analyze data in the Amazon SageMaker Unified Studio domain.

This role provides access to all Amazon SageMaker Unified Studio APIs that are required for Amazon SageMaker Unified Studio use, as well as RAM permissions to support usage of associated accounts in a Amazon SageMaker Unified Studio domain. It also provides access to services used outside of a project scope, including AWS CodeConnections, Amazon Q, AWS Systems Manager, and Amazon Bedrock.

To view the permissions for this policy, see SageMakerStudioDomainExecutionRolePolicy in the *AWS Managed Policy Reference*.

AWS policy: SageMakerStudioProjectUserRolePolicy

Amazon SageMaker Unified Studio creates IAM roles for projects users to perform data analytics, artificial intelligence, and machine learning actions, and uses this policy when creating these roles to define the permissions.

This is the main policy for the SageMakerUnifiedStudioProjectRole role. The SageMakerStudioProjectUserRolePolicy policy is created as part of the Tooling environment blueprint. This policy grants read and write access for Amazon SageMaker Unified Studio users to services such as Amazon SageMaker, AWS Glue, Amazon S3, AWS Lake Formation, Amazon Redshift, Amazon Athena, Amazon Q, Amazon EMR. The policy also gives read and write permissions to some infrastructure resources that are required to use these services such as network interfaces, AWS KMS keys, AWS CodeCommit, and AWS Secrets Manager.

An administrator can disable certain permissions in this policy by tagging the role to which the policy is attached to. The tag EnableGlueSparkWorkloads=false disables all Glue Spark workloads related permissions. The tag EnableGenAIStudio=false disables all Generative AI Studio related permissions.

- Amazon SageMaker permissions are required for users to use the Amazon SageMaker Domain and Spaces provisioned by default by the Tooling blueprint.
- AWS Glue permissions are required for users to use the default AWS Glue Connection and create AWS Glue Sessions.
- Amazon S3 permissions are required for users to access the project's Amazon S3 bucket.
- AWS Lake Formation permissions are required for users to access underlying data in Amazon S3.
- Amazon Redshift permissions are required for users to perform SQL queries against Amazon Redshift, and to allow access to the project's Amazon Redshift clusters.
- Amazon Athena permissions are required for users to use the provisioned Amazon Athena workgroup and to perform SQL queries.

- Amazon Q permissions are required for users to interact with Amazon Q within Amazon SageMaker Unified Studio.
- Amazon EMR permissions are required for users to create and access Amazon EMR clusters. AWS KMS permissions are required to use CMK in the various services integrated with Amazon SageMaker Unified Studio.
- AWS CodeCommit permissions are required for users to use the default Git repository, and perform operations such as committing changes.
- AWS Secrets Manager permissions are required for accessing the secret for various services, such as Amazon Redshift, AWS Glue federated data connections, and Amazon Bedrock.
- Amazon Bedrock permissions are required to allow users access to Amazon Bedrock IDE, a development experience in Amazon SageMaker Unified Studio that lets you easily discover Amazon Bedrock models and build generative AI apps that use Amazon Bedrock models and features.

To view the permissions for this policy, see SageMakerStudioProjectUserRolePolicy in the *AWS Managed Policy Reference*.

AWS policy: SageMakerStudioProjectRoleMachineLearningPolicy

Amazon SageMaker Unified Studio creates IAM roles for projects users to perform data analytics, artificial intelligence, and machine learning actions, and uses this policy when creating these roles to define the permissions related to Amazon SageMaker.

This is the SageMaker policy for the SageMakerUnifiedStudioProjectRole role. This policy grants read and write access for Amazon SageMaker Unified Studio users to services such as Amazon SageMaker, Amazon CloudWatch, and AWS Resource Groups. The policy also gives read and write permissions to some infrastructure resources that are required to use these services such as network interfaces and AWS KMS keys.

An administrator can disable certain permissions in this policy by tagging the role to which the policy is attached to. The tag EnableSageMakerMLWorkloads=false disables all SageMaker ML workloads related permissions.

```
{
 "Version": "2012-10-17",
 "Statement": [
  {
```

```
    "Sid": "AllowManageSageMakerEniOnVpc",
    "Effect": "Allow",
    "Action": [
     "ec2:CreateVpcEndpoint"
    ],
    "Resource": [
     "arn:aws:ec2:*:*:network-interface/*",
     "arn:aws:ec2:*:*:subnet/*",
     "arn:aws:ec2:*:*:route-table/*",
     "arn:aws:ec2:*:*:security-group/*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:CalledViaLast": [
       "sagemaker.amazonaws.com",
       "airflow.amazonaws.com"
      ]
     },
     "ArnLike": {
      "ec2:Vpc": "arn:aws:ec2:*:*:vpc/${aws:PrincipalTag/VpcId}"
     }
    }
   },
   {
    "Sid": "AllowManageSageMakerTrainingEniOnVpc",
    "Effect": "Allow",
    "Action": [
     "ec2:CreateNetworkInterface",
     "ec2:DeleteNetworkInterface",
     "ec2:AttachNetworkInterface",
     "ec2:CreateNetworkInterfacePermission",
     "ec2:DeleteNetworkInterfacePermission"
    ],
    "Resource": [
     "arn:aws:ec2:*:*:network-interface/*",
     "arn:aws:ec2:*:*:subnet/*",
     "arn:aws:ec2:*:*:route-table/*",
     "arn:aws:ec2:*:*:security-group/*"
    ],
    "Condition": {
     "ArnLike": {
      "ec2:Vpc": "arn:aws:ec2:*:*:vpc/${aws:PrincipalTag/VpcId}"
     }
    }
```

```
  },
  {
   "Sid": "AllowManageSageMakerEni",
   "Effect": "Allow",
   "Action": [
    "ec2:CreateNetworkInterface",
    "ec2:AttachNetworkInterface"
   ],
   "Resource": [
    "arn:aws:ec2:*:*:network-interface/*",
    "arn:aws:ec2:*:*:instance/*"
   ],
   "Condition": {
    "StringEqualsIfExists": {
     "aws:CalledViaLast": "sagemaker.amazonaws.com",
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "AllowSageMakerCreateVpcEndpointOnVpcId",
   "Effect": "Allow",
   "Action": [
    "ec2:CreateVpcEndpoint"
   ],
   "Resource": "arn:aws:ec2:*:*:vpc/${aws:PrincipalTag/VpcId}",
   "Condition": {
    "StringEquals": {
     "ec2:VpcID": "${aws:PrincipalTag/VpcId}"
    },
    "StringEqualsIfExists": {
     "aws:CalledViaLast": "sagemaker.amazonaws.com",
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "AllowSageMakerCreateVpcEndpoint",
   "Effect": "Allow",
   "Action": [
    "ec2:CreateVpcEndpoint"
   ],
   "Resource": [
    "arn:aws:ec2:*:*:vpc-endpoint/*"
```

```
    ],
    "Condition": {
     "StringEqualsIfExists": {
      "aws:CalledViaLast": "sagemaker.amazonaws.com",
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   },
   {
    "Sid": "AllowSageMakerDescribeVPCResources",
    "Effect": "Allow",
    "Action": [
     "ec2:DescribeVpcEndpoints",
     "ec2:DescribeSubnets",
     "ec2:DescribeRouteTables",
     "ec2:DescribeSecurityGroups",
     "glue:ListSessions",
     "ec2:DescribeVpcs",
     "ec2:DescribeNetworkInterfaces",
     "ec2:DescribeDhcpOptions"
    ],
    "Resource": "*"
   },
   {
    "Sid": "AllowSageMakerLogAccess",
    "Effect": "Allow",
    "Action": [
     "logs:DescribeLogStreams",
     "logs:GetLogEvents"
    ],
    "Resource": "arn:aws:logs:*:*:log-group:/aws/sagemaker/*"
   },
   {
    "Sid": "SageMakerMlflowPermission",
    "Effect": "Allow",
    "Action": [
     "sagemaker:UpdateMlflowTrackingServer",
     "sagemaker:StartMlflowTrackingServer",
     "sagemaker:StopMlflowTrackingServer",
     "sagemaker:DescribeMlflowTrackingServer",
     "sagemaker:CreatePresignedMlflowTrackingServerUrl",
     "sagemaker-mlflow:AccessUI",
     "sagemaker-mlflow:CreateExperiment",
     "sagemaker-mlflow:SearchExperiments",
```

```
        "sagemaker-mlflow:GetExperiment",
        "sagemaker-mlflow:GetExperimentByName",
        "sagemaker-mlflow:DeleteExperiment",
        "sagemaker-mlflow:RestoreExperiment",
        "sagemaker-mlflow:UpdateExperiment",
        "sagemaker-mlflow:CreateRun",
        "sagemaker-mlflow:DeleteRun",
        "sagemaker-mlflow:RestoreRun",
        "sagemaker-mlflow:GetRun",
        "sagemaker-mlflow:LogMetric",
        "sagemaker-mlflow:LogBatch",
        "sagemaker-mlflow:LogModel",
        "sagemaker-mlflow:LogInputs",
        "sagemaker-mlflow:SetExperimentTag",
        "sagemaker-mlflow:SetTag",
        "sagemaker-mlflow:DeleteTag",
        "sagemaker-mlflow:LogParam",
        "sagemaker-mlflow:GetMetricHistory",
        "sagemaker-mlflow:SearchRuns",
        "sagemaker-mlflow:ListArtifacts",
        "sagemaker-mlflow:UpdateRun",
        "sagemaker-mlflow:CreateRegisteredModel",
        "sagemaker-mlflow:GetRegisteredModel",
        "sagemaker-mlflow:RenameRegisteredModel",
        "sagemaker-mlflow:UpdateRegisteredModel",
        "sagemaker-mlflow:DeleteRegisteredModel",
        "sagemaker-mlflow:GetLatestModelVersions",
        "sagemaker-mlflow:CreateModelVersion",
        "sagemaker-mlflow:GetModelVersion",
        "sagemaker-mlflow:UpdateModelVersion",
        "sagemaker-mlflow:DeleteModelVersion",
        "sagemaker-mlflow:SearchModelVersions",
        "sagemaker-mlflow:GetDownloadURIForModelVersionArtifacts",
        "sagemaker-mlflow:TransitionModelVersionStage",
        "sagemaker-mlflow:SearchRegisteredModels",
        "sagemaker-mlflow:SetRegisteredModelTag",
        "sagemaker-mlflow:DeleteRegisteredModelTag",
        "sagemaker-mlflow:DeleteModelVersionTag",
        "sagemaker-mlflow:DeleteRegisteredModelAlias",
        "sagemaker-mlflow:SetRegisteredModelAlias",
        "sagemaker-mlflow:GetModelVersionByAlias"
      ],
      "Resource": "arn:aws:sagemaker:*:*:mlflow-tracking-server/*",
      "Condition": {
```

```
    "StringEquals": {
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
    }
   }
  },
  {
   "Sid": "SageMakerBYOFSPermissions",
   "Effect": "Allow",
   "Action": [
    "elasticfilesystem:DescribeMountTargets"
   ],
   "Resource": "*"
  },
  {
   "Sid": "SageMakerBYOIPermissions",
   "Effect": "Allow",
   "Action": [
    "sagemaker:DescribeImageVersion",
    "sagemaker:ListImageVersions"
   ],
   "Resource": "*"
  },
  {
   "Sid": "SageMakerStudioAppDescribeImageActionPermissions",
   "Effect": "Allow",
   "Action": [
    "sagemaker:DescribeImage"
   ],
   "Resource": "arn:aws:sagemaker:*:*:image/*"
  },
  {
   "Sid": "SageMakerPipelinesSTSPermissions",
   "Effect": "Allow",
   "Action": [
    "sts:GetCallerIdentity"
   ],
   "Resource": "*"
  },
  {
   "Sid": "SageMakerLogPermissions",
   "Effect": "Allow",
   "Action": [
    "logs:CreateLogGroup",
```

```
    "logs:CreateLogStream",
    "logs:PutLogEvents"
   ],
   "Resource": "arn:aws:logs:*:*:log-group:/aws/sagemaker/*"
  },
  {
   "Sid": "SageMakerCreatePermissions",
   "Effect": "Allow",
   "Action": [
    "sagemaker:CreateTrainingJob",
    "sagemaker:CreateTransformJob",
    "sagemaker:CreateProcessingJob",
    "sagemaker:CreateAutoMLJob",
    "sagemaker:CreateAutoMLJobV2",
    "sagemaker:CreateHyperParameterTuningJob",
    "sagemaker:CreateEndpointConfig",
    "sagemaker:CreateEndpoint",
    "sagemaker:CreateModel",
    "sagemaker:CreateModelPackage",
    "sagemaker:CreateModelPackageGroup",
    "sagemaker:CreateInferenceComponent",
    "sagemaker:CreatePipeline",
    "sagemaker:CreateInferenceRecommendationsJob"
   ],
   "Resource": "*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}",
     "aws:PrincipalTag/EnableSageMakerMLWorkloadsPermissions": "true"
    }
   }
  },
  {
   "Sid": "SageMakerInferencePermissions",
   "Effect": "Allow",
   "Action": [
    "sagemaker:StopTrainingJob",
    "sagemaker:StopProcessingJob",
    "sagemaker:StopAutoMLJob",
    "sagemaker:StopHyperParameterTuningJob",
    "sagemaker:UpdateTrainingJob",
    "sagemaker:BatchGetMetrics",
    "sagemaker:BatchPutMetrics",
```

```
    "sagemaker:DeleteEndpointConfig",
    "sagemaker:DeleteEndpoint",
    "sagemaker:UpdateEndpoint",
    "sagemaker:UpdateEndpointWeightsAndCapacities",
    "sagemaker:UpdateInferenceComponentRuntimeConfig",
    "sagemaker:BatchDescribeModelPackage",
    "sagemaker:UpdateModelPackage",
    "sagemaker:DeleteModel",
    "sagemaker:DeleteModelPackage",
    "sagemaker:DeleteModelPackageGroup",
    "sagemaker:DeleteInferenceComponent",
    "sagemaker:InvokeEndpoint",
    "sagemaker:InvokeEndpointAsync",
    "sagemaker:InvokeEndpointWithResponseStream",
    "sagemaker:DescribeInferenceComponent",
    "sagemaker:DescribeEndpointConfig",
    "sagemaker:DescribeModel",
    "sagemaker:DescribeOptimizationJob",
    "sagemaker:DescribeEndpoint"
   ],
   "Resource": "*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}",
     "aws:PrincipalTag/EnableSageMakerMLWorkloadsPermissions": "true"
    }
   }
  },
  {
   "Sid": "SageMakerUpdateInferenceComponentRuntimeConfigAutoscalingPermissions",
   "Effect": "Allow",
   "Action": [
    "sagemaker:UpdateInferenceComponentRuntimeConfig"
   ],
   "Resource": "*",
   "Condition": {
    "StringEquals": {
     "aws:CalledViaLast": "application-autoscaling.amazonaws.com",
     "aws:PrincipalTag/EnableSageMakerMLWorkloadsPermissions": "true"
    }
   }
  },
  {
```

```
    "Sid": "SageMakerDescribeUpdateDeletePermissions",
    "Effect": "Allow",
    "Action": [
     "sagemaker:DescribeInferenceRecommendationsJob",
     "sagemaker:DescribeModelPackage",
     "sagemaker:DescribeModelPackageGroup",
     "sagemaker:UpdatePipeline",
     "sagemaker:DescribePipeline",
     "sagemaker:DescribePipelineExecution",
     "sagemaker:DescribePipelineDefinitionForExecution",
     "sagemaker:DeletePipeline",
     "sagemaker:UpdatePipelineExecution",
     "sagemaker:StartPipelineExecution",
     "sagemaker:StopPipelineExecution",
     "sagemaker:DescribeTransformJob",
     "sagemaker:StopTransformJob",
     "sagemaker:RetryPipelineExecution",
     "sagemaker:SendPipelineExecutionStepSuccess",
     "sagemaker:SendPipelineExecutionStepFailure",
     "sagemaker:DescribeHyperParameterTuningJob",
     "sagemaker:DescribeAutoMLJob",
     "sagemaker:DescribeAutoMLJobV2",
     "sagemaker:DescribeProcessingJob",
     "sagemaker:DescribeTrainingJob"
    ],
    "Resource": "*",
    "Condition": {
     "StringEquals": {
      "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}",
      "aws:PrincipalTag/EnableSageMakerMLWorkloadsPermissions": "true"
     }
    }
   },
   {
    "Sid": "SageMakerLineageSpecialPermissions",
    "Effect": "Allow",
    "Action": [
     "sagemaker:CreateContext",
     "sagemaker:CreateArtifact",
     "sagemaker:CreateAction",
     "sagemaker:AddAssociation",
     "sagemaker:DeleteAssociation",
     "sagemaker:DeleteContext",
```

```
    "sagemaker:DeleteAction",
    "sagemaker:DeleteArtifact"
   ],
   "Resource": "*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}",
     "aws:PrincipalTag/EnableSageMakerMLWorkloadsPermissions": "true"
    }
   }
  },
  {
   "Sid": "SageMakerModelRegistryLineageSpecialPermissions",
   "Effect": "Allow",
   "Action": [
    "sagemaker:QueryLineage",
    "sagemaker:DescribeAction",
    "sagemaker:DescribeArtifact",
    "sagemaker:DescribeTrialComponent",
    "sagemaker:DescribeContext"
   ],
   "Resource": "*"
  },
  {
   "Sid": "SageMakerListPermissions",
   "Effect": "Allow",
   "Action": [
    "sagemaker:GetSearchSuggestions",
    "sagemaker:ListTrainingJobs",
    "sagemaker:ListTransformJobs",
    "sagemaker:ListProcessingJobs",
    "sagemaker:ListAutoMLJobs",
    "sagemaker:ListHyperParameterTuningJobs",
    "sagemaker:ListInferenceComponents",
    "sagemaker:ListEndpoints",
    "sagemaker:ListEndpointConfigs",
    "sagemaker:ListModels",
    "sagemaker:ListModelPackages",
    "sagemaker:ListModelPackageGroups",
    "sagemaker:ListModelMetadata",
    "sagemaker:ListMlflowTrackingServers",
    "sagemaker:ListArtifacts",
    "sagemaker:ListHubs",
```

```
    "sagemaker:ListPipelines",
    "sagemaker:ListContexts"
   ],
   "Resource": "*",
   "Condition": {
    "StringEquals": {
     "aws:PrincipalTag/EnableSageMakerMLWorkloadsPermissions": "true"
    }
   }
  },
  {
   "Sid": "SageMakerSearchPermissions",
   "Effect": "Allow",
   "Action": [
    "sagemaker:Search"
   ],
   "Resource": "*",
   "Condition": {
    "StringEquals": {
     "aws:PrincipalTag/EnableSageMakerMLWorkloadsPermissions": "true",
     "sagemaker:SearchVisibilityCondition/Tags.AmazonDataZoneProject/EqualsIfExists":
 "${aws:PrincipalTag/AmazonDataZoneProject}"
    }
   }
  },
  {
   "Sid": "SageMakerListPermissionsTagRestricted",
   "Effect": "Allow",
   "Action": [
    "sagemaker:ListCandidatesForAutoMLJob",
    "sagemaker:ListTrainingJobsForHyperParameterTuningJob",
    "sagemaker:ListAssociations",
    "sagemaker:ListHubContents",
    "sagemaker:ListPipelineExecutionSteps",
    "sagemaker:ListPipelineExecutions",
    "sagemaker:ListPipelineParametersForExecution"
   ],
   "Resource": "*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}",
     "aws:PrincipalTag/EnableSageMakerMLWorkloadsPermissions": "true"
    }
```

```
    }
   },
   {
    "Sid": "SageMakerECRPermissions",
    "Effect": "Allow",
    "Action": [
     "ecr:BatchGetImage",
     "ecr:DescribeImages",
     "ecr:GetDownloadUrlForLayer"
    ],
    "Resource": "arn:aws:ecr:*:*:repository/*"
   },
   {
    "Sid": "SageMakerECRGetAuthorizationTokenPermissions",
    "Effect": "Allow",
    "Action": [
     "ecr:GetAuthorizationToken"
    ],
    "Resource": "*",
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   },
   {
    "Sid": "AmazonSageMakerModelRegistryResourceGroupGetPermission",
    "Effect": "Allow",
    "Action": [
     "resource-groups:GetGroupQuery"
    ],
    "Resource": "arn:aws:resource-groups:*:*:group/*",
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}",
      "aws:PrincipalTag/EnableSageMakerMLWorkloadsPermissions": "true"
     }
    }
   },
   {
    "Sid": "AmazonSageMakerModelRegistryResourceGroupListPermission",
    "Effect": "Allow",
    "Action": [
     "resource-groups:ListGroupResources"
```

```
    ],
    "Resource": "*",
    "Condition": {
     "StringEquals": {
      "aws:PrincipalTag/EnableSageMakerMLWorkloadsPermissions": "true"
     }
    }
   },
   {
    "Sid": "AmazonSageMakerModelRegistryResourceGroupWritePermission",
    "Effect": "Allow",
    "Action": [
     "resource-groups:CreateGroup",
     "resource-groups:Tag"
    ],
    "Resource": "arn:aws:resource-groups:*:*:group/*",
    "Condition": {
     "Null": {
      "aws:ResourceTag/sagemaker:collection": "false"
     },
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}",
      "aws:PrincipalTag/EnableSageMakerMLWorkloadsPermissions": "true"
     }
    }
   },
   {
    "Sid": "AmazonSageMakerModelRegistryResourceGroupDeletePermission",
    "Effect": "Allow",
    "Action": [
     "resource-groups:DeleteGroup"
    ],
    "Resource": "arn:aws:resource-groups:*:*:group/*",
    "Condition": {
     "Null": {
      "aws:ResourceTag/sagemaker:collection": "false"
     },
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}",
      "aws:PrincipalTag/EnableSageMakerMLWorkloadsPermissions": "true"
     }
    }
   },
   {
```

```
    "Sid": "SageMakerMLFlowModelRegistrationPermission",
    "Effect": "Allow",
    "Action": [
     "sagemaker:DescribeModelPackageGroup"
    ],
    "Resource": "arn:aws:sagemaker:*:*:model-package-group/*",
    "Condition": {
     "StringEquals": {
      "aws:PrincipalTag/EnableSageMakerMLWorkloadsPermissions": "true"
     }
    }
   },
   {
    "Sid": "SageMakerStudioCreatePresignedDomainUrlForUserProfile",
    "Effect": "Allow",
    "Action": [
     "sagemaker:CreatePresignedDomainUrl"
    ],
    "Resource": "arn:aws:sagemaker:*:*:user-profile/*/${aws:PrincipalTag/
datazone:userId}",
    "Condition": {
     "StringEquals": {
      "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}",
      "aws:PrincipalTag/EnableSageMakerMLWorkloadsPermissions": "true"
     }
    }
   },
   {
    "Sid": "SageMakerStudioCreatePresignedDomainUrlForTaggedUserProfile",
    "Effect": "Allow",
    "Action": [
     "sagemaker:CreatePresignedDomainUrl"
    ],
    "Resource": "arn:aws:sagemaker:*:*:user-profile/*",
    "Condition": {
     "StringEquals": {
      "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}",
      "aws:ResourceTag/AmazonDataZoneUser": "${aws:PrincipalTag/datazone:userId}",
      "aws:PrincipalTag/EnableSageMakerMLWorkloadsPermissions": "true"
     }
    }
   },
```

```
  {
   "Sid": "SageMakerStudioAppListActionsPermissions",
   "Effect": "Allow",
   "Action": [
    "sagemaker:ListApps",
    "sagemaker:ListDomains",
    "sagemaker:ListUserProfiles",
    "sagemaker:ListSpaces"
   ],
   "Resource": "*"
  },
  {
   "Sid": "SageMakerStudioAppDescribeDomainActionsPermissions",
   "Effect": "Allow",
   "Action": [
    "sagemaker:DescribeDomain"
   ],
   "Resource": "*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
    }
   }
  },
  {
   "Sid": "SageMakerStudioAppDescribeJupyterLabAppActionPermissions",
   "Effect": "Allow",
   "Action": [
    "sagemaker:DescribeApp"
   ],
   "Resource": [
    "arn:aws:sagemaker:*:*:app/*/*/codeeditor/*",
    "arn:aws:sagemaker:*:*:app/*/*/CodeEditor/*",
    "arn:aws:sagemaker:*:*:app/*/*/jupyterlab/*",
    "arn:aws:sagemaker:*:*:app/*/*/JupyterLab/*"
   ]
  },
  {
   "Sid": "SageMakerStudioAppDescribeUserProfileActionPermissions",
   "Effect": "Allow",
   "Action": [
    "sagemaker:DescribeUserProfile"
   ],
```

```
   "Resource": "arn:aws:sagemaker:*:*:user-profile/*/${aws:PrincipalTag/
datazone:userId}",
   "Condition": {
    "StringEquals": {
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
    }
   }
  },
  {
   "Sid": "SageMakerStudioAppDescribeTaggedUserProfilePermissions",
   "Effect": "Allow",
   "Action": [
    "sagemaker:DescribeUserProfile"
   ],
   "Resource": "arn:aws:sagemaker:*:*:user-profile/*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}",
     "aws:ResourceTag/AmazonDataZoneUser": "${aws:PrincipalTag/datazone:userId}"
    }
   }
  },
  {
   "Sid": "SMStudioAppDescribeSpaceActionPermissions",
   "Effect": "Allow",
   "Action": [
    "sagemaker:DescribeSpace"
   ],
   "Resource": "*"
  },
  {
   "Sid": "SageMakerTagPermissions",
   "Effect": "Allow",
   "Action": [
    "sagemaker:AddTags",
    "sagemaker:DeleteTags"
   ],
   "Resource": "*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
```

```
    },
    "ForAllValues:StringNotLike": {
     "aws:TagKeys": [
      "AmazonDataZone*",
      "sagemaker:shared-with:*"
     ]
    },
    "ForAllValues:StringLike": {
     "aws:TagKeys": [
      "ProjectUserTag*",
      "sagemaker*",
      "sm-jumpstart*",
      "endpoint-has-jumpstart-model"
     ]
    }
   }
  },
  {
   "Sid": "SageMakerStudioAllowCreatingDeletingOwnerUserProfile",
   "Effect": "Allow",
   "Action": [
    "sagemaker:CreateUserProfile",
    "sagemaker:DeleteUserProfile"
   ],
   "Resource": "arn:aws:sagemaker:*:*:user-profile/*/${aws:PrincipalTag/
datazone:userId}",
   "Condition": {
    "StringEquals": {
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
    }
   }
  },
  {
   "Sid": "SageMakerStudioAllowCreatingDeletingTaggedOwnerUserProfile",
   "Effect": "Allow",
   "Action": [
    "sagemaker:CreateUserProfile",
    "sagemaker:DeleteUserProfile"
   ],
   "Resource": "arn:aws:sagemaker:*:*:user-profile/*",
   "Condition": {
    "StringEquals": {
```

```
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}",
     "aws:ResourceTag/AmazonDataZoneUser": "${aws:PrincipalTag/datazone:userId}"
    }
   }
  },
  {
   "Sid": "SageMakerStudioRestrictPrivateSpaceToOwnerUserProfile",
   "Effect": "Allow",
   "Action": [
    "sagemaker:CreateSpace",
    "sagemaker:UpdateSpace",
    "sagemaker:DeleteSpace"
   ],
   "Resource": "arn:aws:sagemaker:*:*:space/*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}",
     "sagemaker:SpaceSharingType": [
      "Private"
     ]
    },
    "ArnLike": {
     "sagemaker:OwnerUserProfileArn": "arn:aws:sagemaker:*:*:user-profile/*/
${aws:PrincipalTag/datazone:userId}"
    }
   }
  },
  {
   "Sid": "SageMakerStudioRestrictPrivateSpaceToOwnerUser",
   "Effect": "Allow",
   "Action": [
    "sagemaker:CreateSpace",
    "sagemaker:UpdateSpace",
    "sagemaker:DeleteSpace"
   ],
   "Resource": "arn:aws:sagemaker:*:*:space/*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}",
     "aws:ResourceTag/AmazonDataZoneUser": "${aws:PrincipalTag/datazone:userId}",
     "sagemaker:SpaceSharingType": [
```

```
      "Private"
     ]
    }
   }
  },
  {
   "Sid": "SageMakerStudioRestrictPrivateSpaceAppsToOwnerUserProfile",
   "Effect": "Allow",
   "Action": [
    "sagemaker:CreateApp",
    "sagemaker:DeleteApp"
   ],
   "Resource": [
    "arn:aws:sagemaker:*:*:app/*/*/codeeditor/*",
    "arn:aws:sagemaker:*:*:app/*/*/CodeEditor/*",
    "arn:aws:sagemaker:*:*:app/*/*/jupyterlab/*",
    "arn:aws:sagemaker:*:*:app/*/*/JupyterLab/*"
   ],
   "Condition": {
    "StringEquals": {
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}",
     "sagemaker:SpaceSharingType": [
      "Private"
     ]
    },
    "ArnLike": {
     "sagemaker:OwnerUserProfileArn": "arn:aws:sagemaker:*:*:user-profile/*/
${aws:PrincipalTag/datazone:userId}"
    }
   }
  },
  {
   "Sid": "SageMakerStudioRestrictPrivateSpaceAppsToOwnerUser",
   "Effect": "Allow",
   "Action": [
    "sagemaker:CreateApp",
    "sagemaker:DeleteApp"
   ],
   "Resource": [
    "arn:aws:sagemaker:*:*:app/*/*/CodeEditor/*",
    "arn:aws:sagemaker:*:*:app/*/*/codeeditor/*",
    "arn:aws:sagemaker:*:*:app/*/*/jupyterlab/*",
    "arn:aws:sagemaker:*:*:app/*/*/JupyterLab/*"
```

```
    ],
    "Condition": {
     "StringEquals": {
      "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}",
      "aws:ResourceTag/AmazonDataZoneUser": "${aws:PrincipalTag/datazone:userId}",
      "sagemaker:SpaceSharingType": [
       "Private"
      ]
     }
    }
   },
   {
    "Sid": "PublishSagemakerMetric",
    "Effect": "Allow",
    "Action": [
     "cloudwatch:PutMetricData"
    ],
    "Resource": "*",
    "Condition": {
     "StringLike": {
      "cloudwatch:namespace": "/aws/sagemaker/*"
     }
    }
   },
   {
    "Sid": "ManageSageMakerEndpointsAutoscalingAlarms",
    "Effect": "Allow",
    "Action": [
     "cloudwatch:DescribeAlarms"
    ],
    "Resource": "*",
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   },
   {
    "Sid": "MutateSageMakerEndpointsAutoscalingAlarms",
    "Effect": "Allow",
    "Action": [
     "cloudwatch:PutMetricAlarm",
     "cloudwatch:DeleteAlarms"
```

```
    ],
    "Resource": "arn:aws:cloudwatch:*:*:alarm:TargetTracking*",
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}",
      "aws:CalledViaLast": "application-autoscaling.amazonaws.com"
     }
    }
   },
   {
    "Sid": "SSMPermissions",
    "Effect": "Allow",
    "Action": [
     "ssm:GetParameter",
     "ssm:GetParameters",
     "ssm:GetParametersByPath"
    ],
    "Resource": "arn:aws:ssm:*::parameter/aws/service/sagemaker-distribution/*"
   },
   {
    "Sid": "SageMakerJumpstartS3Access",
    "Effect": "Allow",
    "Action": [
     "s3:GetObject"
    ],
    "Resource": [
     "arn:aws:s3:::jumpstart-cache-prod-*/*"
    ],
    "Condition": {
     "StringNotEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   },
   {
    "Sid": "SageMakerCrossAccountPermissions",
    "Effect": "Allow",
    "Action": [
     "sagemaker:DescribeModelPackage",
     "sagemaker:DescribeModelPackageGroup",
     "sagemaker:BatchDescribeModelPackage",
     "sagemaker:ListModelPackages",
     "sagemaker:CreateModel"
    ],
```

```
    "Resource": "*",
    "Condition": {
     "StringNotEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   },
   {
    "Sid": "SageMakerListTagsRestrictionOnSharedResources",
    "Effect": "Allow",
    "Action": [
     "sagemaker:ListTags"
    ],
    "Resource": [
     "*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
     }
    }
   },
   {
    "Sid": "SageMakerAutoScalingPermissionsWithserviceNamespace",
    "Effect": "Allow",
    "Action": [
     "application-autoscaling:DeregisterScalableTarget",
     "application-autoscaling:PutScalingPolicy",
     "application-autoscaling:PutScheduledAction",
     "application-autoscaling:RegisterScalableTarget"
    ],
    "Resource": "arn:aws:application-autoscaling:*:*:scalable-target/*",
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}",
      "application-autoscaling:service-namespace": "sagemaker"
     }
    }
   },
   {
    "Sid": "SageMakerAutoScalingPermissions",
    "Effect": "Allow",
    "Action": [
```

```
    "application-autoscaling:DescribeScalableTargets",
    "application-autoscaling:DescribeScalingActivities",
    "application-autoscaling:DescribeScalingPolicies",
    "application-autoscaling:DescribeScheduledActions"
   ],
   "Resource": "arn:aws:application-autoscaling:*:*:scalable-target/*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "SageMakerSLRForAutoScalingPermissions",
   "Effect": "Allow",
   "Action": "iam:CreateServiceLinkedRole",
   "Resource": "arn:aws:iam::*:role/aws-service-role/sagemaker.application-
autoscaling.amazonaws.com/AWSServiceRoleForApplicationAutoScaling_SageMakerEndpoint",
   "Condition": {
    "StringLike": {
     "iam:AWSServiceName": "sagemaker.application-autoscaling.amazonaws.com"
    }
   }
  },
  {
   "Sid": "SageMakerKmsPermissions",
   "Effect": "Allow",
   "Action": [
    "kms:CreateGrant"
   ],
   "Resource": "arn:aws:kms:*:*:key/${aws:PrincipalTag/KmsKeyId}",
   "Condition": {
    "StringLike": {
     "kms:ViaService": [
      "sagemaker.*.amazonaws.com"
     ]
    },
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  }
 ]
}
```

AWS policy: SageMakerStudioDomainServiceRolePolicy

This is the default policy for the SageMakerUnifiedStudioDomainServiceRole service role. This policy is used by Amazon SageMaker Unified Studio to access the SSM parameters in the user's account. Those parameters are set by the administrator in the Amazon SageMaker Unified Studio project profiles. This policy also has permissions to AWS KMS for encrypted SSM parameters. The KMS key must be tagged with EnableKeyForAmazonDataZone to allow decrypting the SSM parameters.

```
{
 "Version": "2012-10-17",
 "Statement": [
  {
   "Sid": "SSMGetParameterStatement",
   "Effect": "Allow",
   "Action": [
    "ssm:GetParameter"
   ],
   "Resource": [
    "arn:aws:ssm:*:*:parameter/amazon/datazone/profiles/*"
   ]
  },
  {
   "Sid": "UseKMSKeyPermissionsStatement",
   "Effect": "Allow",
   "Action": [
    "kms:Decrypt"
   ],
   "Resource": "*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceTag/EnableKeyForAmazonDataZone": "true"
    },
    "Null": {
     "aws:ResourceTag/EnableKeyForAmazonDataZone": "false"
    },
    "StringLike": {
     "kms:ViaService": "ssm.*.amazonaws.com",
```

```
     "kms:EncryptionContext:PARAMETER_ARN": "arn:aws:ssm:*:*:parameter/amazon/datazone/
profiles*"
    }
   }
  }
 ]
}
```

AWS policy: SageMakerStudioProjectProvisioningRolePolicy

Amazon SageMaker Unified Studio uses this policy to provision and manage resources in your account.

This is the default policy for the AmazonSageMakerProvisioning-<domainAccountId> service role. This role is used by Amazon SageMaker Unified Studio to manage resources in your account created as part of projects lifecycle. This role provides access to manage resources for all services used in Amazon SageMaker Unified Studio, including Amazon SageMaker, AWS Glue, Amazon S3, AWS Lake Formation, Amazon Redshift, Amazon Athena, Amazon Q, Amazon EMR, Amazon Bedrock, AWS CodeCommit, and AWS IAM.

- Amazon SageMaker permissions are required to manage the SageMaker Domain and Spaces provisioned by default by the Tooling blueprint.
- AWS Glue permissions are required to manage AWS Glue Connections, AWS Glue Catalog, and AWS Glue Databases.
- Amazon S3 permissions are required to access S3 objects to provision Amazon Bedrock resources, federated AWS Glue connection, and to create the staging bucket for Amazon Redshift.
- AWS Lake Formation permissions are required to manage grants on AWS Glue Data Catalog.
- Amazon Redshift permissions are required to provision Amazon Redshift Serverless workgroup and namespace.
- Amazon Athena permissions are required to provision Amazon Athena workgroup and Amazon Athena data catalog for federated connection.
- Amazon EMR permissions are required to provision Amazon EMR on EC2 clusters.
- AWS KMS permissions are required to use CMK in the various services integrated with Amazon SageMaker Unified Studio.
- AWS CodeCommit permissions are required to provision the default Git repository.
- AWS Secrets Manager permissions are required to provision the secret for various services, such as Amazon Redshift, AWS Glue federated data connections, and Amazon Bedrock.

- AWS IAM permissions are required to provision the roles that will be used by users of Amazon SageMaker Unified Studio.
- Amazon Bedrock permissions are required to provision Amazon Bedrock IDE related resources to enable discovery of Amazon Bedrock models and build generative AI apps that use Amazon Bedrock models and features.

```
{
 "Version": "2012-10-17",
 "Statement": [
  {
   "Sid": "CfnCreate",
   "Effect": "Allow",
   "Action": [
    "cloudformation:CreateStack",
    "cloudformation:TagResource"
   ],
   "Resource": [
    "arn:aws:cloudformation:*:*:stack/DataZone*"
   ],
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false",
     "aws:TagKeys": "false"
    },
    "ForAllValues:StringLike": {
     "aws:TagKeys": [
      "AmazonDataZone*"
     ]
    }
   }
  },
  {
   "Sid": "CfnManage",
   "Effect": "Allow",
   "Action": [
    "cloudformation:DescribeStacks",
    "cloudformation:DescribeStackEvents",
```

```
    "cloudformation:UpdateStack"
   ],
   "Resource": [
    "arn:aws:cloudformation:*:*:stack/DataZone*"
   ],
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false"
    }
   }
  },
  {
   "Sid": "CfnDelete",
   "Effect": "Allow",
   "Action": [
    "cloudformation:DeleteStack",
    "cloudformation:DescribeStacks"
   ],
   "Resource": [
    "arn:aws:cloudformation:*:*:stack/DataZone*"
   ],
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "LFManage",
   "Effect": "Allow",
   "Action": [
    "lakeformation:GetDataLakeSettings",
    "lakeformation:PutDataLakeSettings",
    "lakeformation:RevokePermissions",
    "lakeformation:BatchRevokePermissions",
    "lakeformation:ListPermissions",
    "lakeformation:RegisterResource",
    "lakeformation:DeregisterResource",
    "lakeformation:GrantPermissions",
    "lakeformation:BatchGrantPermissions",
    "lakeformation:ListResources",
```

```
    "lakeformation:DescribeResource"
   ],
   "Resource": "*"
  },
  {
   "Sid": "GetDataZoneTemplate",
   "Effect": "Allow",
   "Action": "s3:GetObject",
   "Resource": "*",
   "Condition": {
    "StringNotEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "StringEquals": {
     "aws:CalledViaFirst": "cloudformation.amazonaws.com"
    }
   }
  },
  {
   "Sid": "CodeCommitCreate",
   "Effect": "Allow",
   "Action": [
    "codecommit:CreateRepository",
    "codecommit:TagResource"
   ],
   "Resource": "arn:aws:codecommit:*:*:datazone*",
   "Condition": {
    "StringEquals": {
     "aws:CalledViaFirst": "cloudformation.amazonaws.com",
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false",
     "aws:TagKeys": "false"
    },
    "ForAllValues:StringLike": {
     "aws:TagKeys": [
      "AmazonDataZone*"
     ]
    }
   }
  },
  {
   "Sid": "CodeCommitDeletion",
```

```
    "Effect": "Allow",
    "Action": [
     "codecommit:DeleteRepository",
     "codecommit:UpdateRepositoryEncryptionKey",
     "codecommit:PutRepositoryTriggers"
    ],
    "Resource": "arn:aws:codecommit:*:*:datazone*",
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com",
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     },
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false"
     }
    }
   },
   {
    "Sid": "CodeCommitAccess",
    "Effect": "Allow",
    "Action": [
     "codecommit:GetBranch",
     "codecommit:CreateCommit",
     "codecommit:GetRepository",
     "codecommit:GetFile"
    ],
    "Resource": "arn:aws:codecommit:*:*:datazone*",
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   },
   {
    "Sid": "CodeCommitList",
    "Effect": "Allow",
    "Action": [
     "codecommit:ListRepositories"
    ],
    "Resource": "*"
   },
   {
    "Sid": "CodeCommitKms",
    "Effect": "Allow",
```

```
    "Action": [
     "kms:Decrypt",
     "kms:ReEncryptTo",
     "kms:ReEncryptFrom",
     "kms:GenerateDataKey"
    ],
    "Resource": "*",
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     },
     "StringLike": {
      "kms:ViaService": [
       "codecommit.*.amazonaws.com"
      ]
     },
     "Null": {
      "kms:EncryptionContext:aws:codecommit:id": "false"
     }
    }
   },
   {
    "Sid": "GetIAMRole",
    "Effect": "Allow",
    "Action": [
     "iam:GetRole"
    ],
    "Resource": [
     "arn:aws:iam::*:role/datazone*",
     "arn:aws:iam::*:role/AmazonBedrock*",
     "arn:aws:iam::*:role/BedrockStudio*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com"
     }
    }
   },
   {
    "Sid": "IAMManage",
    "Effect": "Allow",
    "Action": [
     "iam:CreateRole",
     "iam:DetachRolePolicy",
```

```
    "iam:DeleteRolePolicy",
    "iam:AttachRolePolicy",
    "iam:PutRolePolicy"
   ],
   "Resource": [
    "arn:aws:iam::*:role/datazone*",
    "arn:aws:iam::*:role/AmazonBedrockExecution*",
    "arn:aws:iam::*:role/BedrockStudio*",
    "arn:aws:iam::*:role/AmazonBedrockConsumptionRole*",
    "arn:aws:iam::*:role/AmazonBedrockEvaluation*"
   ],
   "Condition": {
    "StringEquals": {
     "aws:CalledViaFirst": "cloudformation.amazonaws.com",
     "iam:PermissionsBoundary": "arn:aws:iam::aws:policy/
SageMakerStudioProjectUserRolePermissionsBoundary"
    },
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false"
    }
   }
  },
  {
   "Sid": "IAMManageFromDataZone",
   "Effect": "Allow",
   "Action": [
    "iam:DeleteRolePolicy",
    "iam:PutRolePolicy"
   ],
   "Resource": [
    "arn:aws:iam::*:role/datazone*"
   ],
   "Condition": {
    "StringEquals": {
     "iam:PermissionsBoundary": "arn:aws:iam::aws:policy/
SageMakerStudioProjectUserRolePermissionsBoundary"
    },
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false"
    }
   }
  },
  {
   "Sid": "IAMRoleCreation",
```

```
    "Effect": "Allow",
    "Action": [
     "iam:CreateRole"
    ],
    "Resource": [
     "arn:aws:iam::*:role/datazone*",
     "arn:aws:iam::*:role/AmazonBedrock*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com"
     },
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false"
     }
    }
   },
   {
    "Sid": "IAMRoleManagement",
    "Effect": "Allow",
    "Action": [
     "iam:DetachRolePolicy",
     "iam:AttachRolePolicy"
    ],
    "Resource": [
     "arn:aws:iam::*:role/datazone*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com"
     },
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false"
     },
     "ArnEquals": {
      "iam:PolicyARN": [
       "arn:aws:iam::aws:policy/SageMakerStudioProjectUserRolePolicy",
       "arn:aws:iam::aws:policy/SageMakerStudioProjectRoleMachineLearningPolicy",
       "arn:aws:iam::aws:policy/service-role/SageMakerStudioEMRServiceRolePolicy",
       "arn:aws:iam::aws:policy/service-role/SageMakerStudioEMRInstanceRolePolicy",
       "arn:aws:iam::aws:policy/service-role/AmazonEMRServicePolicy_v2",
       "arn:aws:iam::aws:policy/AmazonSageMakerPartnerAppsFullAccess",
       "arn:aws:iam::aws:policy/service-role/
SageMakerStudioBedrockKnowledgeBaseServiceRolePolicy"
```

```
      ]
     }
    }
   },
   {
    "Sid": "IAMRoleManagementForBedrock",
    "Effect": "Allow",
    "Action": [
     "iam:AttachRolePolicy",
     "iam:DetachRolePolicy"
    ],
    "Resource": "arn:aws:iam::*:role/AmazonBedrock*",
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com"
     },
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false"
     },
     "ArnEquals": {
      "iam:PolicyARN": [
       "arn:aws:iam::aws:policy/service-role/AWSLambdaBasicExecutionRole",
       "arn:aws:iam::aws:policy/service-role/
SageMakerStudioBedrockAgentServiceRolePolicy",
       "arn:aws:iam::aws:policy/service-role/
SageMakerStudioBedrockChatAgentUserRolePolicy",
       "arn:aws:iam::aws:policy/service-role/
SageMakerStudioBedrockFlowServiceRolePolicy",
       "arn:aws:iam::aws:policy/service-role/
SageMakerStudioBedrockFunctionExecutionRolePolicy",
       "arn:aws:iam::aws:policy/service-role/
SageMakerStudioBedrockKnowledgeBaseServiceRolePolicy",
       "arn:aws:iam::aws:policy/service-role/
SageMakerStudioBedrockKnowledgeBaseCustomResourcePolicy",
       "arn:aws:iam::aws:policy/service-role/
SageMakerStudioBedrockPromptUserRolePolicy",
       "arn:aws:iam::aws:policy/service-role/
SageMakerStudioBedrockEvaluationJobServiceRolePolicy"
      ]
     }
    }
   },
   {
    "Sid": "IAMRoleTagging",
```

```
    "Effect": "Allow",
    "Action": [
     "iam:TagRole",
     "iam:UntagRole"
    ],
    "Resource": [
     "arn:aws:iam::*:role/datazone_usr_role_*",
     "arn:aws:iam::*:role/datazone-partner-apps-*",
     "arn:aws:iam::*:role/datazone_redshift_serverless_admin_role_*",
     "arn:aws:iam::*:role/AmazonBedrock*",
     "arn:aws:iam::*:role/BedrockStudio*",
     "arn:aws:iam::*:role/SageMakerStudioQueryExecutionRole"
    ],
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com"
     },
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false",
      "aws:TagKeys": "false"
     },
     "ForAllValues:StringLike": {
      "aws:TagKeys": [
       "AmazonDataZone*",
       "AmazonBedrockManaged",
       "RedshiftDb*",
       "EnableAmazonBedrockPermissions",
       "EnableAmazonBedrockIDEPermissions",
       "EnableGlueWorkloadsPermissions",
       "EnableSageMakerMLWorkloadsPermissions",
       "DomainBucketName",
       "KmsKeyId",
       "LogGroupName",
       "RoleName",
       "vpcArn",
       "VpcId",
       "CreatedForUseWithSageMakerStudio",
       "SageMakerStudioQueryExecutionRole"
      ]
     }
    }
   },
   {
    "Sid": "IAMRoleTaggingForBedrock",
```

```
    "Effect": "Allow",
    "Action": [
     "iam:TagRole",
     "iam:UntagRole"
    ],
    "Resource": "arn:aws:iam::*:role/AmazonBedrock*",
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com"
     },
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false"
     },
     "ForAllValues:StringLike": {
      "aws:TagKeys": [
       "AmazonDataZone*",
       "AmazonBedrockManaged",
       "DomainBucketName",
       "KmsKeyId",
       "AgentId",
       "AgentAliasId",
       "AppDefinitionPath",
       "DataSourcePath",
       "PromptId",
       "PromptVersion",
       "PromptDefinitionPath",
       "OpenSearchServerlessCollectionId"
      ]
     }
    }
   },
   {
    "Sid": "IAMRoleTaggingForRedshift",
    "Effect": "Allow",
    "Action": "iam:TagRole",
    "Resource": [
     "arn:aws:iam::*:role/datazone_usr_role_*"
    ],
    "Condition": {
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false",
      "aws:TagKeys": "false"
     },
     "ForAllValues:StringLike": {
```

```
      "aws:TagKeys": [
       "RedshiftDb*"
      ]
     }
    }
   },
   {
    "Sid": "IAMRoleTaggingForEmr",
    "Effect": "Allow",
    "Action": [
     "iam:TagRole",
     "iam:UntagRole"
    ],
    "Resource": [
     "arn:aws:iam::*:role/datazone_emr_service_role_*",
     "arn:aws:iam::*:role/datazone_emr_ec2_instance_role_*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com"
     },
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false",
      "aws:TagKeys": "false"
     },
     "ForAllValues:StringLike": {
      "aws:TagKeys": [
       "AmazonDataZone*",
       "DataZone*",
       "for-use-with-amazon-emr-managed-policies",
       "DomainBucketName",
       "KmsKeyId",
       "VpcId"
      ]
     }
    }
   },
   {
    "Sid": "IAMRoleUntagging",
    "Effect": "Allow",
    "Action": "iam:UntagRole",
    "Resource": "arn:aws:iam::*:role/datazone_usr_role_*",
    "Condition": {
     "StringEquals": {
```

```
      "aws:CalledViaFirst": "cloudformation.amazonaws.com"
     },
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false"
     },
     "ForAllValues:StringLike": {
      "aws:TagKeys": "EnableAmazonBedrockIDEPermissions"
     }
    }
   },
   {
    "Sid": "IamManageRoles",
    "Effect": "Allow",
    "Action": [
     "iam:DeleteRole",
     "iam:ListRolePolicies",
     "iam:GetRolePolicy",
     "iam:ListAttachedRolePolicies"
    ],
    "Resource": [
     "arn:aws:iam::*:role/datazone*",
     "arn:aws:iam::*:role/AmazonBedrock*",
     "arn:aws:iam::*:role/BedrockStudio*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com"
     },
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false"
     }
    }
   },
   {
    "Sid": "IamManageRolesFromDataZone",
    "Effect": "Allow",
    "Action": [
     "iam:GetRole",
     "iam:UpdateAssumeRolePolicy"
    ],
    "Resource": [
     "arn:aws:iam::*:role/datazone_usr_role_*",
     "arn:aws:iam::*:role/datazone_emr_*",
     "arn:aws:iam::*:role/datazone-partner-apps-*",
```

```
     "arn:aws:iam::*:role/AmazonBedrock*"
    ],
    "Condition": {
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false"
     }
    }
   },
   {
    "Sid": "IamAttachPolicyFromService",
    "Effect": "Allow",
    "Action": [
     "iam:AttachRolePolicy"
    ],
    "Resource": [
     "arn:aws:iam::*:role/datazone*"
    ],
    "Condition": {
     "StringEquals": {
      "iam:PermissionsBoundary": "arn:aws:iam::aws:policy/
SageMakerStudioProjectUserRolePermissionsBoundary"
     }
    }
   },
   {
    "Sid": "IamDetachPolicyFromService",
    "Effect": "Allow",
    "Action": [
     "iam:DetachRolePolicy"
    ],
    "Resource": [
     "arn:aws:iam::*:role/datazone*",
     "arn:aws:iam::*:role/AmazonBedrock*"
    ]
   },
   {
    "Sid": "IAMPolicyManagementFromService",
    "Effect": "Allow",
    "Action": [
     "iam:DeletePolicy",
     "iam:CreatePolicy",
     "iam:ListPolicies",
     "iam:GetPolicy",
     "iam:GetPolicyVersion",
```

```
    "iam:CreatePolicyVersion",
    "iam:ListPolicyVersions",
    "iam:DeletePolicyVersion"
   ],
   "Resource": [
    "arn:aws:iam::*:policy/datazone*",
    "arn:aws:iam::*:policy/connector-manage-access-policy*",
    "arn:aws:iam::*:policy/SageMakerStudioQueryExecutionRolePolicy"
   ]
  },
  {
   "Sid": "IAMListPolicy",
   "Effect": "Allow",
   "Action": [
    "iam:ListPolicies"
   ],
   "Resource": "*"
  },
  {
   "Sid": "GlueConnection",
   "Effect": "Allow",
   "Action": [
    "glue:ListConnectionTypes",
    "glue:DescribeConnectionType"
   ],
   "Resource": "*"
  },
  {
   "Sid": "IAMInstanceProfile",
   "Effect": "Allow",
   "Action": [
    "iam:GetInstanceProfile",
    "iam:CreateInstanceProfile",
    "iam:AddRoleToInstanceProfile",
    "iam:RemoveRoleFromInstanceProfile",
    "iam:DeleteInstanceProfile"
   ],
   "Resource": "arn:aws:iam::*:instance-profile/datazone_emr_ec2_instance_profile_*",
   "Condition": {
    "StringEquals": {
     "aws:CalledViaFirst": "cloudformation.amazonaws.com"
    }
   }
  },
```

```
{
 "Sid": "IamPassRole",
 "Effect": "Allow",
 "Action": "iam:PassRole",
 "Resource": [
  "arn:aws:iam::*:role/datazone_usr_role_*",
  "arn:aws:iam::*:role/SageMakerStudioQueryExecutionRole"
 ],
 "Condition": {
  "StringEquals": {
   "aws:CalledViaFirst": [
    "cloudformation.amazonaws.com",
    "glue.amazonaws.com"
   ],
   "iam:PassedToService": [
    "glue.amazonaws.com",
    "lakeformation.amazonaws.com",
    "redshift-serverless.amazonaws.com",
    "redshift.amazonaws.com",
    "emr-serverless.amazonaws.com",
    "airflow.amazonaws.com"
   ]
  }
 }
},
{
 "Sid": "IamPassRoleFromDataZone",
 "Effect": "Allow",
 "Action": "iam:PassRole",
 "Resource": [
  "arn:aws:iam::*:role/datazone_usr_role_*"
 ],
 "Condition": {
  "StringEquals": {
   "iam:PassedToService": [
    "sagemaker.amazonaws.com",
    "redshift-serverless.amazonaws.com",
    "bedrock.amazonaws.com"
   ]
  }
 }
},
{
 "Sid": "IamPassRoleForGlueCatalog",
```

```
    "Effect": "Allow",
    "Action": "iam:PassRole",
    "Resource": [
     "arn:aws:iam::*:role/datazone_usr_role_*",
     "arn:aws:iam::*:role/SageMakerStudioQueryExecutionRole",
     "arn:aws:iam::*:role/service-role/AmazonSageMakerQueryExecution"
    ],
    "Condition": {
     "StringEquals": {
      "iam:PassedToService": [
       "glue.amazonaws.com",
       "lakeformation.amazonaws.com"
      ]
     }
    }
   },
   {
    "Sid": "IamPassRoleForEmrServiceRole",
    "Effect": "Allow",
    "Action": "iam:PassRole",
    "Resource": [
     "arn:aws:iam::*:role/datazone_emr_service_role_*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com",
      "iam:PassedToService": [
       "elasticmapreduce.amazonaws.com"
      ]
     }
    }
   },
   {
    "Sid": "IamPassRoleForEmrInstanceRole",
    "Effect": "Allow",
    "Action": "iam:PassRole",
    "Resource": [
     "arn:aws:iam::*:role/datazone_emr_ec2_instance_role_*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com",
      "iam:PassedToService": [
       "ec2.amazonaws.com"
```

```
      ]
     }
    }
   },
   {
    "Sid": "IamPassRoleToBedrock",
    "Effect": "Allow",
    "Action": "iam:PassRole",
    "Resource": [
     "arn:aws:iam::*:role/AmazonBedrock*",
     "arn:aws:iam::*:role/BedrockStudio*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com",
      "iam:PassedToService": "bedrock.amazonaws.com"
     }
    }
   },
   {
    "Sid": "IamPassRoleToLambda",
    "Effect": "Allow",
    "Action": "iam:PassRole",
    "Resource": [
     "arn:aws:iam::*:role/AmazonBedrock*",
     "arn:aws:iam::*:role/BedrockStudio*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com",
      "iam:PassedToService": "lambda.amazonaws.com"
     }
    }
   },
   {
    "Sid": "IamCreateSLRForAoss",
    "Effect": "Allow",
    "Action": "iam:CreateServiceLinkedRole",
    "Resource": "arn:aws:iam::*:role/aws-service-role/observability.aoss.amazonaws.com/
AWSServiceRoleForAmazonOpenSearchServerless",
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com",
      "iam:AWSServiceName": "observability.aoss.amazonaws.com"
```

```
    }
   }
  },
  {
   "Sid": "GlueDefaultDatabaseCreation",
   "Effect": "Allow",
   "Action": [
    "glue:CreateDatabase",
    "glue:GetDatabase"
   ],
   "Resource": [
    "arn:aws:glue:*:*:database/default",
    "arn:aws:glue:*:*:catalog"
   ],
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "GlueDbCreateFromCfn",
   "Effect": "Allow",
   "Action": [
    "glue:CreateDatabase"
   ],
   "Resource": [
    "arn:aws:glue:*:*:database/*"
   ],
   "Condition": {
    "StringEquals": {
     "aws:CalledViaFirst": "cloudformation.amazonaws.com",
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "GlueGetDatabaseForTagging",
   "Effect": "Allow",
   "Action": [
    "glue:GetDatabase"
   ],
   "Resource": [
    "arn:aws:glue:*:*:database/*",
```

```
    "arn:aws:glue:*:*:catalog"
   ],
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "GlueDatabaseDeletion",
   "Effect": "Allow",
   "Action": [
    "glue:DeleteDatabase"
   ],
   "Resource": "*",
   "Condition": {
    "StringEquals": {
     "aws:CalledViaFirst": "cloudformation.amazonaws.com",
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "TagGlueResources",
   "Effect": "Allow",
   "Action": [
    "glue:TagResource"
   ],
   "Resource": "*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "Null": {
     "aws:RequestTag/AmazonDataZoneProject": "false",
     "aws:TagKeys": "false"
    },
    "ForAllValues:StringLike": {
     "aws:TagKeys": [
      "AmazonDataZone*"
     ]
    }
   }
  },
```

```
{
 "Sid": "GetGlueConnectionToAllowTagging",
 "Effect": "Allow",
 "Action": "glue:GetConnection",
 "Resource": [
  "arn:aws:glue:*:*:catalog",
  "arn:aws:glue:*:*:connection/datazone-glue-network-connection-*"
 ],
 "Condition": {
  "StringEquals": {
   "aws:ResourceAccount": "${aws:PrincipalAccount}"
  }
 }
},
{
 "Sid": "GlueConnectionCreateAndDelete",
 "Effect": "Allow",
 "Action": [
  "glue:CreateConnection",
  "glue:DeleteConnection"
 ],
 "Resource": [
  "arn:aws:glue:*:*:connection/datazone-glue-network-connection-*",
  "arn:aws:glue:*:*:catalog"
 ],
 "Condition": {
  "StringEquals": {
   "aws:ResourceAccount": "${aws:PrincipalAccount}",
   "aws:CalledViaFirst": "cloudformation.amazonaws.com"
  }
 }
},
{
 "Sid": "FederatedGlueConnection",
 "Action": [
  "glue:PassConnection",
  "glue:GetConnections",
  "glue:GetTags"
 ],
 "Resource": [
  "arn:aws:glue:*:*:connection/*",
  "arn:aws:glue:*:*:catalog/*"
 ],
 "Effect": "Allow",
```

```
    "Condition": {
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false"
     }
    }
   },
   {
    "Sid": "FederatedAthenaConnection",
    "Action": [
     "athena:CreateDataCatalog"
    ],
    "Resource": "*",
    "Effect": "Allow",
    "Condition": {
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false"
     }
    }
   },
   {
    "Sid": "FederatedGetConnection",
    "Effect": "Allow",
    "Action": [
     "glue:GetConnection"
    ],
    "Resource": [
     "arn:aws:glue:*:*:connection/*",
     "arn:aws:glue:*:*:catalog/*"
    ]
   },
   {
    "Sid": "FederatedConnectionTag",
    "Effect": "Allow",
    "Action": [
     "athena:TagResource"
    ],
    "Resource": "arn:aws:athena:*:*:datacatalog/*",
    "Condition": {
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false",
      "aws:TagKeys": "false"
     },
     "ForAllValues:StringLike": {
      "aws:TagKeys": [
```

```
      "AmazonDataZone*",
      "federated_athena*"
     ]
    }
   }
  },
  {
   "Sid": "FederatedConnectionCreate",
   "Effect": "Allow",
   "Action": [
    "glue:CreateConnection"
   ],
   "Resource": [
    "arn:aws:glue:*:*:catalog",
    "arn:aws:glue:*:*:connection/*"
   ],
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "Null": {
     "aws:RequestTag/AmazonDataZoneProject": "false"
    }
   }
  },
  {
   "Sid": "FederatedConnectionManage",
   "Effect": "Allow",
   "Action": [
    "glue:DeleteConnection",
    "glue:UpdateConnection"
   ],
   "Resource": [
    "arn:aws:glue:*:*:connection/*"
   ],
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false"
    }
   }
  },
```

```
{
 "Sid": "FederatedConnectionManageCatalog",
 "Effect": "Allow",
 "Action": [
  "glue:DeleteConnection",
  "glue:UpdateConnection"
 ],
 "Resource": [
  "arn:aws:glue:*:*:catalog"
 ],
 "Condition": {
  "StringEquals": {
   "aws:ResourceAccount": "${aws:PrincipalAccount}"
  }
 }
},
{
 "Sid": "GlueKms",
 "Effect": "Allow",
 "Action": [
  "kms:Decrypt"
 ],
 "Resource": "*",
 "Condition": {
  "StringEquals": {
   "aws:ResourceAccount": "${aws:PrincipalAccount}",
   "kms:EncryptionContext:glue_catalog_id": "${aws:PrincipalAccount}"
  },
  "StringLike": {
   "kms:ViaService": [
    "glue.*.amazonaws.com"
   ]
  }
 }
},
{
 "Sid": "FederatedDBAthenaServerless",
 "Effect": "Allow",
 "Action": [
  "serverlessrepo:GetCloudFormationTemplate",
  "serverlessrepo:CreateCloudFormationTemplate"
 ],
 "Resource": [
  "arn:aws:serverlessrepo:*:*:applications/Athena*"
```

```
    ]
   },
   {
    "Sid": "FederatedDBECR",
    "Effect": "Allow",
    "Action": [
     "imagebuilder:GetComponent",
     "imagebuilder:GetContainerRecipe",
     "ecr:GetAuthorizationToken",
     "ecr:BatchGetImage",
     "ecr:BatchCheckLayerAvailability",
     "ecr:GetDownloadUrlForLayer"
    ],
    "Resource": [
     "arn:aws:ecr:*:*:repository/athena-federation-repository*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:CalledViaLast": "lambda.amazonaws.com"
     }
    }
   },
   {
    "Sid": "FederatedDBAthenaCFN",
    "Effect": "Allow",
    "Action": [
     "cloudformation:CreateChangeSet",
     "cloudformation:DeleteChangeSet"
    ],
    "Resource": [
     "arn:aws:cloudformation:*:*:transform/Serverless*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:CalledViaLast": "cloudformation.amazonaws.com"
     }
    }
   },
   {
    "Sid": "FederatedDBAthenaLambda",
    "Effect": "Allow",
    "Action": [
     "lambda:CreateFunction",
     "lambda:DeleteFunction"
```

```
    ],
    "Resource": [
     "arn:aws:lambda:*:*:function:athenafederatedcatalog*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}",
      "aws:CalledViaLast": "cloudformation.amazonaws.com"
     },
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false"
     }
    }
   },
   {
    "Sid": "FederatedDBAthenaGetFunctionLambda",
    "Effect": "Allow",
    "Action": [
     "lambda:GetFunction"
    ],
    "Resource": [
     "arn:aws:lambda:*:*:function:athenafederatedcatalog*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}",
      "aws:CalledViaLast": [
       "athena.amazonaws.com",
       "cloudformation.amazonaws.com"
      ]
     }
    }
   },
   {
    "Sid": "FederatedDBAthenaUpdateLambda",
    "Effect": "Allow",
    "Action": [
     "lambda:GetFunctionConfiguration",
     "lambda:UpdateFunctionConfiguration"
    ],
    "Resource": [
     "arn:aws:lambda:*:*:function:athenafederatedcatalog*"
    ],
    "Condition": {
```

```
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false"
    }
   }
  },
  {
   "Sid": "FederatedDBAthenaLambdaTagging",
   "Effect": "Allow",
   "Action": [
    "lambda:TagResource"
   ],
   "Resource": [
    "arn:aws:lambda:*:*:function:athenafederatedcatalog*"
   ],
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}",
     "aws:CalledViaLast": "cloudformation.amazonaws.com"
    },
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false",
     "aws:TagKeys": "false"
    },
    "ForAllValues:StringLike": {
     "aws:TagKeys": [
      "AmazonDataZone*",
      "aws:cloudformation:*",
      "federated_athena*",
      "lambda:createdBy"
     ]
    }
   }
  },
  {
   "Sid": "FederatedDBAthenaS3",
   "Effect": "Allow",
   "Action": [
    "s3:GetObject"
   ],
   "Resource": [
    "arn:aws:s3:::awsserverlessrepo*"
```

```
    ],
    "Condition": {
     "StringLike": {
      "aws:CalledViaLast": [
       "lambda.amazonaws.com"
      ]
     }
    }
   },
   {
    "Sid": "FederatedDBGlueS3",
    "Effect": "Allow",
    "Action": [
     "s3:ListBucket"
    ],
    "Resource": [
     "arn:aws:s3:::*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:CalledViaLast": [
       "glue.amazonaws.com"
      ],
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     },
     "Null": {
      "s3:prefix": "true"
     }
    }
   },
   {
    "Sid": "FederatedDBAthenaCommon",
    "Effect": "Allow",
    "Action": [
     "cloudformation:CreateStack",
     "cloudformation:DeleteStack",
     "cloudformation:DescribeStacks",
     "cloudformation:DescribeStackEvents"
    ],
    "Resource": "arn:aws:cloudformation:*:*:stack/athenafederatedcatalog*",
    "Condition": {
     "Null": {
      "aws:ResourceTag/federated_athena_datacatalog": "false"
     }
```

```
    }
   },
   {
    "Sid": "FederatedDBAthenaCatalog",
    "Effect": "Allow",
    "Action": [
     "athena:DeleteDataCatalog",
     "athena:GetDataCatalog",
     "athena:UpdateDataCatalog"
    ],
    "Resource": "arn:aws:athena:*:*:datacatalog/*",
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   },
   {
    "Sid": "FederatedDBPassRole",
    "Effect": "Allow",
    "Action": "iam:PassRole",
    "Resource": [
     "arn:aws:iam::*:role/datazone_usr_role_*"
    ],
    "Condition": {
     "StringEquals": {
      "iam:PassedToService": [
       "lambda.amazonaws.com"
      ]
     }
    }
   },
   {
    "Sid": "FederatedDBGetRole",
    "Action": [
     "iam:GetRole"
    ],
    "Resource": [
     "arn:aws:iam::*:role/SageMakerStudioQueryExecutionRole",
     "arn:aws:iam::*:role/service-role/AmazonSageMakerQueryExecution"
    ],
    "Effect": "Allow"
   },
   {
```

```
    "Sid": "GlueCatalogCreation",
    "Effect": "Allow",
    "Action": [
     "glue:CreateCatalog"
    ],
    "Resource": [
     "arn:aws:glue:*:*:catalog",
     "arn:aws:glue:*:*:catalog/*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     },
     "Null": {
      "aws:RequestTag/AmazonDataZoneProject": "false"
     }
    }
   },
   {
    "Sid": "GlueCatalogManagement",
    "Effect": "Allow",
    "Action": [
     "glue:GetCatalog",
     "glue:GetCatalogs",
     "glue:UpdateCatalog",
     "glue:DeleteCatalog",
     "glue:GetDatabase"
    ],
    "Resource": [
     "arn:aws:glue:*:*:catalog",
     "arn:aws:glue:*:*:catalog/*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   },
   {
    "Sid": "RedshiftManage",
    "Effect": "Allow",
    "Action": [
     "redshift-serverless:CreateNamespace",
     "redshift-serverless:CreateWorkgroup",
```

```
    "redshift-serverless:DeleteNamespace",
    "redshift-serverless:DeleteWorkgroup",
    "redshift-serverless:ListTagsForResource",
    "redshift-serverless:GetNamespace",
    "redshift-serverless:GetWorkgroup"
   ],
   "Resource": [
    "arn:aws:redshift-serverless:*:*:namespace/*",
    "arn:aws:redshift-serverless:*:*:workgroup/*"
   ],
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "RedshiftDataShare",
   "Effect": "Allow",
   "Action": [
    "redshift:AssociateDataShareConsumer",
    "redshift:AuthorizeDataShare"
   ],
   "Resource": [
    "arn:aws:redshift:*:*:datashare:*/*"
   ],
   "Condition": {
    "ForAnyValue:StringLike": {
     "aws:CalledVia": [
      "redshift-serverless.amazonaws.com",
      "glue.amazonaws.com"
     ]
    },
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "RedshiftBucket",
   "Effect": "Allow",
   "Action": [
    "s3:CreateBucket",
    "s3:DeleteBucket",
```

```
    "s3:PutBucketPolicy",
    "s3:PutEncryptionConfiguration",
    "s3:PutLifecycleConfiguration",
    "s3:PutBucketVersioning",
    "s3:PutBucketTagging"
   ],
   "Resource": "arn:aws:s3:::redshift-staging-bucket-*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "RedshiftTag",
   "Effect": "Allow",
   "Action": [
    "redshift-serverless:TagResource"
   ],
   "Resource": [
    "arn:aws:redshift-serverless:*:*:namespace/*",
    "arn:aws:redshift-serverless:*:*:workgroup/*"
   ],
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "Null": {
     "aws:RequestTag/AmazonDataZoneProject": "false",
     "aws:TagKeys": "false"
    },
    "ForAllValues:StringLike": {
     "aws:TagKeys": [
      "AmazonDataZone*"
     ]
    }
   }
  },
  {
   "Sid": "CreateSG",
   "Effect": "Allow",
   "Action": [
    "ec2:CreateSecurityGroup"
   ],
```

```
    "Resource": [
     "arn:aws:ec2:*:*:security-group/*",
     "arn:aws:ec2:*:*:vpc/*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com"
     },
     "Null": {
      "aws:TagKeys": "true"
     }
    }
   },
   {
    "Sid": "SGAuth",
    "Effect": "Allow",
    "Action": [
     "ec2:AuthorizeSecurityGroupEgress",
     "ec2:AuthorizeSecurityGroupIngress"
    ],
    "Resource": [
     "arn:aws:ec2:*:*:security-group/*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com",
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     },
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false"
     }
    }
   },
   {
    "Sid": "SGManage",
    "Effect": "Allow",
    "Action": [
     "ec2:DeleteSecurityGroup",
     "ec2:RevokeSecurityGroupEgress",
     "ec2:RevokeSecurityGroupIngress"
    ],
    "Resource": [
     "arn:aws:ec2:*:*:security-group/*"
    ],
```

```
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com"
     }
    }
   },
   {
    "Sid": "SGRevoke",
    "Effect": "Allow",
    "Action": [
     "ec2:RevokeSecurityGroupIngress"
    ],
    "Resource": [
     "arn:aws:ec2:*:*:security-group/*"
    ],
    "Condition": {
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false"
     }
    }
   },
   {
    "Sid": "EC2ResourceTagging",
    "Effect": "Allow",
    "Action": "ec2:CreateTags",
    "Resource": [
     "arn:aws:ec2:*:*:security-group/*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com",
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     },
     "Null": {
      "aws:TagKeys": "false"
     },
     "ForAllValues:StringLike": {
      "aws:TagKeys": [
       "AmazonDataZone*",
       "for-use-with-amazon-emr-managed-policies",
       "aws:cloudformation:*"
      ]
     }
    }
```

```
  },
  {
   "Sid": "EC2Describe",
   "Effect": "Allow",
   "Action": [
    "ec2:DescribeVpcs",
    "ec2:DescribeSecurityGroups",
    "ec2:DescribeNatGateways",
    "ec2:DescribeRouteTables",
    "ec2:DescribeSubnets",
    "ec2:DescribeAccountAttributes",
    "ec2:DescribeAvailabilityZones"
   ],
   "Resource": "*"
  },
  {
   "Sid": "DescribeLogGroups",
   "Effect": "Allow",
   "Action": "logs:DescribeLogGroups",
   "Resource": "*",
   "Condition": {
    "StringEquals": {
     "aws:CalledViaFirst": "cloudformation.amazonaws.com"
    }
   }
  },
  {
   "Sid": "LogGroupCreation",
   "Effect": "Allow",
   "Action": [
    "logs:CreateLogGroup",
    "logs:TagResource"
   ],
   "Resource": [
    "arn:aws:logs:*:*:log-group:datazone-*",
    "arn:aws:logs:*:*:log-group:/aws/lambda/amazon-bedrock-ide-*"
   ],
   "Condition": {
    "StringEquals": {
     "aws:CalledViaFirst": "cloudformation.amazonaws.com",
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "Null": {
     "aws:RequestTag/AmazonDataZoneProject": "false",
```

```
      "aws:TagKeys": "false"
     },
     "ForAllValues:StringLike": {
      "aws:TagKeys": [
       "AmazonDataZone*",
       "AmazonBedrockManaged"
      ]
     }
    }
   },
   {
    "Sid": "LogGroupPutRetentionPolicy",
    "Effect": "Allow",
    "Action": "logs:PutRetentionPolicy",
    "Resource": [
     "arn:aws:logs:*:*:log-group:datazone-*",
     "arn:aws:logs:*:*:log-group:/aws/lambda/amazon-bedrock-ide-*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com",
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   },
   {
    "Sid": "ManageLogGroups",
    "Effect": "Allow",
    "Action": [
     "logs:DeleteLogGroup",
     "logs:DeleteRetentionPolicy",
     "logs:GetDataProtectionPolicy",
     "logs:PutDataProtectionPolicy",
     "logs:DeleteDataProtectionPolicy",
     "logs:AssociateKmsKey",
     "logs:DisassociateKmsKey",
     "logs:ListTagsForResource"
    ],
    "Resource": [
     "arn:aws:logs:*:*:log-group:datazone-*",
     "arn:aws:logs:*:*:log-group:/aws/lambda/amazon-bedrock-ide-*"
    ],
    "Condition": {
     "StringEquals": {
```

```
      "aws:CalledViaFirst": "cloudformation.amazonaws.com",
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     },
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false"
     }
    }
   },
   {
    "Sid": "AthenaManage",
    "Effect": "Allow",
    "Action": [
     "athena:CreateWorkGroup",
     "athena:TagResource"
    ],
    "Resource": "arn:aws:athena:*:*:workgroup/*",
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com",
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     },
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false",
      "aws:TagKeys": "false"
     },
     "ForAllValues:StringLike": {
      "aws:TagKeys": [
       "AmazonDataZone*"
      ]
     }
    }
   },
   {
    "Sid": "AthenaWorkgroupDeletion",
    "Effect": "Allow",
    "Action": [
     "athena:DeleteWorkGroup",
     "athena:GetWorkGroup"
    ],
    "Resource": "arn:aws:athena:*:*:workgroup/*",
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com",
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
```

```
    },
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false"
    }
   }
  },
  {
   "Sid": "RedshiftCreate",
   "Effect": "Allow",
   "Action": [
    "redshift-serverless:CreateNamespace",
    "redshift-serverless:CreateWorkgroup",
    "redshift-serverless:TagResource"
   ],
   "Resource": [
    "arn:aws:redshift-serverless:*:*:namespace/*",
    "arn:aws:redshift-serverless:*:*:workgroup/*"
   ],
   "Condition": {
    "StringEquals": {
     "aws:CalledViaFirst": "cloudformation.amazonaws.com",
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false",
     "aws:TagKeys": "false"
    },
    "ForAllValues:StringLike": {
     "aws:TagKeys": [
      "AmazonDataZone*"
     ]
    }
   }
  },
  {
   "Sid": "RedshiftServerlessListTags",
   "Effect": "Allow",
   "Action": [
    "redshift-serverless:ListTagsForResource"
   ],
   "Resource": [
    "arn:aws:redshift-serverless:*:*:namespace/*",
    "arn:aws:redshift-serverless:*:*:workgroup/*"
   ],
```

```
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com",
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   },
   {
    "Sid": "AllowSecretManagement",
    "Effect": "Allow",
    "Action": [
     "secretsmanager:CreateSecret",
     "secretsmanager:DeleteSecret",
     "secretsmanager:UpdateSecret"
    ],
    "Resource": "*",
    "Condition": {
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false",
      "aws:ResourceTag/CreatedBy": "false"
     }
    }
   },
   {
    "Sid": "DescribeSecret",
    "Effect": "Allow",
    "Action": [
     "secretsmanager:DescribeSecret"
    ],
    "Resource": "*",
    "Condition": {
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false"
     }
    }
   },
   {
    "Sid": "DescribeAllSecrets",
    "Effect": "Allow",
    "Action": [
     "secretsmanager:DescribeSecret"
    ],
    "Resource": "*",
    "Condition": {
```

```
    "StringEquals": {
     "aws:ResourceTag/for-use-with-all-datazone-projects": "true"
    }
   }
  },
  {
   "Sid": "AllowSecretTagging",
   "Effect": "Allow",
   "Action": [
    "secretsmanager:TagResource"
   ],
   "Resource": "*",
   "Condition": {
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false",
     "aws:ResourceTag/CreatedBy": "false",
     "aws:TagKeys": "false"
    },
    "ForAllValues:StringLike": {
     "aws:TagKeys": [
      "AmazonDataZone*",
      "CreatedBy"
     ]
    }
   }
  },
  {
   "Sid": "SecretsManagerKmsPermissions",
   "Effect": "Allow",
   "Action": [
    "kms:GenerateDataKey",
    "kms:Decrypt"
   ],
   "Resource": "*",
   "Condition": {
    "StringLike": {
     "kms:ViaService": [
      "secretsmanager.*.amazonaws.com"
     ]
    },
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "Null": {
```

```
      "kms:EncryptionContext:SecretARN": "false"
     }
    }
   },
   {
    "Sid": "CreateSLR",
    "Effect": "Allow",
    "Action": "iam:CreateServiceLinkedRole",
    "Resource": [
     "arn:aws:iam::*:role/aws-service-role/redshift.amazonaws.com/
AWSServiceRoleForRedshift",
     "arn:aws:iam::*:role/aws-service-role/sagemaker.amazonaws.com/
AWSServiceRoleForAmazonSageMakerNotebooks",
     "arn:aws:iam::*:role/aws-service-role/ops.emr-serverless.amazonaws.com/
AWSServiceRoleForAmazonEMRServerless",
     "arn:aws:iam::*:role/aws-service-role/airflow.amazonaws.com/
AWSServiceRoleForAmazonMWAA",
     "arn:aws:iam::*:role/aws-service-role/elasticmapreduce.amazonaws.com/
AWSServiceRoleForEMRCleanup"
    ]
   },
   {
    "Sid": "RedshiftList",
    "Effect": "Allow",
    "Action": [
     "redshift-serverless:ListNamespaces",
     "redshift-serverless:ListWorkgroups",
     "redshift:GetResourcePolicy"
    ],
    "Resource": "*",
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com"
     }
    }
   },
   {
    "Sid": "RedshiftServerlessCreateDatabaseRole",
    "Effect": "Allow",
    "Action": [
     "redshift-data:ExecuteStatement",
     "redshift:GetResourcePolicy",
     "redshift-serverless:GetCredentials"
    ],
```

```
    "Resource": [
     "arn:aws:redshift-serverless:*:*:namespace/*",
     "arn:aws:redshift-serverless:*:*:workgroup/*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     },
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false"
     }
    }
   },
   {
    "Sid": "RedshiftData",
    "Effect": "Allow",
    "Action": [
     "redshift-data:DescribeStatement",
     "redshift-data:GetStatementResult",
     "redshift:DescribeDataSharesForConsumer",
     "redshift:DescribeDataShares"
    ],
    "Resource": "*"
   },
   {
    "Sid": "RedshiftManagement",
    "Effect": "Allow",
    "Action": [
     "redshift-serverless:UpdateNamespace",
     "redshift-serverless:UpdateWorkgroup",
     "redshift-serverless:UntagResource"
    ],
    "Resource": [
     "arn:aws:redshift-serverless:*:*:namespace/*",
     "arn:aws:redshift-serverless:*:*:workgroup/*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com",
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     },
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false"
     }
```

```
    }
   },
   {
    "Sid": "RedshiftKms",
    "Effect": "Allow",
    "Action": [
     "kms:Decrypt",
     "kms:Encrypt",
     "kms:GenerateDataKey"
    ],
    "Resource": "*",
    "Condition": {
     "StringLike": {
      "kms:ViaService": [
       "redshift-serverless.*.amazonaws.com"
      ]
     },
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     },
     "Null": {
      "kms:EncryptionContext:aws:redshift-serverless:arn": "false"
     }
    }
   },
   {
    "Sid": "GetRandomPasswordForSecret",
    "Effect": "Allow",
    "Action": "secretsmanager:GetRandomPassword",
    "Resource": "*",
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com"
     }
    }
   },
   {
    "Sid": "BedrockSecret",
    "Effect": "Allow",
    "Action": [
     "secretsmanager:DescribeSecret",
     "secretsmanager:CreateSecret",
     "secretsmanager:UpdateSecret",
     "secretsmanager:DeleteSecret",
```

```
    "secretsmanager:GetResourcePolicy",
    "secretsmanager:PutResourcePolicy",
    "secretsmanager:DeleteResourcePolicy",
    "secretsmanager:TagResource"
   ],
   "Resource": "arn:aws:secretsmanager:*:*:secret:amazon-bedrock-ide/*",
   "Condition": {
    "StringEquals": {
     "aws:CalledViaFirst": "cloudformation.amazonaws.com",
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false"
    }
   }
  },
  {
   "Sid": "RedshiftSecret",
   "Effect": "Allow",
   "Action": [
    "secretsmanager:CreateSecret",
    "secretsmanager:RotateSecret",
    "secretsmanager:DescribeSecret",
    "secretsmanager:UpdateSecret",
    "secretsmanager:DeleteSecret"
   ],
   "Resource": "arn:aws:secretsmanager:*:*:secret:redshift!*",
   "Condition": {
    "StringEquals": {
     "aws:CalledViaFirst": [
      "cloudformation.amazonaws.com"
     ],
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "TagRedshiftSecret",
   "Effect": "Allow",
   "Action": [
    "secretsmanager:TagResource"
   ],
   "Resource": "arn:aws:secretsmanager:*:*:secret:redshift!*",
   "Condition": {
```

```
    "Null": {
     "aws:TagKeys": "false"
    },
    "ForAllValues:StringLike": {
     "aws:TagKeys": [
      "Redshift",
      "aws:secretsmanager:*",
      "aws:redshift-serverless:*",
      "AmazonDataZone*",
      "datazone.rs.workgroup"
     ]
    },
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "SageMakerDomainCreationAndTagging",
   "Effect": "Allow",
   "Action": [
    "sagemaker:CreateDomain",
    "sagemaker:AddTags"
   ],
   "Resource": "arn:aws:sagemaker:*:*:domain/*",
   "Condition": {
    "StringEquals": {
     "aws:CalledViaFirst": "cloudformation.amazonaws.com",
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "Null": {
     "aws:RequestTag/AmazonDataZoneProject": "false"
    }
   }
  },
  {
   "Sid": "SageMakerDomainUpdationAndDeletion",
   "Effect": "Allow",
   "Action": [
    "sagemaker:UpdateDomain",
    "sagemaker:DeleteDomain"
   ],
   "Resource": "arn:aws:sagemaker:*:*:domain/*",
   "Condition": {
```

```
    "StringEquals": {
     "aws:CalledViaFirst": "cloudformation.amazonaws.com",
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false"
    }
   }
  },
  {
   "Sid": "SageMakerDomainManagement",
   "Effect": "Allow",
   "Action": [
    "sagemaker:ListDomains",
    "sagemaker:DescribeDomain"
   ],
   "Resource": "*",
   "Condition": {
    "StringEquals": {
     "aws:CalledViaFirst": "cloudformation.amazonaws.com"
    }
   }
  },
  {
   "Sid": "SageMakerAppDeletion",
   "Effect": "Allow",
   "Action": "sagemaker:DeleteApp",
   "Resource": [
    "arn:aws:sagemaker:*:*:app/*/*/codeeditor/*",
    "arn:aws:sagemaker:*:*:app/*/*/CodeEditor/*",
    "arn:aws:sagemaker:*:*:app/*/*/jupyterlab/*",
    "arn:aws:sagemaker:*:*:app/*/*/JupyterLab/*"
   ],
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false"
    }
   }
  },
  {
   "Sid": "SageMakerSpaceDeletion",
```

```
    "Effect": "Allow",
    "Action": "sagemaker:DeleteSpace",
    "Resource": "arn:aws:sagemaker:*:*:space/*",
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     },
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false"
     }
    }
   },
   {
    "Sid": "SageMakerUserProfileDeletion",
    "Effect": "Allow",
    "Action": "sagemaker:DeleteUserProfile",
    "Resource": "arn:aws:sagemaker:*:*:user-profile/*",
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     },
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false"
     }
    }
   },
   {
    "Sid": "EmrSCreate",
    "Effect": "Allow",
    "Action": [
     "emr-serverless:CreateApplication",
     "emr-serverless:TagResource"
    ],
    "Resource": [
     "*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com",
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     },
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false",
      "aws:TagKeys": "false"
```

```
    },
    "ForAllValues:StringLike": {
     "aws:TagKeys": [
      "AmazonDataZone*"
     ]
    }
   }
  },
  {
   "Sid": "EmrSManage",
   "Effect": "Allow",
   "Action": [
    "emr-serverless:UpdateApplication",
    "emr-serverless:DeleteApplication"
   ],
   "Resource": [
    "*"
   ],
   "Condition": {
    "StringEquals": {
     "aws:CalledViaFirst": "cloudformation.amazonaws.com",
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false"
    }
   }
  },
  {
   "Sid": "EmrSGet",
   "Effect": "Allow",
   "Action": "emr-serverless:GetApplication",
   "Resource": [
    "*"
   ],
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false"
    }
   }
  },
```

```
{
 "Sid": "EmrSEc2Eni",
 "Effect": "Allow",
 "Action": "ec2:CreateNetworkInterface",
 "Resource": [
  "arn:aws:ec2:*:*:network-interface/*"
 ],
 "Condition": {
  "StringEquals": {
   "aws:CalledViaLast": "ops.emr-serverless.amazonaws.com",
   "aws:ResourceAccount": "${aws:PrincipalAccount}"
  }
 }
},
{
 "Sid": "EmrSEc2Subnet",
 "Effect": "Allow",
 "Action": "ec2:CreateNetworkInterface",
 "Resource": [
  "arn:aws:ec2:*:*:subnet/*",
  "arn:aws:ec2:*:*:security-group/*"
 ],
 "Condition": {
  "StringEquals": {
   "aws:CalledViaLast": "ops.emr-serverless.amazonaws.com"
  }
 }
},
{
 "Sid": "SageMakerMlflowTrackingServerCreation",
 "Effect": "Allow",
 "Action": [
  "sagemaker:CreateMlflowTrackingServer",
  "sagemaker:AddTags"
 ],
 "Resource": "arn:aws:sagemaker:*:*:mlflow-tracking-server/*",
 "Condition": {
  "StringEquals": {
   "aws:ResourceAccount": "${aws:PrincipalAccount}"
  },
  "Null": {
   "aws:RequestTag/AmazonDataZoneProject": "false"
  }
 }
```

```
  },
  {
   "Sid": "SageMakerMlflowTrackingServerDescribe",
   "Effect": "Allow",
   "Action": "sagemaker:DescribeMlflowTrackingServer",
   "Resource": "arn:aws:sagemaker:*:*:mlflow-tracking-server/*"
  },
  {
   "Sid": "SageMakerMlflowTrackingServerDeletion",
   "Effect": "Allow",
   "Action": [
    "sagemaker:DeleteMlflowTrackingServer"
   ],
   "Resource": "arn:aws:sagemaker:*:*:mlflow-tracking-server/*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false"
    }
   }
  },
  {
   "Sid": "ManageAossAccessPolicies",
   "Effect": "Allow",
   "Action": [
    "aoss:GetAccessPolicy",
    "aoss:CreateAccessPolicy",
    "aoss:DeleteAccessPolicy",
    "aoss:UpdateAccessPolicy"
   ],
   "Resource": "*",
   "Condition": {
    "StringEquals": {
     "aws:CalledViaFirst": "cloudformation.amazonaws.com"
    },
    "StringLikeIfExists": {
     "aoss:collection": "bedrock-ide-*",
     "aoss:index": "bedrock-ide-*"
    }
   }
  },
  {
```

```
    "Sid": "ManageAossSecurityPolicies",
    "Effect": "Allow",
    "Action": [
     "aoss:GetSecurityPolicy",
     "aoss:CreateSecurityPolicy",
     "aoss:DeleteSecurityPolicy",
     "aoss:UpdateSecurityPolicy"
    ],
    "Resource": "*",
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com"
     },
     "StringLikeIfExists": {
      "aoss:collection": "bedrock-ide-*"
     }
    }
   },
   {
    "Sid": "GetAossCollections",
    "Effect": "Allow",
    "Action": "aoss:BatchGetCollection",
    "Resource": "*",
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com",
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   },
   {
    "Sid": "ManageAossCollections",
    "Effect": "Allow",
    "Action": [
     "aoss:CreateCollection",
     "aoss:UpdateCollection",
     "aoss:DeleteCollection",
     "aoss:TagResource"
    ],
    "Resource": "*",
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com",
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
```

```
    },
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false"
    }
   }
  },
  {
   "Sid": "GetBedrockCfnResourceDefinitionS3",
   "Effect": "Allow",
   "Action": [
    "s3:GetObject",
    "s3:GetObjectVersion"
   ],
   "Resource": "arn:aws:s3:::*/dzd_*/*/genAI/*",
   "Condition": {
    "StringEquals": {
     "aws:CalledViaFirst": "cloudformation.amazonaws.com",
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "GetBedrockResources",
   "Effect": "Allow",
   "Action": [
    "bedrock:GetAgent",
    "bedrock:GetKnowledgeBase",
    "bedrock:GetGuardrail",
    "bedrock:GetPrompt",
    "bedrock:GetFlow",
    "bedrock:GetFlowAlias",
    "bedrock:ListTagsForResource"
   ],
   "Resource": "*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "ManageBedrockResources",
   "Effect": "Allow",
   "Action": [
```

```
    "bedrock:CreateAgent",
    "bedrock:UpdateAgent",
    "bedrock:PrepareAgent",
    "bedrock:DeleteAgent",
    "bedrock:ListAgentAliases",
    "bedrock:GetAgentAlias",
    "bedrock:CreateAgentAlias",
    "bedrock:UpdateAgentAlias",
    "bedrock:DeleteAgentAlias",
    "bedrock:ListAgentActionGroups",
    "bedrock:GetAgentActionGroup",
    "bedrock:CreateAgentActionGroup",
    "bedrock:UpdateAgentActionGroup",
    "bedrock:DeleteAgentActionGroup",
    "bedrock:ListAgentKnowledgeBases",
    "bedrock:GetAgentKnowledgeBase",
    "bedrock:AssociateAgentKnowledgeBase",
    "bedrock:DisassociateAgentKnowledgeBase",
    "bedrock:UpdateAgentKnowledgeBase",
    "bedrock:CreateKnowledgeBase",
    "bedrock:UpdateKnowledgeBase",
    "bedrock:DeleteKnowledgeBase",
    "bedrock:ListDataSources",
    "bedrock:GetDataSource",
    "bedrock:CreateDataSource",
    "bedrock:UpdateDataSource",
    "bedrock:DeleteDataSource",
    "bedrock:ListIngestionJobs",
    "bedrock:GetIngestionJob",
    "bedrock:StartIngestionJob",
    "bedrock:StopIngestionJob",
    "bedrock:CreateGuardrail",
    "bedrock:UpdateGuardrail",
    "bedrock:DeleteGuardrail",
    "bedrock:CreateGuardrailVersion",
    "bedrock:CreatePrompt",
    "bedrock:UpdatePrompt",
    "bedrock:DeletePrompt",
    "bedrock:CreatePromptVersion",
    "bedrock:CreateFlow",
    "bedrock:UpdateFlow",
    "bedrock:PrepareFlow",
    "bedrock:DeleteFlow",
    "bedrock:ListFlowAliases",
```

```
    "bedrock:GetFlowAlias",
    "bedrock:CreateFlowAlias",
    "bedrock:UpdateFlowAlias",
    "bedrock:DeleteFlowAlias",
    "bedrock:ListFlowVersions",
    "bedrock:GetFlowVersion",
    "bedrock:CreateFlowVersion",
    "bedrock:DeleteFlowVersion",
    "bedrock:TagResource"
   ],
   "Resource": "*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false"
    }
   }
  },
  {
   "Sid": "TagBedrockTestAliases",
   "Effect": "Allow",
   "Action": "bedrock:TagResource",
   "Resource": [
    "arn:aws:bedrock:*:*:agent-alias/*/TSTALIASID",
    "arn:aws:bedrock:*:*:flow/*/alias/TSTALIASID"
   ],
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "Null": {
     "aws:RequestTag/AmazonDataZoneProject": "false"
    }
   }
  },
  {
   "Sid": "ListBedrockJobs",
   "Effect": "Allow",
   "Action": "bedrock:ListEvaluationJobs",
   "Resource": "*"
  },
  {
```

```
    "Sid": "ManageBedrockEvaluationJobs",
    "Effect": "Allow",
    "Action": "bedrock:BatchDeleteEvaluationJob",
    "Resource": "*",
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     },
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false"
     }
    }
   },
   {
    "Sid": "BedrockLambda",
    "Effect": "Allow",
    "Action": [
     "lambda:CreateFunction",
     "lambda:InvokeFunction",
     "lambda:DeleteFunction",
     "lambda:UpdateFunctionCode",
     "lambda:GetFunctionConfiguration",
     "lambda:UpdateFunctionConfiguration",
     "lambda:ListVersionsByFunction",
     "lambda:PublishVersion",
     "lambda:GetPolicy",
     "lambda:AddPermission",
     "lambda:TagResource"
    ],
    "Resource": "arn:aws:lambda:*:*:function:amazon-bedrock-ide-*",
    "Condition": {
     "StringEquals": {
      "aws:CalledViaFirst": "cloudformation.amazonaws.com",
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     },
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false"
     }
    }
   },
   {
    "Sid": "ManageBedrockLambda",
    "Effect": "Allow",
    "Action": [
```

```
    "lambda:GetFunction",
    "lambda:ListTags",
    "lambda:RemovePermission"
   ],
   "Resource": "arn:aws:lambda:*:*:function:amazon-bedrock-ide-*",
   "Condition": {
    "StringEquals": {
     "aws:CalledViaFirst": "cloudformation.amazonaws.com",
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "EMRSecurityConfigurationManagement",
   "Effect": "Allow",
   "Action": [
    "elasticmapreduce:CreateSecurityConfiguration",
    "elasticmapreduce:DeleteSecurityConfiguration"
   ],
   "Resource": "*",
   "Condition": {
    "StringEquals": {
     "aws:CalledViaFirst": "cloudformation.amazonaws.com"
    }
   }
  },
  {
   "Sid": "EMRClusterManagement",
   "Effect": "Allow",
   "Action": [
    "elasticmapreduce:AddJobFlowSteps",
    "elasticmapreduce:AddTags",
    "elasticmapreduce:DescribeJobFlows",
    "elasticmapreduce:ListInstanceFleets",
    "elasticmapreduce:ModifyInstanceFleet",
    "elasticmapreduce:RunJobFlow",
    "elasticmapreduce:SetTerminationProtection",
    "elasticmapreduce:TerminateJobFlows",
    "elasticmapreduce:DescribeCluster"
   ],
   "Resource": "arn:aws:elasticmapreduce:*:*:cluster/*",
   "Condition": {
    "StringEquals": {
     "aws:CalledViaFirst": "cloudformation.amazonaws.com"
```

```
    },
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false"
    }
   }
  },
  {
   "Sid": "AirflowEnvironmentActions",
   "Effect": "Allow",
   "Action": [
    "airflow:CreateEnvironment",
    "airflow:UpdateEnvironment",
    "airflow:DeleteEnvironment",
    "airflow:TagResource"
   ],
   "Resource": "*",
   "Condition": {
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false"
    }
   }
  },
  {
   "Sid": "AirflowGetEnvironment",
   "Effect": "Allow",
   "Action": [
    "airflow:GetEnvironment"
   ],
   "Resource": "*"
  },
  {
   "Sid": "AirflowS3BucketActions",
   "Effect": "Allow",
   "Action": [
    "s3:GetEncryptionConfiguration"
   ],
   "Resource": [
    "arn:aws:s3:::*"
   ],
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
```

```
  },
  {
   "Sid": "AirflowVpcEndpointActions",
   "Effect": "Allow",
   "Action": [
    "ec2:CreateVpcEndpoint"
   ],
   "Resource": [
    "arn:aws:ec2:*:*:vpc-endpoint/*",
    "arn:aws:ec2:*:*:vpc/*",
    "arn:aws:ec2:*:*:subnet/*",
    "arn:aws:ec2:*:*:security-group/*"
   ]
  },
  {
   "Sid": "AirflowNetworkInterfaceActions",
   "Effect": "Allow",
   "Action": [
    "ec2:CreateNetworkInterface"
   ],
   "Resource": [
    "arn:aws:ec2:*:*:subnet/*",
    "arn:aws:ec2:*:*:network-interface/*"
   ]
  },
  {
   "Sid": "AirflowKmsCreateGrant",
   "Effect": "Allow",
   "Action": [
    "kms:CreateGrant"
   ],
   "Resource": "*",
   "Condition": {
    "StringLike": {
     "kms:ViaService": [
      "airflow.*.amazonaws.com"
     ]
    },
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "Null": {
     "kms:EncryptionContextKeys": "false"
    }
```

```
    }
   },
   {
    "Sid": "KmsDescribeKey",
    "Effect": "Allow",
    "Action": [
     "kms:DescribeKey"
    ],
    "Resource": "*",
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   },
   {
    "Sid": "QueryRoleManage",
    "Effect": "Allow",
    "Action": [
     "iam:GetRole",
     "iam:CreateRole",
     "iam:DetachRolePolicy",
     "iam:DeleteRolePolicy",
     "iam:AttachRolePolicy"
    ],
    "Resource": "arn:aws:iam::*:role/SageMakerStudioQueryExecutionRole",
    "Condition": {
     "StringEquals": {
      "iam:PermissionsBoundary": "arn:aws:iam::aws:policy/
SageMakerStudioProjectUserRolePermissionsBoundary"
     }
    }
   },
   {
    "Sid": "QueryRoleCreate",
    "Effect": "Allow",
    "Action": [
     "iam:CreateRole"
    ],
    "Resource": "arn:aws:iam::*:role/SageMakerStudioQueryExecutionRole"
   },
   {
    "Sid": "QueryRolePolicy",
    "Effect": "Allow",
```

```
    "Action": [
     "iam:DetachRolePolicy",
     "iam:AttachRolePolicy"
    ],
    "Resource": "arn:aws:iam::*:role/SageMakerStudioQueryExecutionRole",
    "Condition": {
     "ArnEquals": {
      "iam:PolicyARN": [
       "arn:aws:iam::aws:policy/service-role/SageMakerStudioQueryExecutionRolePolicy"
      ]
     }
    }
   },
   {
    "Sid": "TagQueryRole",
    "Effect": "Allow",
    "Action": "iam:TagRole",
    "Resource": "arn:aws:iam::*:role/SageMakerStudioQueryExecutionRole",
    "Condition": {
     "ForAllValues:StringLike": {
      "aws:TagKeys": [
       "CreatedForUseWithSageMakerStudio",
       "SageMakerStudioQueryExecutionRole"
      ]
     }
    }
   },
   {
    "Sid": "ListQueryPolicy",
    "Effect": "Allow",
    "Action": [
     "iam:ListAttachedRolePolicies"
    ],
    "Resource": "arn:aws:iam::*:role/SageMakerStudioQueryExecutionRole"
   },
   {
    "Sid": "SecurityGroupCleanUpForEMR",
    "Effect": "Allow",
    "Action": "ec2:DeleteSecurityGroup",
    "Resource": "arn:aws:ec2:*:*:security-group/*",
    "Condition": {
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false"
     }
```

```
    }
   },
   {
    "Sid": "IAMRoleCleanUpForEMR",
    "Effect": "Allow",
    "Action": [
     "iam:ListAttachedRolePolicies",
     "iam:ListRolePolicies",
     "iam:ListInstanceProfilesForRole",
     "iam:DeleteRolePolicy",
     "iam:DeleteRole"
    ],
    "Resource": "arn:aws:iam::*:role/datazone_emr_*",
    "Condition": {
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false"
     }
    }
   },
   {
    "Sid": "IAMInstanceProfileCleanUpForEMR",
    "Effect": "Allow",
    "Action": [
     "iam:RemoveRoleFromInstanceProfile",
     "iam:DeleteInstanceProfile"
    ],
    "Resource": "arn:aws:iam::*:instance-profile/datazone_emr_ec2_instance_profile_*"
   },
   {
    "Sid": "EventBridgeViewScheduleGroupActions",
    "Effect": "Allow",
    "Action": [
     "scheduler:ListTagsForResource",
     "scheduler:GetScheduleGroup"
    ],
    "Resource": "arn:aws:scheduler:*:*:schedule-group/*",
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}",
      "aws:CalledViaFirst": "cloudformation.amazonaws.com"
     }
    }
   },
   {
```

```
    "Sid": "EventBridgeDeleteScheduleGroupActions",
    "Effect": "Allow",
    "Action": "scheduler:DeleteScheduleGroup",
    "Resource": "arn:aws:scheduler:*:*:schedule-group/*",
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}",
      "aws:CalledViaFirst": "cloudformation.amazonaws.com"
     },
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false"
     }
    }
   },
   {
    "Sid": "EventBridgeCreateScheduleGroupActions",
    "Effect": "Allow",
    "Action": "scheduler:CreateScheduleGroup",
    "Resource": "arn:aws:scheduler:*:*:schedule-group/*",
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}",
      "aws:CalledViaFirst": "cloudformation.amazonaws.com"
     },
     "Null": {
      "aws:RequestTag/AmazonDataZoneProject": "false",
      "aws:TagKeys": "false"
     },
     "ForAllValues:StringLike": {
      "aws:TagKeys": "AmazonDataZone*"
     }
    }
   },
   {
    "Sid": "EventBridgeTagScheduleGroupActions",
    "Effect": "Allow",
    "Action": "scheduler:TagResource",
    "Resource": "arn:aws:scheduler:*:*:schedule-group/*",
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}",
      "aws:CalledViaFirst": "cloudformation.amazonaws.com"
     },
     "Null": {
```

```
      "aws:TagKeys": "false",
      "aws:ResourceTag/AmazonDataZoneProject": "false"
     },
     "ForAllValues:StringLike": {
      "aws:TagKeys": "AmazonDataZone*"
     }
    }
   },
   {
    "Sid": "EventBridgeScheduleDeleteAction",
    "Effect": "Allow",
    "Action": [
     "scheduler:DeleteSchedule"
    ],
    "Resource": [
     "arn:aws:scheduler:*:*:schedule/SageMakerUnifiedStudio-*-*/*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}",
      "aws:CalledViaFirst": "cloudformation.amazonaws.com"
     },
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "false"
     }
    }
   },
   {
    "Sid": "ManageQuickSightFolder",
    "Effect": "Allow",
    "Action": [
     "quicksight:CreateDataSource",
     "quicksight:CreateFolder",
     "quicksight:CreateFolderMembership",
     "quicksight:CreateVPCConnection",
     "quicksight:DeleteDataSource",
     "quicksight:DeleteFolder",
     "quicksight:DescribeDataSource",
     "quicksight:DescribeFolderPermissions",
     "quicksight:DescribeDataSourcePermissions",
     "quicksight:DeleteVPCConnection",
     "quicksight:ListFolderMembers",
     "quicksight:ListTagsForResource",
     "quicksight:UpdateDataSource",
```

```
    "quicksight:UpdateDataSourcePermissions",
    "quicksight:UpdateFolder",
    "quicksight:UpdateFolderPermissions",
    "quicksight:UpdateVPCConnection"
   ],
   "Resource": [
    "*"
   ],
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false"
    }
   }
  },
  {
   "Sid": "ManageQuickSightOtherResourcesPermissions",
   "Effect": "Allow",
   "Action": [
    "quicksight:DescribeAccountSubscription",
    "quicksight:DescribeDataSet",
    "quicksight:DescribeDashboard",
    "quicksight:DescribeDashboardPermissions",
    "quicksight:DescribeFolder",
    "quicksight:DescribeGroup",
    "quicksight:DescribeGroupMembership",
    "quicksight:DescribeUser",
    "quicksight:DescribeVPCConnection",
    "quicksight:ListTagsForResource",
    "quicksight:UpdateDashboardPermissions"
   ],
   "Resource": [
    "arn:aws:quicksight:*:*:*"
   ],
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "ManageQuickSightTagCreationPermissions",
```

```
    "Effect": "Allow",
    "Action": [
     "quicksight:TagResource"
    ],
    "Resource": [
     "arn:aws:quicksight:*:*:*"
    ],
    "Condition": {
     "ForAllValues:StringLike": {
      "aws:TagKeys": [
       "AmazonDataZone*"
      ]
     },
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   },
   {
    "Sid": "PermissionsToIAMPassRoleForQuickSight",
    "Effect": "Allow",
    "Action": [
     "iam:PassRole"
    ],
    "Resource": [
     "arn:aws:iam::*:role/service-role/AmazonSageMakerQuickSightVPC",
     "arn:aws:iam::*:role/datazone_usr_role_*"
    ],
    "Condition": {
     "StringEquals": {
      "iam:PassedToService": "quicksight.amazonaws.com"
     }
    }
   },
   {
    "Sid": "AllowPutRuleOnSpecificSourcesAndDetailTypes",
    "Effect": "Allow",
    "Action": "events:PutRule",
    "Resource": "arn:aws:events:*:*:rule/Managed.SageMaker*",
    "Condition": {
     "ForAllValues:StringEquals": {
      "events:source": [
       "aws.quicksight",
       "aws.codecommit"
```

```
      ]
     },
     "Null": {
      "events:source": "false",
      "events:detail-type": "false"
     },
     "StringEquals": {
      "events:ManagedBy": "datazone.amazonaws.com",
      "events:detail-type": [
       "AWS Service Event via CloudTrail",
       "CodeCommit Repository State Change"
      ],
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   },
   {
    "Sid": "AllowOtherOperationsOnRulesManagedBySMUS",
    "Effect": "Allow",
    "Action": [
     "events:DeleteRule",
     "events:DisableRule",
     "events:EnableRule",
     "events:PutTargets",
     "events:RemoveTargets"
    ],
    "Resource": "arn:aws:events:*:*:rule/Managed.SageMaker*",
    "Condition": {
     "StringEquals": {
      "events:ManagedBy": "datazone.amazonaws.com",
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   },
   {
    "Sid": "GetRedshiftAdminSecretPermissions",
    "Effect": "Allow",
    "Action": [
     "secretsmanager:GetSecretValue"
    ],
    "Resource": "arn:aws:secretsmanager:*:*:secret:*",
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
```

```
    },
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false"
    }
   }
  }
 ]
}
```

AWS policy: AmazonDataZoneBedrockModelManagementPolicy

Provides permissions to manage Amazon Bedrock model access, including creating, tagging and deleting application inference profiles.

```
{
 "Version": "2012-10-17",
 "Statement": [
  {
   "Sid": "ManageApplicationInferenceProfile",
   "Effect": "Allow",
   "Action": [
    "bedrock:CreateInferenceProfile",
    "bedrock:TagResource"
   ],
   "Resource": [
    "arn:aws:bedrock:*:*:application-inference-profile/*"
   ],
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "ForAnyValue:StringEquals": {
     "aws:TagKeys": [
      "AmazonDataZoneProject"
     ]
    },
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false",
     "aws:RequestTag/AmazonDataZoneProject": "false"
    }
   }
  },
```

```
  {
   "Sid": "DeleteApplicationInferenceProfile",
   "Effect": "Allow",
   "Action": [
    "bedrock:DeleteInferenceProfile"
   ],
   "Resource": [
    "arn:aws:bedrock:*:*:application-inference-profile/*"
   ],
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false"
    }
   }
  },
  {
   "Sid": "CreateApplicationInferenceProfileUsingFoundationModels",
   "Effect": "Allow",
   "Action": [
    "bedrock:CreateInferenceProfile"
   ],
   "Resource": [
    "arn:aws:bedrock:*::foundation-model/*"
   ]
  },
  {
   "Sid": "CreateApplicationInferenceProfileUsingBedrockModels",
   "Effect": "Allow",
   "Action": [
    "bedrock:CreateInferenceProfile"
   ],
   "Resource": [
    "arn:aws:bedrock:*:*:inference-profile/*"
   ],
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  }
 ]
```

```
}
```

AWS policy: SageMakerStudioQueryExecutionRolePolicy

This is the default policy for the SageMakerQueryExecutionRole role. This policy provides permissions to run query executions on federated connections.

```
{
 "Version": "2012-10-17",
 "Statement": [
  {
   "Sid": "GlueGetConnectionOnCatalog",
   "Effect": "Allow",
   "Action": [
    "glue:GetConnection"
   ],
   "Resource": [
    "arn:aws:glue:*:*:catalog"
   ]
  },
  {
   "Sid": "GlueGetConnectionsForProject",
   "Effect": "Allow",
   "Action": [
    "glue:GetConnection",
    "glue:GetConnections",
    "glue:GetTags"
   ],
   "Resource": "arn:aws:glue:*:*:connection/*",
   "Condition": {
    "Null": {
     "aws:ResourceTag/AmazonDataZoneProject": "false"
    }
   }
  },
  {
   "Sid": "S3GetObjectForAthenaSpillBucket",
   "Effect": "Allow",
   "Action": [
    "s3:GetObject"
   ],
```

```
    "Resource": [
     "arn:aws:s3:::*/dzd_*/*/dev/sys/athena/*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:PrincipalTag/SageMakerStudioQueryExecutionRole": "true"
     }
    }
   },
   {
    "Sid": "S3ListBucketOwnershipCheckForAthenaSpillBucket",
    "Effect": "Allow",
    "Action": [
     "s3:ListBucket"
    ],
    "Resource": [
     "arn:aws:s3:::amazon-sagemaker-*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:PrincipalTag/SageMakerStudioQueryExecutionRole": "true"
     }
    }
   },
   {
    "Sid": "InvokeFunctionPermissionsForAthenaCatalogLambda",
    "Effect": "Allow",
    "Action": "lambda:InvokeFunction",
    "Resource": "arn:aws:lambda:*:*:function:*",
    "Condition": {
     "StringEquals": {
      "aws:PrincipalTag/SageMakerStudioQueryExecutionRole": "true",
      "aws:ResourceTag/federated_athena_datacatalog": "true"
     }
    }
   }
  ]
}
```

AWS policy: SageMakerStudioEMRServiceRolePolicy

Amazon SageMaker Unified Studio creates IAM roles for project users to perform data analytics, artificial intelligence, and machine learning actions, and uses this policy when creating these roles to define the permissions related to EMR.

```
{
 "Version": "2012-10-17",
 "Statement": [
  {
   "Sid": "PassRoleToEMREC2InstanceRole",
   "Effect": "Allow",
   "Action": "iam:PassRole",
   "Resource": "arn:aws:iam::*:role/datazone_emr_ec2_instance_role_${aws:PrincipalTag/
AmazonDataZoneProject}_${aws:PrincipalTag/AmazonDataZoneEnvironment}",
   "Condition": {
    "StringLike": {
     "iam:PassedToService": "ec2.amazonaws.com"
    },
    "StringNotEquals": {
     "aws:PrincipalTag/AmazonDataZoneProject": "",
     "aws:PrincipalTag/AmazonDataZoneEnvironment": ""
    },
    "Null": {
     "aws:PrincipalTag/AmazonDataZoneProject": "false"
    },
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "CreateInNetworkForSharedSubnet",
   "Effect": "Allow",
   "Action": [
    "ec2:CreateNetworkInterface",
    "ec2:RunInstances",
    "ec2:CreateFleet"
   ],
   "Resource": [
    "*"
   ],
```

```
    "Condition": {
     "ArnLike": {
      "ec2:Vpc": "arn:aws:ec2:*:*:vpc/${aws:PrincipalTag/VpcId}"
     }
    }
   },
   {
    "Sid": "EMRKMSPermissions",
    "Effect": "Allow",
    "Action": [
     "kms:CreateGrant",
     "kms:ReEncryptFrom",
     "kms:ReEncryptTo",
     "kms:Decrypt",
     "kms:Encrypt",
     "kms:GenerateDataKeyWithoutPlaintext"
    ],
    "Resource": "arn:aws:kms:*:*:key/${aws:PrincipalTag/KmsKeyId}",
    "Condition": {
     "StringLike": {
      "kms:ViaService": [
       "ec2.*.amazonaws.com"
      ]
     },
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     },
     "Null": {
      "kms:EncryptionContextKeys": "false"
     }
    }
   },
   {
    "Sid": "AllowGenerateDataKeyForEbsEncryption",
    "Effect": "Allow",
    "Action": "kms:GenerateDataKey",
    "Resource": "arn:aws:kms:*:*:key/${aws:PrincipalTag/KmsKeyId}",
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   },
   {
```

```
    "Sid": "AllowEMRForKMSManagement",
    "Effect": "Allow",
    "Action": [
     "kms:ListGrants",
     "kms:RevokeGrant",
     "kms:DescribeKey"
    ],
    "Resource": "arn:aws:kms:*:*:key/${aws:PrincipalTag/KmsKeyId}",
    "Condition": {
     "StringLike": {
      "kms:ViaService": [
       "ec2.*.amazonaws.com"
      ]
     },
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   },
   {
    "Sid": "AllowEMRToListKmsAliases",
    "Effect": "Allow",
    "Action": "kms:ListAliases",
    "Resource": "arn:aws:kms:*:*:key/${aws:PrincipalTag/KmsKeyId}",
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   }
  ]
}
```

AWS policy: AmazonDataZoneBedrockModelConsumptionPolicy

Provides permissions to consume Amazon Bedrock models, including invoking Amazon Bedrock application inference profile created for particular Amazon DataZone domain.

```
{
 "Version": "2012-10-17",
 "Statement": [
```

```
{
 "Sid": "InvokeDomainInferenceProfiles",
 "Effect": "Allow",
 "Action": [
  "bedrock:InvokeModel",
  "bedrock:InvokeModelWithResponseStream"
 ],
 "Resource": "arn:aws:bedrock:*:*:application-inference-profile/*",
 "Condition": {
  "StringEquals": {
   "aws:ResourceTag/AmazonDataZoneDomain": "${datazone:domainId}",
   "aws:ResourceAccount": "${aws:PrincipalAccount}"
  },
  "Null": {
   "aws:ResourceTag/AmazonDataZoneProject": "true"
  }
 }
},
{
 "Sid": "ListFoundationModels",
 "Effect": "Allow",
 "Action": [
  "bedrock:ListFoundationModels"
 ],
 "Resource": "*"
},
{
 "Sid": "BedrockCreateSessionWithTagsPermissions",
 "Effect": "Allow",
 "Action": [
  "bedrock:CreateSession",
  "bedrock:TagResource"
 ],
 "Resource": "arn:aws:bedrock:*:*:session/*",
 "Condition": {
  "StringEquals": {
   "aws:ResourceAccount": "${aws:PrincipalAccount}",
   "aws:RequestTag/AmazonDataZoneUser": "${datazone:userId}",
   "aws:ResourceTag/AmazonDataZoneUser": "${datazone:userId}",
   "aws:RequestTag/AmazonDataZoneDomain": "${datazone:domainId}",
   "aws:ResourceTag/AmazonDataZoneDomain": "${datazone:domainId}"
  },
  "StringNotEquals": {
   "aws:RequestTag/AmazonDataZoneUser": "",
```

```
      "aws:ResourceTag/AmazonDataZoneUser": "",
      "aws:RequestTag/AmazonDataZoneDomain": "",
      "aws:ResourceTag/AmazonDataZoneDomain": ""
     },
     "ForAllValues:StringLike": {
      "aws:TagKeys": "AmazonDataZone*"
     },
     "Null": {
      "aws:RequestTag/AmazonDataZoneProject": "true",
      "aws:ResourceTag/AmazonDataZoneProject": "true"
     }
    }
   },
   {
    "Sid": "BedrockSessionPermissions",
    "Effect": "Allow",
    "Action": [
     "bedrock:GetSession",
     "bedrock:UpdateSession",
     "bedrock:DeleteSession",
     "bedrock:EndSession",
     "bedrock:CreateInvocation",
     "bedrock:ListInvocations",
     "bedrock:PutInvocationStep",
     "bedrock:GetInvocationStep",
     "bedrock:ListInvocationSteps",
     "bedrock:ListTagsForResource"
    ],
    "Resource": "arn:aws:bedrock:*:*:session/*",
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}",
      "aws:ResourceTag/AmazonDataZoneUser": "${datazone:userId}",
      "aws:ResourceTag/AmazonDataZoneDomain": "${datazone:domainId}"
     },
     "StringNotEquals": {
      "aws:ResourceTag/AmazonDataZoneUser": "",
      "aws:ResourceTag/AmazonDataZoneDomain": ""
     },
     "Null": {
      "aws:ResourceTag/AmazonDataZoneProject": "true"
     }
    }
   },
```

```
  {
   "Sid": "BedrockListSessionsPermissions",
   "Effect": "Allow",
   "Action": "bedrock:ListSessions",
   "Resource": "*"
  }
 ]
}
```

AWS policy: SageMakerStudioEMRInstanceRolePolicy

Amazon SageMaker Unified Studio creates IAM roles for project users to perform data analytics, artificial intelligence, and machine learning actions and uses this policy when creating these roles to define the permissions related to EMR.

```
{
 "Version": "2012-10-17",
 "Statement": [
  {
   "Sid": "AccessCertificateLocationS3Permission",
   "Effect": "Allow",
   "Action": "s3:GetObject",
   "Resource": "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}/${aws:PrincipalTag/
AmazonDataZoneDomain}/certificate_location/*",
   "Condition": {
    "StringNotEquals": {
     "aws:PrincipalTag/DomainBucketName": "",
     "aws:PrincipalTag/AmazonDataZoneDomain": ""
    },
    "Null": {
     "aws:PrincipalTag/AmazonDataZoneProject": "false"
    },
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "AccessPatchingRPMsS3Permission",
   "Effect": "Allow",
   "Action": "s3:GetObject",
```

```
    "Resource": [
     "arn:aws:s3:::default-env-blueprint-*/*",
     "arn:aws:s3:*:*:accesspoint/env-blueprint-accesspoint*"
    ],
    "Condition": {
     "ArnLike": {
      "s3:DataAccessPointArn": "arn:aws:s3:*:*:accesspoint/env-blueprint-accesspoint"
     },
     "StringNotEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   },
   {
    "Sid": "AccessBootstrapActionScriptS3Permission",
    "Effect": "Allow",
    "Action": "s3:GetObject",
    "Resource": "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}/${aws:PrincipalTag/
AmazonDataZoneDomain}/${aws:PrincipalTag/AmazonDataZoneProject}/${aws:PrincipalTag/
AmazonDataZoneScopeName}/sys/emr/bootstrap-script/*",
    "Condition": {
     "StringNotEquals": {
      "aws:PrincipalTag/DomainBucketName": "",
      "aws:PrincipalTag/AmazonDataZoneDomain": "",
      "aws:PrincipalTag/AmazonDataZoneProject": "",
      "aws:PrincipalTag/AmazonDataZoneScopeName": ""
     },
     "Null": {
      "aws:PrincipalTag/AmazonDataZoneProject": "false"
     },
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   },
   {
    "Sid": "EMRClusterLogUploadS3Permission",
    "Effect": "Allow",
    "Action": "s3:PutObject",
    "Resource": "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}/${aws:PrincipalTag/
AmazonDataZoneDomain}/${aws:PrincipalTag/AmazonDataZoneProject}/${aws:PrincipalTag/
AmazonDataZoneScopeName}/sys/emr/*",
    "Condition": {
     "StringNotEquals": {
```

```
      "aws:PrincipalTag/DomainBucketName": "",
      "aws:PrincipalTag/AmazonDataZoneDomain": "",
      "aws:PrincipalTag/AmazonDataZoneProject": "",
      "aws:PrincipalTag/AmazonDataZoneScopeName": ""
     },
     "Null": {
      "aws:PrincipalTag/AmazonDataZoneProject": "false"
     },
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   },
   {
    "Sid": "EMRRuntimeRoleAssumePermissions",
    "Effect": "Allow",
    "Action": [
     "sts:AssumeRole",
     "sts:TagSession"
    ],
    "Resource": "*",
    "Condition": {
     "ForAllValues:StringEquals": {
      "aws:TagKeys": [
       "LakeFormationAuthorizedCaller"
      ]
     },
     "StringEquals": {
      "iam:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
     }
    }
   },
   {
    "Sid": "EMRKMSPermissions",
    "Effect": "Allow",
    "Action": [
     "kms:CreateGrant",
     "kms:Decrypt",
     "kms:Encrypt",
     "kms:GenerateDataKeyWithoutPlaintext"
    ],
    "Resource": "arn:aws:kms:*:*:key/${aws:PrincipalTag/KmsKeyId}",
    "Condition": {
```

```
    "StringLike": {
     "kms:ViaService": [
      "ec2.*.amazonaws.com"
     ]
    },
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "Null": {
     "kms:EncryptionContextKeys": "false"
    }
   }
  },
  {
   "Sid": "AllowGenerateDataKeyForEbsEncryption",
   "Effect": "Allow",
   "Action": "kms:GenerateDataKey",
   "Resource": "arn:aws:kms:*:*:key/${aws:PrincipalTag/KmsKeyId}",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  }
 ]
}
```

AWS policy: SageMakerStudioBedrockAgentServiceRolePolicy

This policy allows Amazon Bedrock Agents to access Amazon Bedrock models and other resources attached to an agent in Amazon SageMaker Unified Studio.

This is the main policy for the Amazon Bedrock IDE agent service role. This role is part of the AmazonBedrockChatAgent environment blueprint.

This policy grants the Amazon Bedrock service access to resources attached to a Amazon Bedrock IDE chat agent app, including Amazon Bedrock models, guardrails, knowledge bases; AWS Lambda functions; Amazon S3 objects; and an AWS KMS key.

- Amazon Bedrock permissions are required for Amazon Bedrock agents to invoke Amazon Bedrock models enabled at the project level. This policy also grants access to Amazon Bedrock resources managed within Amazon SageMaker Unified Studio.

- AWS Lambda permissions are required for Amazon Bedrock agents to run functions attached to an Amazon Bedrock IDE chat agent app.
- Amazon S3 permissions are required for Amazon Bedrock agents to access the project's Amazon S3 bucket.
- AWS KMS permissions are required to access Amazon Bedrock and Amazon S3 data encrypted with a customer managed key.

This policy allows the Amazon Bedrock service to access specific resources tagged with the same project ID as the service role. This tag restriction effectively only permits access to resources in the same project. By default, project users are not allowed to change service role tags.

```
{
 "Version": "2012-10-17",
 "Statement": [
  {
   "Sid": "BedrockAppInferenceProfileInvocationPermissions",
   "Effect": "Allow",
   "Action": [
    "bedrock:GetInferenceProfile",
    "bedrock:InvokeModel",
    "bedrock:InvokeModelWithResponseStream"
   ],
   "Resource": "arn:aws:bedrock:*:*:application-inference-profile/*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
    }
   }
  },
  {
   "Sid": "BedrockModelInvocationPermissions",
   "Effect": "Allow",
   "Action": [
    "bedrock:InvokeModel",
    "bedrock:InvokeModelWithResponseStream"
   ],
   "Resource": [
    "arn:aws:bedrock:*::foundation-model/*",
    "arn:aws:bedrock:*:*:custom-model/*",
```

```
     "arn:aws:bedrock:*:*:provisioned-model/*"
    ],
    "Condition": {
     "Null": {
      "bedrock:InferenceProfileArn": "false"
     }
    }
   },
   {
    "Sid": "BedrockApplyGuardrailPermissions",
    "Effect": "Allow",
    "Action": "bedrock:ApplyGuardrail",
    "Resource": "arn:aws:bedrock:*:*:guardrail/*",
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}",
      "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
     }
    }
   },
   {
    "Sid": "BedrockRetrieveAndGeneratePermissions",
    "Effect": "Allow",
    "Action": "bedrock:RetrieveAndGenerate",
    "Resource": "*"
   },
   {
    "Sid": "LambdaInvokeFunctionInProjectPermissions",
    "Effect": "Allow",
    "Action": "lambda:InvokeFunction",
    "Resource": "arn:aws:lambda:*:*:function:amazon-bedrock*",
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}",
      "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
     }
    }
   },
   {
    "Sid": "BedrockRetrievePermissions",
    "Effect": "Allow",
    "Action": "bedrock:Retrieve",
```

```
    "Resource": "arn:aws:bedrock:*:*:knowledge-base/*",
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}",
      "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
     }
    }
   },
   {
    "Sid": "S3GetObjectPermissions",
    "Effect": "Allow",
    "Action": [
     "s3:GetObject",
     "s3:GetObjectVersion",
     "s3:GetObjectVersionAttributes",
     "s3:GetObjectAttributes"
    ],
    "Resource": "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}/${aws:PrincipalTag/
AmazonDataZoneDomain}/${aws:PrincipalTag/AmazonDataZoneProject}/*",
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     },
     "StringNotEquals": {
      "aws:PrincipalTag/DomainBucketName": "",
      "aws:PrincipalTag/AmazonDataZoneDomain": "",
      "aws:PrincipalTag/AmazonDataZoneProject": ""
     }
    }
   },
   {
    "Sid": "BedrockGuardrailKmsPermissions",
    "Effect": "Allow",
    "Action": "kms:Decrypt",
    "Resource": "arn:aws:kms:*:*:key/${aws:PrincipalTag/KmsKeyId}",
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     },
     "Null": {
      "kms:EncryptionContext:aws:bedrock:guardrail-id": "false"
     }
    }
```

```
  },
  {
   "Sid": "S3KmsPermissions",
   "Effect": "Allow",
   "Action": "kms:Decrypt",
   "Resource": "arn:aws:kms:*:*:key/${aws:PrincipalTag/KmsKeyId}",
   "Condition": {
    "StringLike": {
     "kms:ViaService": "s3.*.amazonaws.com"
    },
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "ArnLike": {
     "kms:EncryptionContext:aws:s3:arn": [
      "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}",
      "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}/*"
     ]
    }
   }
  }
 ]
}
```

AWS policy: SageMakerStudioBedrockChatAgentUserRolePolicy

This policy provides access to an Amazon Bedrock chat agent app's configuration and Amazon Bedrock agent in Amazon SageMaker Unified Studio.

This is the main policy for the Amazon Bedrock IDE chat agent user role. This role is part of the AmazonBedrockChatAgent environment blueprint.

This policy grants users access to a shared Amazon Bedrock IDE chat agent app, including the permission to invoke an Amazon Bedrock agent, get its configuration from Amazon S3, and use an AWS KMS key.

- Amazon Bedrock permissions are required for app users to read and invoke an Amazon Bedrock agent.
- Amazon S3 permissions are required for app users to read an object in the project's Amazon S3 bucket.

- AWS KMS permissions are required to access Amazon Bedrock and Amazon S3 data encrypted with a customer managed key.

This policy allows users to access individually shared Amazon Bedrock IDE chat agent apps. By default, domain users and project users are not allowed to change user role tags.

```
{
 "Version": "2012-10-17",
 "Statement": [
  {
   "Sid": "BedrockGetAgentAliasPermissions",
   "Effect": "Allow",
   "Action": "bedrock:GetAgentAlias",
   "Resource": "arn:aws:bedrock:*:*:agent-alias/${aws:PrincipalTag/AgentId}/
${aws:PrincipalTag/AgentAliasId}",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}",
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
    }
   }
  },
  {
   "Sid": "BedrockInvokeAgentPermissions",
   "Effect": "Allow",
   "Action": "bedrock:InvokeAgent",
   "Resource": "arn:aws:bedrock:*:*:agent-alias/${aws:PrincipalTag/AgentId}/
${aws:PrincipalTag/AgentAliasId}",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}",
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
    }
   }
  },
  {
   "Sid": "BedrockGetAndListAgentMetadataPermissions",
   "Effect": "Allow",
   "Action": [
```

```
    "bedrock:GetAgent",
    "bedrock:GetAgentActionGroup",
    "bedrock:GetAgentKnowledgeBase",
    "bedrock:GetAgentVersion",
    "bedrock:ListAgentActionGroups",
    "bedrock:ListAgentAliases",
    "bedrock:ListAgentKnowledgeBases",
    "bedrock:ListAgentVersions"
   ],
   "Resource": "arn:aws:bedrock:*:*:agent/${aws:PrincipalTag/AgentId}",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}",
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
    }
   }
  },
  {
   "Sid": "S3ListAppDefinitionPermissions",
   "Effect": "Allow",
   "Action": "s3:ListBucket",
   "Resource": "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}",
   "Condition": {
    "StringEquals": {
     "s3:prefix": "${aws:PrincipalTag/AmazonDataZoneDomain}/${aws:PrincipalTag/
AmazonDataZoneProject}/${aws:PrincipalTag/AppDefinitionPath}",
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "StringNotEquals": {
     "aws:PrincipalTag/DomainBucketName": "",
     "aws:PrincipalTag/AmazonDataZoneDomain": "",
     "aws:PrincipalTag/AmazonDataZoneProject": "",
     "aws:PrincipalTag/AppDefinitionPath": ""
    }
   }
  },
  {
   "Sid": "S3GetAppDefinitionPermissions",
   "Effect": "Allow",
   "Action": [
    "s3:GetObject",
    "s3:GetObjectVersion"
   ],
```

```
   "Resource": "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}/${aws:PrincipalTag/
AmazonDataZoneDomain}/${aws:PrincipalTag/AmazonDataZoneProject}/${aws:PrincipalTag/
AppDefinitionPath}",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "StringNotEquals": {
     "aws:PrincipalTag/DomainBucketName": "",
     "aws:PrincipalTag/AmazonDataZoneDomain": "",
     "aws:PrincipalTag/AmazonDataZoneProject": "",
     "aws:PrincipalTag/AppDefinitionPath": ""
    }
   }
  },
  {
   "Sid": "S3ListDataSourcePermissions",
   "Effect": "Allow",
   "Action": "s3:ListBucket",
   "Resource": "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}",
   "Condition": {
    "StringEquals": {
     "s3:prefix": "${aws:PrincipalTag/AmazonDataZoneDomain}/${aws:PrincipalTag/
AmazonDataZoneProject}/${aws:PrincipalTag/DataSourcePath}",
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "StringNotEquals": {
     "aws:PrincipalTag/DomainBucketName": "",
     "aws:PrincipalTag/AmazonDataZoneDomain": "",
     "aws:PrincipalTag/AmazonDataZoneProject": "",
     "aws:PrincipalTag/DataSourcePath": ""
    }
   }
  },
  {
   "Sid": "S3GetDataSourcePermissions",
   "Effect": "Allow",
   "Action": [
    "s3:GetObject",
    "s3:GetObjectVersion"
   ],
   "Resource": "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}/${aws:PrincipalTag/
AmazonDataZoneDomain}/${aws:PrincipalTag/AmazonDataZoneProject}/${aws:PrincipalTag/
DataSourcePath}",
```

```
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     },
     "StringNotEquals": {
      "aws:PrincipalTag/DomainBucketName": "",
      "aws:PrincipalTag/AmazonDataZoneDomain": "",
      "aws:PrincipalTag/AmazonDataZoneProject": "",
      "aws:PrincipalTag/DataSourcePath": ""
     }
    }
   },
   {
    "Sid": "BedrockAgentKmsPermissions",
    "Effect": "Allow",
    "Action": [
     "kms:Decrypt",
     "kms:GenerateDataKey"
    ],
    "Resource": "arn:aws:kms:*:*:key/${aws:PrincipalTag/KmsKeyId}",
    "Condition": {
     "StringLike": {
      "kms:ViaService": "bedrock.*.amazonaws.com",
      "kms:EncryptionContext:aws:bedrock:arn": "arn:aws:bedrock:*:
${aws:PrincipalAccount}:agent/${aws:PrincipalTag/AgentId}"
     },
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   },
   {
    "Sid": "S3KmsPermissions",
    "Effect": "Allow",
    "Action": "kms:Decrypt",
    "Resource": "arn:aws:kms:*:*:key/${aws:PrincipalTag/KmsKeyId}",
    "Condition": {
     "StringLike": {
      "kms:ViaService": "s3.*.amazonaws.com"
     },
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     },
     "ArnLike": {
```

```
      "kms:EncryptionContext:aws:s3:arn": [
       "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}",
       "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}/*"
      ]
     }
    }
   }
  ]
}
```

AWS policy: SageMakerStudioBedrockPromptUserRolePolicy

This policy provides access to an Amazon Bedrock prompt and its configuration in Amazon SageMaker Unified Studio.

This is the main policy for the Amazon Bedrock IDE prompt user role. This role is part of the AmazonBedrockPrompt environment blueprint.

This policy grants users access to a shared Amazon Bedrock IDE prompt, including the Amazon Bedrock prompt, its configuration in Amazon S3, and an AWS KMS key.

- Amazon Bedrock permissions are required for prompt users to read Amazon Bedrock prompts.
- Amazon S3 permissions are required for prompt users to read an object in the project's Amazon S3 bucket.
- AWS KMS permissions are required to access Amazon Bedrock and Amazon S3 data encrypted with a customer managed key.

This policy allows users to access individually shared Amazon Bedrock IDE prompts. By default, domain users and project users are not allowed to change user role tags.

```
{
 "Version": "2012-10-17",
 "Statement": [
  {
   "Sid": "BedrockPromptReadOnlyPermissions",
   "Effect": "Allow",
   "Action": "bedrock:GetPrompt",
   "Resource": "arn:aws:bedrock:*:*:prompt/${aws:PrincipalTag/PromptId}:
${aws:PrincipalTag/PromptVersion}",
```

```
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}",
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
    }
   }
  },
  {
   "Sid": "S3ListPromptDefinitionPermissions",
   "Effect": "Allow",
   "Action": "s3:ListBucket",
   "Resource": "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}",
   "Condition": {
    "StringEquals": {
     "s3:prefix": "${aws:PrincipalTag/AmazonDataZoneDomain}/${aws:PrincipalTag/
AmazonDataZoneProject}/${aws:PrincipalTag/PromptDefinitionPath}",
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "StringNotEquals": {
     "aws:PrincipalTag/DomainBucketName": "",
     "aws:PrincipalTag/AmazonDataZoneDomain": "",
     "aws:PrincipalTag/AmazonDataZoneProject": "",
     "aws:PrincipalTag/PromptDefinitionPath": ""
    }
   }
  },
  {
   "Sid": "S3GetPromptDefinitionPermissions",
   "Effect": "Allow",
   "Action": [
    "s3:GetObject",
    "s3:GetObjectVersion"
   ],
   "Resource": "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}/${aws:PrincipalTag/
AmazonDataZoneDomain}/${aws:PrincipalTag/AmazonDataZoneProject}/${aws:PrincipalTag/
PromptDefinitionPath}",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "StringNotEquals": {
     "aws:PrincipalTag/DomainBucketName": "",
     "aws:PrincipalTag/AmazonDataZoneDomain": "",
```

```
      "aws:PrincipalTag/AmazonDataZoneProject": "",
      "aws:PrincipalTag/PromptDefinitionPath": ""
     }
    }
   },
   {
    "Sid": "BedrockPromptKmsPermissions",
    "Effect": "Allow",
    "Action": [
     "kms:Decrypt",
     "kms:GenerateDataKey"
    ],
    "Resource": "arn:aws:kms:*:*:key/${aws:PrincipalTag/KmsKeyId}",
    "Condition": {
     "StringLike": {
      "kms:ViaService": "bedrock.*.amazonaws.com",
      "kms:EncryptionContext:aws:bedrock-prompts:arn": "arn:aws:bedrock:*:
${aws:PrincipalAccount}:prompt/${aws:PrincipalTag/PromptId}"
     },
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   },
   {
    "Sid": "S3KmsPermissions",
    "Effect": "Allow",
    "Action": "kms:Decrypt",
    "Resource": "arn:aws:kms:*:*:key/${aws:PrincipalTag/KmsKeyId}",
    "Condition": {
     "StringLike": {
      "kms:ViaService": "s3.*.amazonaws.com"
     },
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     },
     "ArnLike": {
      "kms:EncryptionContext:aws:s3:arn": [
       "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}",
       "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}/*"
      ]
     }
    }
   }
```

```
 ]
}
```

AWS policy: SageMakerStudioBedrockFlowServiceRolePolicy

This policy allows Amazon Bedrock Flows to access Amazon Bedrock models and other resources attached to a flow in Amazon SageMaker Unified Studio.

This is the main policy for the Amazon Bedrock IDE prompt flow service role. This role is part of the AmazonBedrockFlow environment blueprint.

This policy grants the Amazon Bedrock service access to resources attached to a Amazon Bedrock IDE flow app, including Amazon Bedrock models, guardrails, knowledge bases, prompts; AWS Lambda functions; and an AWS KMS key.

- Amazon Bedrock permissions are required for Amazon Bedrock prompt flows to invoke Amazon Bedrock models enabled at the project level. This policy also grants access to Amazon Bedrock resources managed within Amazon SageMaker Unified Studio.
- AWS Lambda permissions are required for Amazon Bedrock prompt flows to run functions attached to an Amazon Bedrock IDE flow app.
- AWS KMS permissions are required to access Amazon Bedrock and Amazon S3 data encrypted with a customer managed key.

This policy allows the Amazon Bedrock service to access specific resources tagged with the same project ID as the service role. This tag restriction effectively only permits access to resources in the same project. By default, project users are not allowed to change service role tags.

```
{
 "Version": "2012-10-17",
 "Statement": [
  {
   "Sid": "BedrockPromptPermissions",
   "Effect": "Allow",
   "Action": "bedrock:GetPrompt",
   "Resource": "arn:aws:bedrock:*:*:prompt/*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}",
```

```
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
    }
   }
  },
  {
   "Sid": "BedrockKnowledgeBasePermissions",
   "Effect": "Allow",
   "Action": "bedrock:Retrieve",
   "Resource": "arn:aws:bedrock:*:*:knowledge-base/*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}",
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
    }
   }
  },
  {
   "Sid": "BedrockGuardrailPermissions",
   "Effect": "Allow",
   "Action": "bedrock:ApplyGuardrail",
   "Resource": "arn:aws:bedrock:*:*:guardrail/*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}",
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
    }
   }
  },
  {
   "Sid": "AllowBedrockRetrieveAndGeneratePermissions",
   "Effect": "Allow",
   "Action": "bedrock:RetrieveAndGenerate",
   "Resource": "*"
  },
  {
   "Sid": "AllowLambdaInvokeFunctionInProjectPermissions",
   "Effect": "Allow",
   "Action": "lambda:InvokeFunction",
   "Resource": "arn:aws:lambda:*:*:function:amazon-bedrock*",
   "Condition": {
    "StringEquals": {
```

```
     "aws:ResourceAccount": "${aws:PrincipalAccount}",
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
    }
   }
  },
  {
   "Sid": "AllowBedrockApplicationInferenceProfileAccessInProjectPermissions",
   "Effect": "Allow",
   "Action": [
    "bedrock:GetInferenceProfile",
    "bedrock:InvokeModel"
   ],
   "Resource": "arn:aws:bedrock:*:*:application-inference-profile/*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
    }
   }
  },
  {
   "Sid": "AllowBedrockInvokeModelAccessWithInferenceProfilePermissions",
   "Effect": "Allow",
   "Action": "bedrock:InvokeModel",
   "Resource": [
    "arn:aws:bedrock:*::foundation-model/*",
    "arn:aws:bedrock:*:*:custom-model/*",
    "arn:aws:bedrock:*:*:provisioned-model/*"
   ],
   "Condition": {
    "Null": {
     "bedrock:InferenceProfileArn": "false"
    }
   }
  },
  {
   "Sid": "BedrockInvokeAgentPermissions",
   "Effect": "Allow",
   "Action": "bedrock:InvokeAgent",
   "Resource": "arn:aws:bedrock:*:*:agent-alias/*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}",
```

```
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
    }
   }
  },
  {
   "Sid": "BedrockPromptKmsPermissions",
   "Effect": "Allow",
   "Action": [
    "kms:Decrypt",
    "kms:GenerateDataKey"
   ],
   "Resource": "arn:aws:kms:*:*:key/${aws:PrincipalTag/KmsKeyId}",
   "Condition": {
    "StringLike": {
     "kms:ViaService": "bedrock.*.amazonaws.com",
     "kms:EncryptionContext:aws:bedrock-prompts:arn": "arn:aws:bedrock:*:
${aws:PrincipalAccount}:prompt/*"
    },
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "BedrockGuardrailKmsPermissions",
   "Effect": "Allow",
   "Action": "kms:Decrypt",
   "Resource": "arn:aws:kms:*:*:key/${aws:PrincipalTag/KmsKeyId}",
   "Condition": {
    "StringLike": {
     "kms:ViaService": "bedrock.*.amazonaws.com"
    },
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "Null": {
     "kms:EncryptionContext:aws:bedrock:guardrail-id": "false"
    }
   }
  },
  {
   "Sid": "BedrockAgentKmsPermissions",
   "Effect": "Allow",
```

```
    "Action": [
     "kms:Decrypt",
     "kms:GenerateDataKey"
    ],
    "Resource": "arn:aws:kms:*:*:key/${aws:PrincipalTag/KmsKeyId}",
    "Condition": {
     "StringLike": {
      "kms:ViaService": "bedrock.*.amazonaws.com",
      "kms:EncryptionContext:aws:bedrock:arn": "arn:aws:bedrock:*:
${aws:PrincipalAccount}:agent/*"
     },
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   }
  ]
}
```

AWS policy: SageMakerStudioBedrockEvaluationJobServiceRolePolicy

This policy allows Amazon Bedrock to access Amazon Bedrock models and datasets for evaluation jobs in Amazon SageMaker Unified Studio.

This is the main policy for the Amazon Bedrock IDE evaluation job service role. This role is part of the AmazonBedrockEvaluation environment blueprint.

This policy grants the Amazon Bedrock service access to resources for an Amazon Bedrock model evaluation job, including Amazon Bedrock models, Amazon S3 objects, and an AWS KMS key.

- Amazon Bedrock permissions are required for Amazon Bedrock evaluation jobs to invoke Amazon Bedrock models enabled at the project level. This policy also grants access to Amazon Bedrock resources managed within Amazon SageMaker Unified Studio.
- Amazon S3 permissions are required for Amazon Bedrock evaluation jobs to access the project's Amazon S3 bucket.
- AWS KMS permissions are required to access Amazon S3 data encrypted with a customer managed key.

This policy allows the Amazon Bedrock service to access specific resources tagged with the same project ID as the service role. This tag restriction effectively only permits access to resources in the same project. By default, project users are not allowed to change service role tags.

```
{
 "Version": "2012-10-17",
 "Statement": [
  {
   "Sid": "BedrockEvaluationInferenceProfileInvocationPermissions",
   "Effect": "Allow",
   "Action": [
    "bedrock:InvokeModel",
    "bedrock:InvokeModelWithResponseStream",
    "bedrock:GetInferenceProfile"
   ],
   "Resource": [
    "arn:aws:bedrock:*:*:application-inference-profile/*"
   ],
   "Condition": {
    "StringEquals": {
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
    }
   }
  },
  {
   "Sid": "BedrockInvokeModelPermissions",
   "Effect": "Allow",
   "Action": [
    "bedrock:InvokeModel",
    "bedrock:InvokeModelWithResponseStream"
   ],
   "Resource": [
    "arn:aws:bedrock:*::foundation-model/*",
    "arn:aws:bedrock:*:*:custom-model/*",
    "arn:aws:bedrock:*:*:provisioned-model/*"
   ],
   "Condition": {
    "Null": {
     "bedrock:InferenceProfileArn": "false"
    }
   }
```

```
  },
  {
   "Sid": "BedrockModelInvocationPermissions",
   "Effect": "Allow",
   "Action": [
    "bedrock:CreateModelInvocationJob",
    "bedrock:StopModelInvocationJob",
    "bedrock:GetProvisionedModelThroughput"
   ],
   "Resource": "*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  },
  {
   "Sid": "S3GetBucketLocationPermissions",
   "Effect": "Allow",
   "Action": "s3:GetBucketLocation",
   "Resource": "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "StringNotEquals": {
     "aws:PrincipalTag/DomainBucketName": ""
    }
   }
  },
  {
   "Sid": "S3ListBucketPermissions",
   "Effect": "Allow",
   "Action": "s3:ListBucket",
   "Resource": "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "StringLike": {
     "s3:prefix": "${aws:PrincipalTag/AmazonDataZoneDomain}/${aws:PrincipalTag/
AmazonDataZoneProject}/*"
    },
    "StringNotEquals": {
```

```
      "aws:PrincipalTag/DomainBucketName": "",
      "aws:PrincipalTag/AmazonDataZoneDomain": "",
      "aws:PrincipalTag/AmazonDataZoneProject": ""
     }
    }
   },
   {
    "Sid": "S3EvaluationPermissions",
    "Effect": "Allow",
    "Action": [
     "s3:GetObject",
     "s3:PutObject",
     "s3:ListMultipartUploadParts",
     "s3:AbortMultipartUpload"
    ],
    "Resource": [
     "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}/${aws:PrincipalTag/
AmazonDataZoneDomain}/${aws:PrincipalTag/AmazonDataZoneProject}/*"
    ],
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     },
     "StringNotEquals": {
      "aws:PrincipalTag/DomainBucketName": "",
      "aws:PrincipalTag/AmazonDataZoneDomain": "",
      "aws:PrincipalTag/AmazonDataZoneProject": ""
     }
    }
   },
   {
    "Sid": "KmsDescribeKeyPermissions",
    "Effect": "Allow",
    "Action": "kms:DescribeKey",
    "Resource": "arn:aws:kms:*:*:key/${aws:PrincipalTag/KmsKeyId}",
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     }
    }
   },
   {
    "Sid": "S3KmsPermissions",
    "Effect": "Allow",
```

```
    "Action": [
     "kms:Decrypt",
     "kms:GenerateDataKey"
    ],
    "Resource": "arn:aws:kms:*:*:key/${aws:PrincipalTag/KmsKeyId}",
    "Condition": {
     "StringLike": {
      "kms:ViaService": "s3.*.amazonaws.com"
     },
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     },
     "ArnLike": {
      "kms:EncryptionContext:aws:s3:arn": [
       "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}",
       "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}/*"
      ]
     }
    }
   }
  ]
}
```

AWS policy: SageMakerStudioBedrockKnowledgeBaseCustomResourcePolicy

This policy provides access to configure vector stores and Amazon Bedrock knowledge bases in Amazon SageMaker Unified Studio.

This is the main policy for the Amazon Bedrock IDE knowledge base custom resource service role. This role is part of the AmazonBedrockKnowledgeBase environment blueprint.

This policy grants AWS Lambda-backed CloudFormation custom resources access to Amazon Bedrock IDE knowledge bases and their Amazon OpenSearch Serverless collections.

- Amazon Bedrock permissions are required for the custom resource to start and query Amazon Bedrock knowledge base ingestion jobs.
- Amazon OpenSearch Serverless permissions for the custom resource to prepare Amazon OpenSearch Serverless collections for use with Amazon Bedrock knowledge bases.

This policy allows the Amazon Bedrock service to access specific resources tagged with the same project ID as the service role. This tag restriction effectively only permits access to resources in the same project. By default, project users are not allowed to change service role tags.

```
{
 "Version": "2012-10-17",
 "Statement": [
  {
   "Sid": "OpenSearchServerlessPermissions",
   "Effect": "Allow",
   "Action": "aoss:APIAccessAll",
   "Resource": "arn:aws:aoss:*:*:collection/*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "StringLike": {
     "aoss:collection": "bedrock*"
    }
   }
  },
  {
   "Sid": "BedrockKnowledgeBasePermissions",
   "Effect": "Allow",
   "Action": [
    "bedrock:GetIngestionJob",
    "bedrock:ListIngestionJobs",
    "bedrock:StartIngestionJob"
   ],
   "Resource": "arn:aws:bedrock:*:*:knowledge-base/*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}",
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
    }
   }
  }
 ]
}
```

AWS policy: SageMakerStudioBedrockKnowledgeBaseServiceRolePolicy

This policy allows Amazon Bedrock Knowledge Bases to access Amazon Bedrock models and data sources in Amazon SageMaker Unified Studio.

This is the main policy for the Amazon Bedrock IDE knowledge base service role. This role is part of the AmazonBedrockKnowledgeBase environment blueprint.

This policy grants the Amazon Bedrock service access to resources attached to Amazon Bedrock IDE knowledge bases, including Amazon Bedrock models, Amazon OpenSearch Serverless collections, Amazon S3 objects, and an AWS KMS key.

- Amazon Bedrock permissions are required for Amazon Bedrock knowledge bases to invoke Amazon Bedrock models enabled at the project level and generate queries.
- AWS SQL Workbench permissions are required to generate SQL recommendations for querying structured data sources.
- Amazon OpenSearch Serverless permissions are required for Amazon Bedrock knowledge bases to access the vector search collections that store knowledge base embeddings.
- Amazon S3 permissions are required for Amazon Bedrock agents to access the project's Amazon S3 bucket.
- AWS KMS permissions are required to access Amazon Bedrock and Amazon S3 data encrypted with a customer managed key.

This policy allows the Amazon Bedrock service to access specific resources tagged with the same project ID as the service role. This tag restriction effectively only permits access to resources in the same project. By default, project users are not allowed to change service role tags.

```
{
 "Version": "2012-10-17",
 "Statement": [
  {
   "Sid": "BedrockAppInferenceProfileInvocationPermissions",
   "Effect": "Allow",
   "Action": [
    "bedrock:GetInferenceProfile",
    "bedrock:InvokeModel",
    "bedrock:InvokeModelWithResponseStream"
   ],
```

```
    "Resource": "arn:aws:bedrock:*:*:application-inference-profile/*",
    "Condition": {
     "StringEquals": {
      "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
     }
    }
   },
   {
    "Sid": "BedrockModelInvocationPermission",
    "Effect": "Allow",
    "Action": [
     "bedrock:InvokeModel",
     "bedrock:InvokeModelWithResponseStream"
    ],
    "Resource": [
     "arn:aws:bedrock:*::foundation-model/*",
     "arn:aws:bedrock:*:*:custom-model/*",
     "arn:aws:bedrock:*:*:provisioned-model/*"
    ],
    "Condition": {
     "Null": {
      "bedrock:InferenceProfileArn": "false"
     }
    }
   },
   {
    "Sid": "OpenSearchServerlessPermissions",
    "Effect": "Allow",
    "Action": "aoss:APIAccessAll",
    "Resource": "arn:aws:aoss:*:*:collection/*",
    "Condition": {
     "StringEquals": {
      "aws:ResourceAccount": "${aws:PrincipalAccount}"
     },
     "StringLike": {
      "aoss:collection": "bedrock*"
     }
    }
   },
   {
    "Sid": "ListDomainS3BucketPermissions",
    "Effect": "Allow",
    "Action": "s3:ListBucket",
```

```
   "Resource": "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "StringLike": {
     "s3:prefix": [
      "${aws:PrincipalTag/AmazonDataZoneDomain}/${aws:PrincipalTag/
AmazonDataZoneProject}",
      "${aws:PrincipalTag/AmazonDataZoneDomain}/${aws:PrincipalTag/
AmazonDataZoneProject}/*"
     ]
    },
    "StringNotEquals": {
     "aws:PrincipalTag/DomainBucketName": "",
     "aws:PrincipalTag/AmazonDataZoneDomain": "",
     "aws:PrincipalTag/AmazonDataZoneProject": ""
    }
   }
  },
  {
   "Sid": "AccessDomainS3BucketPermissions",
   "Effect": "Allow",
   "Action": [
    "s3:GetObject",
    "s3:GetObjectVersion"
   ],
   "Resource": "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}/${aws:PrincipalTag/
AmazonDataZoneDomain}/${aws:PrincipalTag/AmazonDataZoneProject}/*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "StringNotEquals": {
     "aws:PrincipalTag/DomainBucketName": "",
     "aws:PrincipalTag/AmazonDataZoneDomain": "",
     "aws:PrincipalTag/AmazonDataZoneProject": ""
    }
   }
  },
  {
   "Sid": "BedrockKnowledgeBaseKmsPermissions",
   "Effect": "Allow",
   "Action": [
```

```
    "kms:Decrypt",
    "kms:GenerateDataKey"
   ],
   "Resource": "arn:aws:kms:*:*:key/${aws:PrincipalTag/KmsKeyId}",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "StringLike": {
     "kms:EncryptionContext:aws:bedrock:arn": "arn:aws:bedrock:*:
${aws:PrincipalAccount}:knowledge-base/*"
    }
   }
  },
  {
   "Sid": "S3KmsPermissions",
   "Effect": "Allow",
   "Action": "kms:Decrypt",
   "Resource": "arn:aws:kms:*:*:key/${aws:PrincipalTag/KmsKeyId}",
   "Condition": {
    "StringLike": {
     "kms:ViaService": "s3.*.amazonaws.com"
    },
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    },
    "ArnLike": {
     "kms:EncryptionContext:aws:s3:arn": [
      "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}",
      "arn:aws:s3:::${aws:PrincipalTag/DomainBucketName}/*"
     ]
    }
   }
  },
  {
   "Sid": "SqlWorkbenchAccessPermissions",
   "Effect": "Allow",
   "Action": [
    "sqlworkbench:GetSqlRecommendations",
    "sqlworkbench:PutSqlGenerationContext",
    "sqlworkbench:GetSqlGenerationContext",
    "sqlworkbench:DeleteSqlGenerationContext"
   ],
   "Resource": "*"
```

```
  },
  {
   "Sid": "BedrockGenerateQueryPermissions",
   "Effect": "Allow",
   "Action": [
    "bedrock:GenerateQuery"
   ],
   "Resource": "*"
  }
 ]
}
```

AWS policy: SageMakerStudioBedrockFunctionExecutionRolePolicy

This policy allows AWS Lambda to access an Amazon Bedrock function component's configuration in Amazon SageMaker Unified Studio.

This is the main policy for the Amazon Bedrock IDE function execution role. This role is part of the AmazonBedrockFunction environment blueprint.

This policy grants the AWS Lambda service access to an Amazon Bedrock IDE function’s configuration, including AWS Secrets Manager secrets and an AWS KMS key.

- AWS Secrets Manager permissions are required for AWS Lambda to access the Amazon Bedrock IDE function’s API keys while fulfilling API requests.
- AWS KMS permissions are required to access AWS Secrets Manager secrets encrypted with a customer managed key.

This policy allows the AWS Lambda service to access specific resources tagged with the same project ID as the service role. This tag restriction effectively only permits access to resources in the same project. By default, project users are not allowed to change service role tags.

```
{
 "Version": "2012-10-17",
 "Statement": [
  {
   "Sid": "SecretsManagerReadPermissions",
   "Effect": "Allow",
```

```
   "Action": [
    "secretsmanager:DescribeSecret",
    "secretsmanager:GetSecretValue"
   ],
   "Resource": "arn:aws:secretsmanager:*:*:secret:amazon-bedrock*",
   "Condition": {
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}",
     "aws:ResourceTag/AmazonDataZoneProject": "${aws:PrincipalTag/
AmazonDataZoneProject}"
    }
   }
  },
  {
   "Sid": "KMSSameAccountBedrockViaSecretsManagerPermissions",
   "Effect": "Allow",
   "Action": "kms:Decrypt",
   "Resource": "arn:aws:kms:*:*:key/${aws:PrincipalTag/KmsKeyId}",
   "Condition": {
    "StringLike": {
     "kms:ViaService": "secretsmanager.*.amazonaws.com",
     "kms:EncryptionContext:SecretARN": "arn:aws:secretsmanager:*:
${aws:PrincipalAccount}:secret:amazon-bedrock*"
    },
    "StringEquals": {
     "aws:ResourceAccount": "${aws:PrincipalAccount}"
    }
   }
  }
 ]
}
```

Amazon SageMaker Unified Studio updates to AWS managed policies

View details about updates to AWS managed policies for Amazon SageMaker Unified Studio since this service began tracking these changes. For automatic alerts about changes to this page, subscribe to the RSS feed on the Amazon SageMaker Unified Studio Document history page.

Change	Description	Date
Policy update - SageMaker StudioProjectUserRolePolicy	Policy update - adding permissions to access Amazon Athena default catalog resource.	6/25/2025
Policy update - SageMaker StudioDomainExecutionRolePolicy	Policy updates to the SageMakerStudioDomainExecutionRolePolicy - adding support for the Amazon Q `GetIdentityMetadata` API action in order to obtain user's Q subscription information to set an appropriate subscription tier badge.	6/18/2025
Policy update - SageMaker StudioProjectUserRolePolicy	Policy updates to the SageMakerStudioProjectUserRolePolicy - bring back previously removed permission to `ListBucket` to fix issues in AWS Glue sessions and connections.	6/13/2025
Policy update - SageMaker StudioProjectUserRolePolicy	Policy updates to the SageMakerStudioProjectUserRolePolicy - adding permissions to list Amazon Bedrock foundation models. Removing permissions to terminate EMR Cluster, change security group rules, Amazon Athena default catalog permissions, and list	6/13/2025

Change	Description	Date
	S3 buckets permissions at bucket level.	
Policy update - SageMakerStudioProjectProvisioningRolePolicy	Policy updates to the SageMakerStudioProjectProvisioningRolePolicy - adding the untag role permission to fix project update failure. Also adding permissions to integrate with Amazon QuickSight. Also optimizing to reduce the policy size. And adding permissions to enable automatic sync of repositories.	6/04/2025
Policy update - SageMakerStudioProjectUserRolePolicy	Policy updates to the SageMakerStudioProjectUserRolePolicy - removing RedshiftDbUser format restriction. Adding KMS permissions required by dependent services for Federated Data Connection. Adding permissions to support Amazon QuickSight integration.	6/04/2025

Change	Description	Date
Policy update - AmazonDataZoneBedrockModelConsumptionPolicy	Policy updates to the AmazonDataZoneBedrockModelConsumptionPolicy - adding permissions to call the `ListFoundationModels` action. This permission is added to help get model metadata more programmatically when the user is selecting which models to invoke.	5/28/2025
Policy update - SageMakerStudioFullAccess	Policy updates to the SageMakerStudioFullAccess - adding permissions to support attaching or updating AWS managed permissions in AWS RAM resource shares in the Amazon SageMaker console.	5/22/2025
Policy update - AmazonDataZoneBedrockModelConsumptionPolicy	Policy updates to the AmazonDataZoneBedrockModelConsumptionPolicy - adding support for the conversation history feature powered by Amazon Bedrock session management in generative AI playgrounds.	5/13/2025

Change	Description	Date
Policy update - SageMakerStudioProjectRoleMachineLearningPolicy	Policy updates to the SageMakerStudioProjectRoleMachineLearningPolicy - as CodeEditor (VS Code) is introduced into Amazon SageMaker Unified Studio, users need the ability to create/delete CodeEditor space applications in Amazon SageMaker. Currently, only Amazon SageMaker space apps are allowed to be created with the JupyterLab app type. This change extends the current capability of creating/deleting JupyterLab space applications to CodeEditor (VS Code).	5/01/2025

Change	Description	Date
Policy update - SageMakerStudioProjectProvisioningRolePolicy	Policy updates to the SageMakerStudioProjectProvisioningRolePolicy - adding IAM permissions for the AmazonSageMakerQueryExecution role to support query execution role creation during enabling of the Tooling blueprint. Adding the DeleteSchedule permission so that when projects are deleted, the Schedule Group can be deleted. EventBridge runs DeleteSchedule automatically on Schedule Groups when it attempts to delete them, regardless of whether the Schedule Group actually has schedules in it. This permission allows for that deleteSchedule call to be made during project deletion.	4/28/2025

Change	Description	Date
Policy update - SageMaker StudioProjectUserRolePolicy	Policy updates to the SageMakerStudioProjectUserRolePolicy - adding permissions for integration with Amazon Bedrock Data Automation. Adding permissions to show Amazon Bedrock agent versions and their details to users. Adding permission to support Trusted Identity Propagation in QEv2. Ensuring project isolation for Amazon Bedrock Inline Agents.	4/28/2025
Policy update - SageMaker StudioBedrockKnowledgeBaseServiceRolePolicy	Policy updates to the SageMakerStudioBedrockKnowledgeBaseServiceRolePolicy - adding support for structured data sources in Amazon Bedrock knowledge bases for generative AI app development projects.	4/16/2025
Policy update - SageMaker StudioBedrockFlowServiceRolePolicy	Policy updates to the SageMakerStudioBedrockFlowServiceRolePolicy - adding support for using Amazon Bedrock agent nodes in Amazon Bedrock flows for generative AI app development projects.	4/09/2025

Change	Description	Date
Policy update - SageMaker StudioProjectUserRolePolicy	Policy updates to the SageMakerStudioProjectUserRolePolicy - preventing sharing provisioned Amazon Redshift-Serverless across all projects. Adding EventBridge Scheduler permissions for users to create schedules in the project schedule group. Adding permissions to handle Amazon SageMaker Studio migration to Amazon SageMaker Unified Studio. Adding support for the Amazon SageMaker App type CodeEditor.	4/09/2025

Change	Description	Date
Policy update - SageMaker StudioProjectProvisioningRolePolicy	Policy updates to the SageMakerStudioProjectProvisioningRolePolicy - adding `lakeformation:DescribeResource` to improve deregistering of federated connections. Adding EventBridge Scheduler permissions to manage a schedule group for each project. Adding permission to manage Amazon Bedrock resources directly from the Amazon DataZone service. Add support for the Amazon SageMaker App type CodeEditor.	4/09/2025
Policy update - SageMaker StudioDomainExecutionRolePolicy	Policy updates to the SageMakerStudioDomainExecutionRolePolicy - adding support for the GetUpdateEligibility API required by Amazon SageMaker Unified Studio to fetch update comments and determine project's eligibility for the workflow of updating projects. Also adding support for the existing Amazon DataZone Rule APIs required by Amazon SageMaker Unified Studio to mange and enforce rules.	3/25/2025

Change	Description	Date
Policy update - SageMakerStudioProjectUserRolePolicy	Policy updates to the SageMakerStudioProjectUserRolePolicy - preventing default AWS Glue database from being listed as it causes issues with Spark SQL. Also adding permission to use new project-wide Amazon Bedrock service role for improved scalability.	3/21/2025
Policy update - SageMakerStudioProjectProvisioningRolePolicy	Policy updates to the SageMakerStudioProjectProvisioningRolePolicy - adding permission to describe stack event for better error reporting.	3/21/2025
Policy update - SageMakerStudioBedrockFlowServiceRolePolicy	Policy updates to the SageMakerStudioProjectProvisioningRolePolicy - adding KMS permissions to decrypt Amazon Bedrock guardrails attached to the Amazon Bedrock flows.	3/10/2025

Change	Description	Date
Policy update - SageMaker StudioProjectProvisioningRolePolicy	Policy updates to the SageMakerStudioProjectProvisioningRolePolicy - adding permission to change trust policy during project update to address confused deputy problem. Also adding permission to attach PartnerApps policy to the user role.	3/05/2025
Policy update - SageMaker StudioProjectProvisioningRolePolicy	Policy updates to the SageMakerStudioProjectProvisioningRolePolicy - adding support for ProjectUpdate for EMR Serverless blueprint to proactively notify users on invalid updates on EMR Serverless application.	3/04/2025
Policy update - SageMaker StudioProjectProvisioningRolePolicy	Policy updates to the SageMakerStudioProjectProvisioningRolePolicy - renaming Amazon Bedrock tag and adding permission to remove deprecated tag on roles.	2/28/2025
Policy update - SageMaker StudioProjectRoleMachineLearningPolicy	Policy updates to the SageMakerStudioProjectRoleMachineLearningPolicy - adding support for the MLFlow Tracking Server for Shared VPC, applying visibility condition to Amazon SageMaker Search API.	2/28/2025

Change	Description	Date
Policy update - SageMaker StudioProjectUserRolePolicy	Policy updates to the SageMakerStudioProjectUserRolePolicy - changes to support shared VPC by removing ResourceAccount condition on actions dependent on VPC/subnets. Moving permissions from inline to this AWS managed policy for Amazon EMR, EMR-Serverless, and federated connections. Adding support for buckets with public access blocked with permission `s3:GetBucketPublicAccessBlock` . Adding permission to support data lineage in Amazon DataZone. Supporting Amazon LakeFormation ABAC by adding session tag the access role. Supporting users operating on private ECR. Also adding support for managing AWS Glue subscriptions by the user.	2/28/2025
Policy update - SageMaker StudioEMRServiceRolePolicy	Policy updates to the SageMakerStudioEMRServiceRolePolicy - adding permissions to allow Amazon EMR to create network interfaces against Shared VPC.	2/28/2025

Change	Description	Date
New policy - SageMaker StudioEMRInstanceRolePolicy	Amazon SageMaker Unified Studio creates IAM roles for project users to perform data analytics, artificial intelligence, and machine learning actions and uses this policy when creating these roles to define the permissions related to EMR.	2/28/2025
New policy - SageMaker StudioBedrockFunctionExecutionRolePolicy	This policy allows AWS Lambda to access an Amazon Bedrock function component's configuration in Amazon SageMaker Unified Studio.	2/25/2025
New policy - SageMaker StudioBedrockKnowledgeBaseCustomResourcePolicy	This policy provides access to configure vector stores and Amazon Bedrock knowledge bases in Amazon SageMaker Unified Studio.	2/25/2025
New policy - SageMaker StudioBedrockKnowledgeBaseServiceRolePolicy	This policy allows Amazon Bedrock Knowledge Bases to access Amazon Bedrock models and data sources in Amazon SageMaker Unified Studio.	2/25/2025

Change	Description	Date
Policy update - SageMakerStudioProjectProvisioningRolePolicy	Policy updates to the SageMakerStudioProjectProvisioningRolePolicy - adding permissions for batch grants in AWS LakeFormation to give grants to IDC users. Adding various `Update*` permissions to allow managing project resources . Removing `ResourceAccount` condition on resources depending on VPC to allow usage of shared VPC. Using new Amazon Bedrock managed policy name. Adding permissions to clean up Amazon EMR project level resources during project deletion.	2/24/2025
New policy - SageMakerStudioBedrockEvaluationJobServiceRolePolicy	This policy allows Amazon Bedrock to access Amazon Bedrock models and datasets for evaluation jobs in Amazon SageMaker Unified Studio.	2/14/2025
New policy - SageMakerStudioBedrockPromptUserRolePolicy	This policy provides access to an Amazon Bedrock prompt and its configuration in Amazon SageMaker Unified Studio.	2/14/2025

Change	Description	Date
New policy - SageMakerStudioBedrockFlowServiceRolePolicy	This policy allows Amazon Bedrock Flows to access Amazon Bedrock models and other resources attached to a flow in Amazon SageMaker Unified Studio.	2/14/2025
New policy - SageMakerStudioBedrockChatAgentUserRolePolicy	This policy provides access to an Amazon Bedrock chat agent app's configuration and Amazon Bedrock agent in Amazon SageMaker Unified Studio.	2/14/2025
New policy - SageMakerStudioBedrockAgentServiceRolePolicy	This policy allows Amazon Bedrock Agents to access Amazon Bedrock models and other resources attached to an agent in Amazon SageMaker Unified Studio.	2/14/2025
Policy update - SageMakerStudioProjectRoleMachineLearningPolicy	Policy updates to the SageMakerStudioProjectRoleMachineLearningPolicy - adding permission for `DescribeAutoMLJobV2`, moving multiple Amazon SageMaker `List` operations to tag based authorization, adding CMK permissions for JupyterLab, add Amazon SageMaker `ListModelPackages` and `CreateModel` permissions for cross-account use case.	2/14/2025

Change	Description	Date
New Policy - SageMaker StudioEMRServiceRolePolicy	New policy SageMaker StudioEMRServiceRolePolicy - Amazon SageMaker Unified Studio creates IAM roles for project users to perform data analytics, artificial intelligence, and machine learning actions and uses this policy when creating these roles to define the permissions related to Amazon EMR.	1/31/2025
New Policy - SageMaker StudioQueryExecutionRolePolicy	New policy SageMaker StudioQueryExecutionRolePolicy - this is the default policy for the SageMakerQueryExecutionRole role. This policy provides permissions to run query executions on federated connections.	1/31/2025
Policy update - SageMaker StudioProjectProvisioningRolePolicy	Policy updates to SageMaker StudioProjectProvisioningRolePolicy - adding permissions to manage IAM roles with only AWS managed policies attached to them and no permissions boundary. Also adding permissions to update the AWS Lambda function for Amazon Athena federated connections.	1/31/2025

Change	Description	Date
Policy update - SageMaker StudioFullAccess	Policy updates to SageMaker StudioFullAccess - updating the CodeConnections tagging permissions to support tagging for CodeConnections host resources in the Amazon SageMaker console.	1/24/2025
Policy update - SageMaker StudioDomainExecutionRolePolicy	Policy updates to SageMaker StudioDomainExecutionRolePolicy - adding support for the AWS CodeConnections APIs in order to make the Copy button available for self-managed Git providers.	1/24/2025
Policy updates to SageMaker StudioProjectProvisioningRolePolicy	Policy updates to SageMaker StudioProjectProvisioningRolePolicy - adding permissions to support CMK in CodeCommit, AWS Glue Catalog, and Amazon Redshift Serverless.	12/18/2024
Policy updates to SageMaker StudioProjectUserRolePolicy.	Policy updates to SageMaker StudioProjectUserRolePolicy - adding permissions to support CMK in CodeCommit, and AWS Glue Catalog.	12/18/2024

Change	Description	Date
Policy updates to SageMakerStudioProjectUserRolePermissionsBoundary	Policy updates to SageMakerStudioProjectUserRolePermissionsBoundary - adding permissions to support CMK in CodeCommit, AWS Glue Catalog, Amazon Redshift Serverless, and EMR on EC2.	12/18/2024
New policy - SageMakerStudioFullAccess	Adding a new managed policy - this policy provides full access to Amazon SageMaker Unified Studio via the Amazon SageMaker management console.	12/02/2024
New policy - SageMakerStudioProjectUserRolePermissionsBoundary	Adding a new managed policy - SageMakerStudioProjectUserRolePermissionsBoundary. Amazon SageMaker Unified Studio creates IAM roles for Projects users to perform data analytics, artificial intelligence, and machine learning actions, and uses this policy when creating these roles to define the boundary of their permissions.	12/02/2024

Change	Description	Date
New policy - SageMaker StudioProjectProvisioningRolePolicy	Adding a new managed policy - SageMakerStudioProjectProvisioningRolePolicy. Amazon SageMaker Unified Studio uses this policy to provision and manage resources in your account.	12/02/2024
New policy - SageMaker StudioDomainExecutionRolePolicy	Adding a new managed policy - SageMakerStudioDomainExecutionRolePolicy - Default policy for the SageMakerUnifiedStudioDomainExecutionRole service role. This role is used by Amazon SageMaker Unified Studio to catalog, discover, govern, share, and analyze data in the Amazon SageMaker Unified Studio domain.	12/02/2024

Change	Description	Date
New policy - SageMaker StudioDomainServiceRolePolicy	Adding a new managed policy - SageMakerStudioDomainServiceRolePolic. This is the default policy for the SageMakerUnifiedStudioDomainServiceRole service role. This policy is used by Amazon SageMaker Unified Studio to access the SSM parameters in the user's account. Those parameters are set by the administrator in the Amazon SageMaker Unified Studio project profiles. This policy also has permissions to AWS KMS for encrypted SSM parameters. The KMS key must be tagged with EnableKeyForAmazonDataZone to allow decrypting the SSM parameters.	12/02/2024
New policy - SageMaker StudioProjectUserRolePolicy	Adding a new managed policy - SageMakerStudioProjectUserRolePolicy. Amazon SageMaker Unified Studio creates IAM roles for projects users to perform data analytics, artificial intelligence, and machine learning actions, and uses this policy when creating these roles to define the permissions.	12/02/2024

Change	Description	Date
New policy - SageMaker StudioProjectRoleMachineLearningPolicy	Adding a new managed policy - SageMakerStudioProjectRoleMachineLearningPolicy. Amazon SageMaker Unified Studio creates IAM roles for projects users to perform data analytics, artificial intelligence, and machine learning actions, and uses this policy when creating these roles to define the permissions.	12/02/2024
New policy - AmazonDataZoneBedrockModelManagementPolicy	Adding a new managed policy - AmazonDataZoneBedrockModelManagementPolicy - that provides permissions to manage Amazon Bedrock model access, including creating, tagging and deleting application inference profiles.	12/02/2024
New policy - AmazonDataZoneBedrockModelConsumptionPolicy	Adding a new managed policy - AmazonDataZoneBedrockModelConsumptionPolicy - that provides permissions to consume Amazon Bedrock models, including invoking Amazon Bedrock application inference profile created for particular Amazon DataZone domain.	12/02/2024

Change	Description	Date
Amazon SageMaker Unified Studio started tracking changes	Amazon SageMaker Unified Studio started tracking changes for its AWS managed policies.	December 2nd, 2024

IAM roles for Amazon SageMaker Unified Studio

Topics

- AmazonSageMakerDomainExecution role
- AmazonSageMakerDomainService role
- AmazonSageMakerManageAccess-<region>-<domainId> role
- AmazonSageMakerProvisioning-<domainAccountId> role
- AmazonDataZoneBedrockModelManagementRole
- AmazonDataZoneBedrockFMConsumptionRole
- AmazonSageMakerQueryExecution

AmazonSageMakerDomainExecution role

The AmazonSageMakerDomainExecution role has the AWS policy: SageMakerStudioDomainExecutionRolePolicy attached. This is an IAM role that Amazon SageMaker Unified Studio requires to call APIs on behalf of authorized users, including those logged in to Amazon SageMaker Unified Studio.

The default `AmazonSageMakerDomainExecution` role has the following trust policy attached:

```
{
  "Version": "2012-10-17",
  "Statement": [
      {
          "Effect": "Allow",
          "Principal": {
              "Service": "datazone.amazonaws.com"
          },
```

```
            "Action": [
                "sts:AssumeRole",
                "sts:TagSession",
                "sts:SetContext"
            ],
            "Condition": {
                "StringEquals": {
                    "aws:SourceAccount": "{{source_account_id}}"
                },
                "ForAllValues:StringLike": {
                    "aws:TagKeys": "datazone*"
                }
            }
        }
    ]
}
```

AmazonSageMakerDomainService role

The AmazonSageMakerDomainService role has the AWS policy: SageMakerStudioDomainServiceRolePolicy attached. This is a service role for domain level actions performed by Amazon SageMaker Unified Studio.

The default `AmazonSageMakerDomainService` role has the following trust policy attached:

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Principal": {
        "Service": "datazone.amazonaws.com"
      },
      "Action": "sts:AssumeRole",
      "Condition": {
        "StringEquals": {
            "aws:SourceAccount": "{{domain_account}}"
        }
      }
    }
  ]
```

```
}
```

AmazonSageMakerManageAccess-<region>-<domainId> role

AmazonSageMakerManageAccess-<region>-<domainId> role grants Amazon SageMaker Unified Studio permissions to publish, grant access, and revoke access to Amazon SageMaker Lakehouse, AWS Glue Data Catalog and Amazon Redshift data. It also grants Amazon SageMaker Unified Studio access to publish and manage subscriptions on Amazon SageMaker Catalog data and AI assets.

AmazonSageMakerManageAccess-<region>-<domainId> role has the following Amazon DataZone managed policies attached:

- AmazonDataZoneGlueManageAccessRolePolicy
- AmazonDataZoneRedshiftManageAccessRolePolicy
- AmazonDataZoneSageMakerAccess

The default `AmazonSageMakerManageAccess-<region>-<domainId>` role has the following inline policy attached:

```
{
   "Version":"2012-10-17",
   "Statement":[
      {
         "Sid": "RedshiftSecretStatement",
         "Effect":"Allow",
         "Action":"secretsmanager:GetSecretValue",
         "Resource":"*",
         "Condition":{
            "StringEquals":{
               "secretsmanager:ResourceTag/AmazonDataZoneDomain":"{{domainId}}"
            }
         }
      }
   ]
}
```

The default AmazonSageMakerManageAccess-<region>-<domainId> role has the following trust policy attached:

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Principal": {
        "Service": "datazone.amazonaws.com"
      },
      "Action": "sts:AssumeRole",
      "Condition": {
            "StringEquals": {
                "aws:SourceAccount": "{{domain_account}}"
            },
            "ArnEquals": {
                "aws:SourceArn": "arn:aws:datazone:{{region}}:
{{domain_account}}:domain/{{root_domain_id}}"
            }
        }
    }
  ]
}
```

AmazonSageMakerProvisioning-<domainAccountId> role

AmazonSageMakerProvisioning-<domainAccountId> role is used by Amazon SageMaker Unified Studio to provision and manage resources defined in the selected blueprints in your account.

AmazonSageMakerProvisioning-<domainAccountId> role has the AWS policy: SageMakerStudioProjectProvisioningRolePolicy attached.

The default AmazonSageMakerProvisioning-<domainAccountId> role has the following trust policy attached:

```
{
  "Version": "2012-10-17",
  "Statement": [
```

```
    {
      "Effect": "Allow",
      "Principal": {
        "Service": "datazone.amazonaws.com"
      },
      "Action": "sts:AssumeRole",
      "Condition": {
        "StringEquals": {
            "aws:SourceAccount": "{{domain_account}}"
        }
      }
    }
  ]
}
```

Important

If you are using your own query execution role (instead of the default AmazonSageMakerQueryExecution role), then you must modify the permissions of your provisioning role (whether you're using this default AmazonSageMakerProvisioning role or your own custom provisioning role) to include `iam:PassRole` and `iam:GetRole` permissions. These permissions enable your provisioning role to pass the query execution role to AWS LakeFormation during creation of federated connections. You can include these permissions by attaching the following inline policy to your provisioning role:

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "IamRolePermissionsForQueryExecution",
      "Effect": "Allow",
      "Action": [
        "iam:PassRole",
        "iam:GetRole"
      ],
      "Resource": "arn:aws:iam::*:role/{your-role}"
    }
  ]
}
```

AmazonDataZoneBedrockModelManagementRole

Amazon SageMaker Unified Studio uses this role to create an inference profile for an Amazon Bedrock model in a project. The inference profile is required for the project to interact with the model. You can either let Amazon SageMaker Unified Studio automatically create a unique provisioning role, or you can provide a custom provisioning role.

The AmazonDataZoneBedrockModelManagementRole has the AWS policy: AmazonDataZoneBedrockModelManagementPolicy attached.

The default `AmazonDataZoneBedrockModelManagementRole` has the following trust policy attached:

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Principal": {
          "Service": "datazone.amazonaws.com"
      },
      "Action": [
           "sts:AssumeRole",
           "sts:SetContext"
      ],
      "Condition": {
        "StringEquals": {
          "aws:SourceAccount": "{{accountId}}"
        }
      }
    }
  ]
}
```

AmazonDataZoneBedrockFMConsumptionRole

A consumption role is required for each Amazon Bedrock model that you want to enable in the playground for non-builders. Amazon SageMaker Unified Studio can create a consumption role per model by default or you have the option to configure a single existing consumption role for all models.

The AmazonDataZoneBedrockFMConsumptionRole has the AWS policy: AmazonDataZoneBedrockModelConsumptionPolicy attached.

The default `AmazonDataZoneBedrockFMConsumptionRole` has the following inline policy attached:

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "AllowInferenceProfileToInvokeFoundationModels",
      "Effect": "Allow",
      "Action": [
        "bedrock:InvokeModel",
        "bedrock:InvokeModelWithResponseStream"
      ],
      "Resource": [
        "arn:aws:bedrock:[[modelRegions]]::foundation-model/{{modelId}}"
      ],
      "Condition": {
        "ArnLike": {
          "bedrock:InferenceProfileArn": "arn:aws:bedrock:*:{{accountId}}:application-
inference-profile/*"
        }
      }
    }
  ]
}
```

The default `AmazonDataZoneBedrockFMConsumptionRole` has the following trust policy attached:

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Principal": {
          "Service": "datazone.amazonaws.com"
      },
      "Action": [
           "sts:AssumeRole",
           "sts:SetContext"
      ],
      "Condition": {
        "StringEquals": {
          "aws:SourceAccount": "{{accountId}}"
        }
      }
    }
  ]
}
```

AmazonSageMakerQueryExecution

This role is used while running a query execution. AWS LakeFormation assumes this role to vend credentials needed by Amazon Athena during query execution.

The AmazonSageMakerQueryExecution role has the AWS policy: SageMakerStudioQueryExecutionRolePolicy attached.

The default `AmazonSageMakerQueryExecution` role has the following trust policy attached:

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Principal": {
        "Service": [
                    "lakeformation.amazonaws.com",
                    "glue.amazonaws.com"
                ]
```

```
      },
      "Action": [
                "sts:AssumeRole",
                "sts:SetContext"
      ],
      "Condition": {
        "StringEquals": {
          "aws:SourceAccount": "{{source_account}}"
        }
      }
    }
  ]
}
```

Important

If you are using your own query execution role (instead of this default AmazonSageMakerQueryExecution role), then you must modify the permissions of your provisioning role (whether you're using this default AmazonSageMakerProvisioning-<domainAccountId> role role or your own custom provisioning role) to include `iam:PassRole` and `iam:GetRole` permissions. These permissions enable your provisioning role to pass the query execution role to AWS LakeFormation during creation of federated connections. You can include these permissions by attaching the following inline policy to your provisioning role:

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "IamRolePermissionsForQueryExecution",
      "Effect": "Allow",
      "Action": [
        "iam:PassRole",
        "iam:GetRole"
      ],
      "Resource": "arn:aws:iam::*:role/{your-role}"
    }
  ]
}
```

Access control patterns Amazon SageMaker Unified Studio

Effective data management and governance are crucial to deriving value from data assets while maintaining compliance and security. In Amazon SageMaker Unified Studio, you can use projects to simplify development and collaboration. Projects contain one or more IAM roles, and there is at least one project role for each account in which the project has resources. You have access to all the tools, compute, data, and AIML assets this role has access to. When you access a project from Amazon SageMaker Unified Studio, it is equivalent to logging into an account in a specific region and assuming one of the project's roles. There are two ways to manage what these roles have access to. First, you can simply add the IAM permissions directly to the project's IAM role. Second, you can publish data and AI/ML assets to the Amazon SageMaker catalog and enable project members to subscribe to those assets. Both of these approaches are covered in this section.

Topics

- Using IAM to configure access in Amazon SageMaker Unified Studio
- Data access and subscription workflows using Amazon SageMaker catalog

Using IAM to configure access in Amazon SageMaker Unified Studio

In Amazon SageMaker Unified Studio, a domain is the fundamental organizational unit that enables you to manage multiple AWS Regions, accounts, and workloads through a single interface. Each domain has its own unique URL and provides centralized management of studio settings, accounts, users, and network configurations.

Within domains, projects streamline and enable collaboration. Projects can be located in different regions or in different accounts within a given region. Project metadata contains information about the project's git repository, members, and their permissions. There is at least one project role for each account in which the project has resources. The project IAM role defines what tools, compute resources, data, and AI/ML assets project members can access. You can think of entering a project in Amazon SageMaker Unified Studio as logging into a regional account where you take on a designated role. To manage access to data, you can simply modify the IAM permissions to the project's IAM role.

It is important that you understand the different IAM roles used in Amazon SageMaker Unified Studio and their functions in detail. This section covers those details. When you modify an IAM role to manage data access, you must factor in the region, account, and role you need to give permissions to. For more information on simplifying configuring permissions and customizing role assignments, see the AWS IAM Roles section in "Bringing existing resources into Amazon SageMaker Unified Studio".

Domain execution role - the AmazonSageMakerDomainExecution role is an IAM role that enables Amazon SageMaker Unified Studio to execute API calls on behalf of authorized users. It provides access to all APIs that are required for Amazon SageMaker Unified Studio to use, as well as RAM permissions to support usage of associated accounts in an Amazon SageMaker unified domain. It also provides access to services used outside of a project scope, including AWS CodeConnections, Amazon Q, AWS Systems Manager, and Amazon Bedrock.

Service role - the AmazonSageMakerDomainService role is a specialized service role that enables domain-level actions in Amazon SageMaker Unified Studio. It is responsible for managing critical operations within the domain, particularly the handling of blueprint parameters in Systems Manager (SSM). These parameters are essential for executing privileged calls, ensuring secure and controlled access to domain-level functionalities.

Provisioning Role - Amazon SageMaker Unified Studio employs an IAM policy to manage and provision resources across various AWS services within an AWS account. This policy, associated with the AmazonSageMakerProvisioning role, grants access to essential services such as Amazon SageMaker, AWS Glue, Amazon S3, AWS Lake Formation, Amazon Redshift, Amazon Athena, Amazon Q, Amazon EMR, Amazon Bedrock, AWS CodeCommit, and AWS IAM. The policy enables management of SageMaker Domains and Spaces, AWS Glue components, S3 objects, Lake Formation grants, Redshift workgroups, Athena workgroups and catalogs, EMR clusters, KMS keys, CodeCommit repositories, Secrets Manager secrets, IAM roles, and Amazon Bedrock in SageMaker Unified Studio resources. This access allows Amazon SageMaker Unified Studio to effectively orchestrate and manage the lifecycle of projects and resources across the AWS ecosystem, providing users with a seamless and integrated experience for data science and machine learning tasks.

Manage Access Role - the AmazonSageMakerManageAccess role is designed to manage access and permissions across various data services. This role enables Amazon SageMaker Unified Studio to publish, grant, and revoke access to data within Amazon SageMaker Lakehouse, AWS Glue Data Catalog, and Amazon Redshift. Additionally, it facilitates the management of subscriptions for data and AI assets in the Amazon

SageMaker catalog. To achieve these functionalities, the role incorporates three Amazon DataZone managed policies: AmazonDataZoneGlueManageAccessRolePolicy, AmazonDataZoneRedshiftManageAccessRolePolicy, and AmazonDataZoneSageMakerAccess. These policies collectively provide the necessary permissions for seamless data management and access control, ensuring efficient collaboration and resource utilization across different AWS services.

Project role - Amazon SageMaker Unified Studio creates IAM roles that enable project users to perform data analytics, AI, and machine learning tasks. There are two IAM policies governing these permissions: SageMakerStudioProjectUserRolePolicy and SageMakerStudioProjectRoleMachineLearningPolicy. This role grants users read and write access to relevant AWS services including Amazon SageMaker, AWS Glue, Amazon S3, AWS Lake Formation, Amazon Redshift, Amazon Athena, Amazon Q, and Amazon EMR. Additionally, it provides necessary permissions for infrastructure resources such as network interfaces, AWS KMS keys, AWS CodeCommit, and AWS Secrets Manager. Administrators maintain granular control over these permissions through role tagging - for example, they can disable Glue Spark workload permissions by applying the tag 'EnableGlueSparkWorkloads=false', or restrict Generative AI Studio access using the tag 'EnableGenAIStudio=false'.

Amazon Bedrock service role - in each Generative AI app development project, Amazon SageMaker Unified Studio creates an IAM role that allows the Amazon Bedrock service to access generative AI application resources in the project. This role governs the access and permissions for various Amazon Bedrock components within Amazon SageMaker Unified Studio. It encompasses four main service roles: Amazon Bedrock Agent, Amazon Bedrock Knowledge Base, Amazon Bedrock Flows, and Amazon Bedrock Evaluation. Each role is designed to grant specific permissions to Amazon Bedrock services, allowing them to interact with relevant resources such as Amazon Bedrock models, AWS Lambda functions, Amazon S3 buckets, AWS KMS keys, and OpenSearch Serverless collections. The policies ensure that Amazon Bedrock Agents, Knowledge Bases, Flows, and Evaluations can access necessary resources while maintaining security through project-specific tag restrictions. These roles enable seamless integration of Amazon Bedrock capabilities with Amazon SageMaker Unified Studio, facilitating tasks like model invocation, data access, encryption, and resource management within the confines of each project's scope. This structured approach ensures efficient operation of Amazon Bedrock services while maintaining appropriate access controls and resource isolation. This role is attached with the following AWS managed policies:

- AWS policy: SageMakerStudioBedrockAgentServiceRolePolicy
- AWS policy: SageMakerStudioBedrockKnowledgeBaseServiceRolePolicy
- AWS policy: SageMakerStudioBedrockFlowServiceRolePolicy

- AWS policy: SageMakerStudioBedrockEvaluationJobServiceRolePolicy

Amazon Bedrock Lambda execution role - in each Generative AI app development project, Amazon SageMaker Unified Studio creates an IAM role that allows the AWS Lambda service to access generative AI application resources in the project. This role encompasses two key roles within Amazon SageMaker Unified Studio: the Amazon Bedrock Knowledge Base custom resource service role and the Amazon Bedrock function execution role. The knowledge base custom resource role enables configuration of vector stores and Amazon Bedrock knowledge bases, granting AWS Lambda-backed CloudFormation custom resources access to Amazon Bedrock knowledge bases and OpenSearch Serverless collections. It allows for starting and querying knowledge base ingestion jobs and preparing OpenSearch collections. It permits AWS Lambda to access Amazon Bedrock function component configurations, including Secrets Manager secrets and KMS keys, which are necessary for handling API requests. Additionally, this role provides write permissions to CloudWatch Logs for monitoring and logging purposes. This facilitates the seamless integration and management of Amazon Bedrock components within the Amazon SageMaker Unified Studio while maintaining appropriate access controls. This role is attached with the following AWS managed policies:

- AWSLambdaBasicExecutionRole
- AWS policy: SageMakerStudioBedrockFunctionExecutionRolePolicy
- AWS policy: SageMakerStudioBedrockKnowledgeBaseCustomResourcePolicy

Amazon Bedrock chat agent user role - in each Amazon Bedrock chat agent, Amazon SageMaker Unified Studio creates an IAM role that allows the Amazon DataZone service to provide shared users access to an Amazon Bedrock chat agent app's configuration and Amazon Bedrock chat agent. As part of the AmazonBedrockChatAgent blueprint, it defines the main policy for the Amazon Bedrock chat agent user role. It grants users the ability to interact with shared Amazon Bedrock chat agent apps, including invoking Amazon Bedrock chat agents, retrieving configurations from Amazon S3, and utilizing AWS KMS keys for encryption. It provides necessary permissions for users to read and invoke Amazon Bedrock chat agents, access specific S3 objects within the project's bucket, and use KMS keys for encrypted data access. The role is designed to allow access only to individually shared Amazon Bedrock chat agent apps, maintaining security by restricting domain and project users from modifying user role tags. It ensures that users can effectively utilize Amazon Bedrock chat agent applications while adhering to appropriate access controls and data protection measures. This role is attached with the following AWS managed policies:

Amazon Bedrock prompt user role - in each Amazon Bedrock prompt, Amazon SageMaker Unified Studio creates an IAM role that allows the Amazon DataZone service to provide shared users access to an Amazon Bedrock prompt and its configuration. It defines the access permissions for users of Amazon Bedrock prompts within Amazon SageMaker Unified Studio. As part of the AmazonBedrockPrompt blueprint, it serves as the main policy for the Amazon Bedrock prompt user role. It grants users access to shared Amazon Bedrock prompts, including the ability to read Amazon Bedrock prompts, access their configurations stored in Amazon S3, and use AWS KMS keys for encryption. It provides necessary permissions for users to interact with Amazon Bedrock prompts, retrieve specific objects from the project's S3 bucket, and utilize KMS keys for encrypted data access. It is designed to allow access only to individually shared Amazon Bedrock prompts, maintaining security by restricting domain and project users from modifying user role tags. This ensures that users can effectively work with Amazon Bedrock prompts while adhering to appropriate access controls and data protection measures within Amazon SageMaker Unified Studio.

Query execution role for federated connection - this role is used when executing a query using Amazon Athena. AWS LakeFormation assumes this role to vend credentials needed by Amazon Athena during query execution. The SageMakerQueryExecutionRole has the AWS policy: SageMakerStudioQueryExecutionRolePolicy attached.

EMR Service role - this role defines the necessary permissions for Amazon EMR instances running on EC2, ensuring secure and controlled access to EC2 networking, IAM roles, and AWS KMS for encryption. It grants permissions to create network interfaces and launch instances, restricting these actions to VPCs that match the principal's VPC ID tag. To support secure data handling, it provides AWS KMS encryption and decryption permissions for a specified KMS key, allowing EMR instances to manage encrypted data and EBS volumes. It also enables EMR to manage KMS grants, including listing, revoking, and describing keys, specifically for EC2 services within the same AWS account. Furthermore, the policy permits EMR to list KMS key aliases, ensuring seamless access to encryption keys. This policy ensures that EMR instances operate within a well-defined network, securely handle encrypted data, and adhere to account-specific security constraints.

EMR Instance Profile role - this role grants permissions necessary for Amazon EMR instances operating within Amazon SageMaker Unified Studio, ensuring secure access to S3, IAM, and KMS resources. It allows EMR instances to retrieve SSL certificates from an S3 bucket, ensuring secure communication, and access patching RPMs stored in a predefined S3 location. Additionally, it permits retrieval of bootstrap action scripts from S3, enabling customized EMR cluster configurations, and allows the uploading of EMR cluster logs to a designated S3 location for monitoring and debugging purposes. The role also enables EMR instances to assume runtime roles

with specific session tags, ensuring authorized access to Lake Formation resources. Furthermore, it grants permissions for AWS KMS operations, including encryption, decryption, and key generation, allowing secure handling of sensitive data and EBS volume encryption. By enforcing conditions based on resource ownership, principal tags, and account constraints, this IAM role ensures that EMR clusters operate securely within a well-defined Amazon DataZone framework, maintaining compliance and access control best practices.

Partner Apps IAM role - this role enables Amazon SageMaker partner app users to access applications, list available applications, launch application web UIs, and connect via the application SDK. Access is restricted to partner apps owned by the same AWS account as the requesting principal (enforced by the aws:ResourceAccount condition). This ensures that the user can only interact with partner apps within their own AWS account, preventing cross-account access.

Data access and subscription workflows using Amazon SageMaker catalog

You get a comprehensive framework for data discovery, subscription, and consumption through the Amazon SageMaker catalog. It enables seamless collaboration between data publishers and subscribers, facilitating controlled access to valuable data assets across an organization. By implementing a structured process for asset discovery, subscription requests, and approval workflows, Amazon SageMaker Unified Studio ensures that data access is granted based on justified needs and adheres to organizational policies.

Once an asset is published to a domain, subscribers can discover and request a subscription to this asset. The subscription process begins with a subscriber searching for and browsing the catalog to discover an asset they want. From Amazon SageMaker Unified Studio, they choose to subscribe to the asset by submitting a subscription request that includes justification and the reason for the request. The subscription approver then reviews the access request. They can either approve or reject the request. After a subscription is granted, a fulfillment process starts to facilitate access to the asset for the subscriber. For more information, see Request subscription to assets in Amazon DataZone.

In Amazon SageMaker catalog, subscription requests to assets are managed by subscription approvers. A subscription approver for an asset is determined by the publishing agreement with which this asset was published into the Amazon SageMaker catalog. For some assets, Amazon SageMaker catalog can manage access grants and auto-approve subscription requests. These assets are called managed assets and include Lake Formation-managed AWS Glue Data Catalog tables and Amazon Redshift tables and views. Alternatively, for manual approvals, Amazon SageMaker catalog kicks of a workflow via an EventBridge integration so the subscription approver can review and approve/reject the request. After a subscription is granted, Amazon SageMaker catalog

starts a fulfillment process starts to facilitate access to the asset for the subscriber and takes care of managing and orchestrating the permissions setup across regions and accounts. To learn more about how Amazon SageMaker catalog facilitates asset discovery, subscription requests, approval processes, and access controls, see Amazon DataZone data discovery, subscription, and consumption.

Troubleshooting Amazon SageMaker Unified Studio identity and access

Use the following information to help you diagnose and fix common issues that you might encounter when working with Amazon SageMaker Unified Studio and IAM.

Topics

- I am not authorized to perform an action in Amazon SageMaker Unified Studio
- I am not authorized to perform iam:PassRole
- I want to allow people outside of my AWS account to access my Amazon SageMaker Unified Studio resources

I am not authorized to perform an action in Amazon SageMaker Unified Studio

If you receive an error that you're not authorized to perform an action, your policies must be updated to allow you to perform the action.

The following example error occurs when the `mateojackson` IAM user tries to use the console to view details about a fictional *`my-example-widget`* resource but doesn't have the fictional `:`*`GetWidget`* permissions.

```
User: arn:aws:iam::123456789012:user/mateojackson is not authorized to
 perform: :GetWidget on resource: my-example-widget
```

In this case, the policy for the `mateojackson` user must be updated to allow access to the *`my-example-widget`* resource by using the `:`*`GetWidget`* action.

If you need help, contact your AWS administrator. Your administrator is the person who provided you with your sign-in credentials.

I am not authorized to perform iam:PassRole

If you receive an error that you're not authorized to perform the `iam:PassRole` action, your policies must be updated to allow you to pass a role to Amazon SageMaker Unified Studio.

Some AWS services allow you to pass an existing role to that service instead of creating a new service role or service-linked role. To do this, you must have permissions to pass the role to the service.

The following example error occurs when an IAM user named `marymajor` tries to use the console to perform an action in Amazon SageMaker Unified Studio. However, the action requires the service to have permissions that are granted by a service role. Mary does not have permissions to pass the role to the service.

```
User: arn:aws:iam::123456789012:user/marymajor is not authorized to perform:
 iam:PassRole
```

In this case, Mary's policies must be updated to allow her to perform the `iam:PassRole` action.

If you need help, contact your AWS administrator. Your administrator is the person who provided you with your sign-in credentials.

I want to allow people outside of my AWS account to access my Amazon SageMaker Unified Studio resources

You can create a role that users in other accounts or people outside of your organization can use to access your resources. You can specify who is trusted to assume the role. For services that support resource-based policies or access control lists (ACLs), you can use those policies to grant people access to your resources.

To learn more, consult the following:

- To learn whether Amazon SageMaker Unified Studio supports these features, see How Amazon SageMaker Unified Studio works with IAM.
- To learn how to provide access to your resources across AWS accounts that you own, see Providing access to an IAM user in another AWS account that you own in the *IAM User Guide*.
- To learn how to provide access to your resources to third-party AWS accounts, see Providing access to AWS accounts owned by third parties in the *IAM User Guide*.
- To learn how to provide access through identity federation, see Providing access to externally authenticated users (identity federation) in the *IAM User Guide*.
- To learn the difference between using roles and resource-based policies for cross-account access, see Cross account resource access in IAM in the *IAM User Guide*.

Data protection in Amazon SageMaker Unified Studio

The AWS shared responsibility model applies to data protection in Amazon SageMaker Unified Studio. As described in this model, AWS is responsible for protecting the global infrastructure that runs all of the AWS Cloud. You are responsible for maintaining control over your content that is hosted on this infrastructure. You are also responsible for the security configuration and management tasks for the AWS services that you use. For more information about data privacy, see the Data Privacy FAQ. For information about data protection in Europe, see the AWS Shared Responsibility Model and GDPR blog post on the *AWS Security Blog*.

For data protection purposes, we recommend that you protect AWS account credentials and set up individual users with AWS IAM Identity Center or AWS Identity and Access Management (IAM). That way, each user is given only the permissions necessary to fulfill their job duties. We also recommend that you secure your data in the following ways:

- Use multi-factor authentication (MFA) with each account.
- Use SSL/TLS to communicate with AWS resources. We require TLS 1.2 and recommend TLS 1.3.
- Set up API and user activity logging with AWS CloudTrail. For information about using CloudTrail trails to capture AWS activities, see Working with CloudTrail trails in the *AWS CloudTrail User Guide*.
- Use AWS encryption solutions, along with all default security controls within AWS services.
- Use advanced managed security services such as Amazon Macie, which assists in discovering and securing sensitive data that is stored in Amazon S3.
- If you require FIPS 140-3 validated cryptographic modules when accessing AWS through a command line interface or an API, use a FIPS endpoint. For more information about the available FIPS endpoints, see Federal Information Processing Standard (FIPS) 140-3.

We strongly recommend that you never put confidential or sensitive information, such as your customers' email addresses, into tags or free-form text fields such as a **Name** field. This includes when you work with Amazon SageMaker Unified Studio or other AWS services using the console, API, AWS CLI, or AWS SDKs. Any data that you enter into tags or free-form text fields used for names may be used for billing or diagnostic logs. If you provide a URL to an external server, we strongly recommend that you do not include credentials information in the URL to validate your request to that server.

For more information about data protection, inluding data encryption, encryption at rest, encryption in transit, key management, and inter-network traffic privacy for various AWS services that inter-operate with Amazon SageMaker Unified Studio, see the following:

- Data Protection in Amazon SageMaker
- Data Protection in Amazon Managed Workflows for Apache Airflow
- Data protection in Amazon Redshift
- Data protection in Amazon EMR
- Data protection in Amazon DataZone
- Data protection in Amazon Q Business and Data protection in Amazon Q Developer
- Data protection in Athena
- Data protection in Amazon Bedrock
- Data protection in AWS Glue

KMS Permissions for resources provisioned by Amazon SageMaker Unified Studio

You can encrypt the resources provisioned by Amazon SageMaker Unified Studio with your customer managed AWS KMS keys. You can do this by adding to your default KMS key policy the permissions that you can find in the following policy for the Tooling blueprint config.

```
{
    "Version": "2012-10-17",
    "Id": "key-policy-for-smus",
    "Statement" : [
        {
            "Sid": "AllowKmsPermissionsForCloudWatch",
            "Effect": "Allow",
            "Principal": {
                "Service": "logs.REGION.amazonaws.com"
            },
            "Action": [
                "kms:Encrypt*",
                "kms:Decrypt*",
                "kms:ReEncrypt*",
                "kms:GenerateDataKey*",
                "kms:Describe*"
```

```
            ],
            "Resource": "*",
            "Condition":  {
                "ArnLike": {
                    "kms:EncryptionContext:aws:logs:arn": "arn:aws:logs:REGION:ACCOUNT-
ID:log-group:datazone-*"
                }
            }
        },
        {
            "Sid": "RedshiftCreateGrantKmsPermissions",
            "Effect": "Allow",
            "Principal": {
                "AWS": "arn:aws:iam::ACCOUNT-ID:role/service-role/
AmazonSageMakerProvisioning-ACCOUNT-ID"
            },
            "Action": "kms:CreateGrant",
            "Resource": "*",
            "Condition": {
                "StringEquals": {
                    "aws:ResourceAccount": "${aws:PrincipalAccount}"
                },
                "StringLike": {
                    "kms:ViaService": [
                        "redshift-serverless.*.amazonaws.com"
                    ]
                }
            }
        },
        {
            "Sid": "AthenaKmsPermissions",
            "Effect": "Allow",
            "Principal": {
                "AWS": "arn:aws:iam::ACCOUNT-ID:role/service-role/
AmazonSageMakerProvisioning-ACCOUNT-ID"
            },
            "Action": "kms:GenerateDataKey",
            "Resource": "*",
            "Condition": {
                "StringEquals": {
                    "aws:CalledViaLast": "athena.amazonaws.com",
                    "aws:ResourceAccount": "${aws:PrincipalAccount}"
                }
            }
```

```
        },
        {
            "Sid": "EmrServerlessKmsPermissions",
            "Effect": "Allow",
            "Principal": {
                "Service": "emr-serverless.amazonaws.com"
            },
            "Action": [
                "kms:Decrypt",
                "kms:GenerateDataKey"
            ],
            "Resource": "*",
            "Condition": {
                "ArnLike": {
                    "aws:SourceArn": "arn:aws:emr-serverless:REGION:ACCOUNT-ID:/
applications/*"
                }
            }
        },
        {
            "Sid": "EmrServerlessKmsPermissionsForProvisioning",
            "Effect": "Allow",
            "Principal": {
                "AWS": "arn:aws:iam::ACCOUNT-ID:role/service-role/
AmazonSageMakerProvisioning-ACCOUNT-ID"
            },
            "Action": [
                "kms:Decrypt",
                "kms:GenerateDataKey"
            ],
            "Resource": "*"
        },
        {
            "Sid": "AllowKmsKeyUsageForSageMakerDomain",
            "Effect": "Allow",
            "Principal": {
            "Service": [
                "datazone.amazonaws.com"
                ],
                "AWS": [
                    "arn:aws:iam::ACCOUNT-ID:role/service-role/
AmazonSageMakerDomainExecution"
                ]
            },
```

```
            "Action": [
                "kms:Encrypt",
                "kms:Decrypt",
                "kms:ReEncrypt*",
                "kms:GenerateDataKey*",
                "kms:DescribeKey",
                "kms:CreateGrant"
            ],
            "Resource": "*"
        },
        {
            "Sid": "AllowSageMakerDomainKmsGrantPermissions",
            "Effect": "Allow",
            "Principal": {
            "Service": [
                "datazone.amazonaws.com"
                ],
            "AWS": [
                "arn:aws:iam::ACCOUNT-ID:role/service-role/
AmazonSageMakerDomainExecution"
            ]
            },
            "Action": [
                "kms:ListGrants",
                "kms:RevokeGrant"
            ],
            "Resource": "*"
        }
]
}
```

Amazon Bedrock in SageMaker Unified Studio KMS Permissions

- **KMS Key Policy — Amazon DataZone domain key and the Tooling blueprint Key**: manually set the following key policy to the domain key and the Tooling blueprint key.

```
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "Allow administrators to manage key",
```

```
            "Effect": "Allow",
            "Principal": {
                "AWS": "${ADMINISTRATOR_IAM_PRINCIPAL_ARN}"
            },
            "Action": [
                "kms:Create*",
                "kms:Describe*",
                "kms:Enable*",
                "kms:List*",
                "kms:Put*",
                "kms:Update*",
                "kms:Revoke*",
                "kms:Disable*",
                "kms:Get*",
                "kms:Delete*",
                "kms:TagResource",
                "kms:UntagResource",
                "kms:ScheduleKeyDeletion",
                "kms:CancelKeyDeletion",
                "kms:RotateKeyOnDemand"
            ],
            "Resource": "*"
        },
        {
            "Sid": "Allow administrators and SageMaker domain execution role to
 encrypt and decrypt DataZone data",
            "Effect": "Allow",
            "Principal": {
                "AWS": [
                    "${ADMINISTRATOR_IAM_PRINCIPAL_ARN}",
                    "${ARNS_OF_ANY_DOMAIN_IAM_USERS}",
                    "arn:aws:iam::${ACCOUNT_ID}:role/service-role/
AmazonSageMakerDomainExecution"
                ]
            },
            "Action": [
                "kms:CreateGrant",
                "kms:Decrypt",
                "kms:GenerateDataKey"
            ],
            "Resource": "*",
            "Condition": {
                "StringLike": {
                    "kms:EncryptionContext:aws:datazone:domainId": "dzd*"
```

```
                }
            }
        },
        {
            "Sid": "Allow SageMaker provisioning role to encrypt and decrypt Amazon
 Bedrock resources",
            "Effect": "Allow",
            "Principal": {
                "AWS": "arn:aws:iam::${ACCOUNT_ID}:role/service-role/
AmazonSageMakerProvisioning-${ACCOUNT_ID}"
            },
            "Action": [
                "kms:CreateGrant",
                "kms:Decrypt",
                "kms:DescribeKey",
                "kms:Encrypt",
                "kms:GenerateDataKey"
            ],
            "Resource": "*"
        },
        {
            "Sid": "Allow SageMaker project roles to describe key",
            "Effect": "Allow",
            "Principal": {
                "AWS": "arn:aws:iam::${ACCOUNT_ID}:root"
            },
            "Action": "kms:DescribeKey",
            "Resource": "*",
            "Condition": {
                "Null": {
                    "aws:PrincipalTag/AmazonDataZoneProject": "false"
                }
            }
        },
        {
            "Sid": "Allow SageMaker project roles to encrypt and decrypt data in
 Tooling blueprint S3 bucket",
            "Effect": "Allow",
            "Principal": {
                "AWS": "arn:aws:iam::${ACCOUNT_ID}:root"
            },
            "Action": [
                "kms:Decrypt",
                "kms:GenerateDataKey"
```

```
            ],
            "Resource": "*",
            "Condition": {
                "Null": {
                    "aws:PrincipalTag/AmazonDataZoneProject": "false"
                },
                "StringLike": {
                    "kms:ViaService": "s3.*.amazonaws.com"
                }
            }
        },
        {
            "Sid": "Allow SageMaker project roles to encrypt and decrypt Amazon
Bedrock secrets",
            "Effect": "Allow",
            "Principal": {
                "AWS": "arn:aws:iam::${ACCOUNT_ID}:root"
            },
            "Action": [
                "kms:Decrypt",
                "kms:Encrypt",
                "kms:GenerateDataKey"
            ],
            "Resource": "*",
            "Condition": {
                "Null": {
                    "aws:PrincipalTag/AmazonDataZoneProject": "false"
                },
                "StringLike": {
                    "kms:ViaService": "secretsmanager.*.amazonaws.com"
                },
                "ArnLike": {
                    "kms:EncryptionContext:SecretARN":
"arn:aws:secretsmanager:*:*:secret:amazon-bedrock*"
                }
            }
        },
        {
            "Sid": "Allow SageMaker project roles to encrypt and decrypt Amazon
Bedrock data",
            "Effect": "Allow",
            "Principal": {
                "AWS": "arn:aws:iam::${ACCOUNT_ID}:root"
            },
```

```
            "Action": [
                "kms:Decrypt",
                "kms:GenerateDataKey"
            ],
            "Resource": "*",
            "Condition": {
                "Null": {
                    "aws:PrincipalTag/AmazonDataZoneProject": "false"
                },
                "ForAnyValue:StringLike": {
                    "kms:EncryptionContextKeys": [
                        "aws:bedrock*",
                        "evaluationJobArn"
                    ]
                }
            }
        },
        {
            "Sid": "Allow Amazon Bedrock to encrypt and decrypt Amazon Bedrock data",
            "Effect": "Allow",
            "Principal": {
                "Service": "bedrock.amazonaws.com"
            },
            "Action": [
                "kms:Decrypt",
                "kms:GenerateDataKey"
            ],
            "Resource": "*",
            "Condition": {
                "ForAnyValue:StringLike": {
                    "kms:EncryptionContextKeys": [
                        "aws:bedrock*",
                        "evaluationJobArn"
                    ]
                }
            }
        },
        {
            "Sid": "Allow Amazon Bedrock to create and revoke grants for Amazon
Bedrock resources",
            "Effect": "Allow",
            "Principal": {
                "Service": "bedrock.amazonaws.com"
            },
```

```
            "Action": [
                "kms:CreateGrant",
                "kms:ListGrants",
                "kms:RevokeGrant"
            ],
            "Resource": "*",
            "Condition": {
                "Bool": {
                    "kms:GrantIsForAWSResource": "true"
                }
            }
        },
        {
            "Sid": "Allow CloudWatch Logs to encrypt and decrypt Amazon Bedrock log
 groups",
            "Effect": "Allow",
            "Principal": {
                "Service": "logs.amazonaws.com"
            },
            "Action": [
                "kms:Decrypt*",
                "kms:Describe*",
                "kms:Encrypt*",
                "kms:GenerateDataKey*",
                "kms:ReEncrypt*"
            ],
            "Resource": "*",
            "Condition": {
                "ArnLike": {
                    "kms:EncryptionContext:aws:logs:arn": "arn:aws:logs:*:*:log-
group:/aws/lambda/amazon-bedrock*"
                }
            }
        }
    ]
}
```

- **AmazonSageMakerDomainExecution role — inline Policy**: manually attach the following to the AmazonSageMakerDomainExecution role or any role that is used for domain execution role in IAM console.

```
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "KmsDescribeKeyPermissions",
            "Effect": "Allow",
            "Action": "kms:DescribeKey",
            "Resource": "arn:aws:kms:${KEY_REGION}:${KEY_ACCOUNT_ID}:key/
${DOMAIN_KEY_ID}"
        },
        {
            "Sid": "KmsPermissions",
            "Effect": "Allow",
            "Action": [
                "kms:CreateGrant",
                "kms:Decrypt",
                "kms:GenerateDataKey"
            ],
            "Resource": "arn:aws:kms:${KEY_REGION}:${KEY_ACCOUNT_ID}:key/
${DOMAIN_KEY_ID}",
            "Condition": {
                "StringLike": {
                    "kms:EncryptionContext:aws:datazone:domainId": "dzd*"
                }
            }
        }
    ]
}
```

- **AmazonSageMakerProvisioning-<domainAccountId> role - inline Policy**: manually attach the following to the AmazonSageMakerProvisioning-<domainAccountId> role or the role that is used as the provisioning role in the IAM console.

```
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "KmsDescribeKeyPermissions",
            "Effect": "Allow",
            "Action": "kms:DescribeKey",
```

```
            "Resource": "arn:aws:kms:${KEY_REGION}:${KEY_ACCOUNT_ID}:key/
${TOOLING_BLUEPRINT_KEY_ID}"
        },
        {
            "Sid": "ToolingBlueprintS3BucketKmsPermissions",
            "Effect": "Allow",
            "Action": [
                "kms:Decrypt",
                "kms:GenerateDataKey"
            ],
            "Resource": "arn:aws:kms:${KEY_REGION}:${KEY_ACCOUNT_ID}:key/
${TOOLING_BLUEPRINT_KEY_ID}",
            "Condition": {
                "StringLike": {
                    "kms:ViaService": "s3.*.amazonaws.com"
                }
            }
        },
        {
            "Sid": "LambdaFunctionKmsPermissions",
            "Effect": "Allow",
            "Action": [
                "kms:CreateGrant",
                "kms:Decrypt",
                "kms:Encrypt"
            ],
            "Resource": "arn:aws:kms:${KEY_REGION}:${KEY_ACCOUNT_ID}:key/
${TOOLING_BLUEPRINT_KEY_ID}",
            "Condition": {
                "StringLike": {
                    "kms:ViaService": "lambda.*.amazonaws.com"
                },
                "ArnLike": {
                    "kms:EncryptionContext:aws:lambda:FunctionArn":
 "arn:aws:lambda:*:*:function:amazon-bedrock*"
                }
            }
        },
        {
            "Sid": "SecretsManagerKmsPermissions",
            "Effect": "Allow",
            "Action": [
                "kms:Decrypt",
                "kms:Encrypt",
```

```
                "kms:GenerateDataKey"
            ],
            "Resource": "arn:aws:kms:${KEY_REGION}:${KEY_ACCOUNT_ID}:key/
${TOOLING_BLUEPRINT_KEY_ID}",
            "Condition": {
                "StringLike": {
                    "kms:ViaService": "secretsmanager.*.amazonaws.com"
                },
                "ArnLike": {
                    "kms:EncryptionContext:SecretARN":
 "arn:aws:secretsmanager:*:*:secret:amazon-bedrock*"
                }
            }
        },
        {
            "Sid": "BedrockKmsPermissions",
            "Effect": "Allow",
            "Action": [
                "kms:CreateGrant",
                "kms:Decrypt",
                "kms:GenerateDataKey"
            ],
            "Resource": "arn:aws:kms:${KEY_REGION}:${KEY_ACCOUNT_ID}:key/
${TOOLING_BLUEPRINT_KEY_ID}",
            "Condition": {
                "StringLike": {
                    "kms:ViaService": "bedrock.*.amazonaws.com"
                },
                "ForAnyValue:StringLike": {
                    "kms:EncryptionContextKeys": "aws:bedrock*:arn"
                }
            }
        }
    ]
}
```

Authorization in Amazon SageMaker Unified Studio

Amazon SageMaker Unified Studio's interface consists of a management console within AWS and an off-console web application.

The Amazon SageMaker Unified Studio management console can be used by AWS administrators for top-level-resource APIs, including creating and managing domains, AWS account associations for these domains, and data sources for which you want to delegate access management to Amazon SageMaker Unified Studio. You can use the Amazon SageMaker Unified Studio management console to manage all of the IAM roles and configuration needed to delegate access management control to the Amazon SageMaker Unified Studio service for their explicitly configured AWS accounts. The Amazon SageMaker Unified Studio is a first-party AWS Identity Center application for SSO users. If enabled, the console can also be used by authorized IAM principals to federate into the Amazon SageMaker Unified Studio instead of using an SSO identity.

Amazon SageMaker Unified Studio is designed to be used principally by AWS IAM Identity Center-authenticated users or third party Identity Providers who support SAML to manage access to data and perform data publishing, discovery, subscription, and analytics tasks.

Authorization in the Amazon SageMaker Unified Studio console

The Amazon SageMaker Unified Studio console authorization model uses IAM authorization. The console is used by administrators primarily for setup. Amazon SageMaker Unified Studio uses the concept of a domain administrator AWS account, and member AWS accounts, and the console is used from all of these accounts to build the trust relationships while respecting AWS Organization boundaries.

Authorization in Amazon SageMaker Unified Studio

The Amazon SageMaker Unified Studio authorization model is a hierarchical ACL with static role archetypes (profiles) that include administrators and viewers. For example, users can have a profile of administrator or user. At the level of a domain, they may have a domain user owner designation. At the level of a project, a user can be an owner or contributor. These profiles can be configured as one of two types: users and groups.

Within this authorization model, Amazon SageMaker Unified Studio allows users to manage user and group permissions. Users manage project membership, request membership to projects, and approve memberships. Users publish data, define data subscription approvers, subscribe to data, and approve subscriptions.

Users perform data analytics in specific projects when their Amazon SageMaker Unified Studio client requests IAM session credentials that Amazon SageMaker Unified Studio generates based on the user's effective profile in the specific project context. This session is scoped both to the

user's permissions and also the specific project's resources. Users then use the projects tools (i.e. Amazon Athena or Amazon Redshift) to query the relevant data, and all of the underlying IAM work is completely abstracted away.

Note that only IAM users and SSO users can access the Amazon SageMaker Unified Studio UI. IAM roles cannot access the Amazon SageMaker Unified Studio UI. But but IAM roles can interact with the Amazon SageMaker Unified Studio through APIs (searching assets, creating and managing projects, etc.)

Amazon SageMaker Unified Studio profiles and roles

Once a user is authenticated, the authenticated context maps to a user profile ID. This user profile can have multiple, different associations (project owner, domain owner etc.) which is used for authorizing users. Each association (for example, project owner, domain administrator, etc.) has permissions for certain activities based on the context. For example, a user that has a domain owner association can create additional domains andcan assign other domain owners to the domain. A project owner can add or remove project members for their project, they can create publishing agreements with a domain, and publish assets to a domain.

Compliance validation for Amazon SageMaker Unified Studio

To learn whether an AWS service is within the scope of specific compliance programs, see AWS services in Scope by Compliance Program and choose the compliance program that you are interested in. For general information, see AWS Compliance Programs.

You can download third-party audit reports using AWS Artifact. For more information, see Downloading Reports in AWS Artifact.

Your compliance responsibility when using AWS services is determined by the sensitivity of your data, your company's compliance objectives, and applicable laws and regulations. AWS provides the following resources to help with compliance:

- Security Compliance & Governance – These solution implementation guides discuss architectural considerations and provide steps for deploying security and compliance features.
- HIPAA Eligible Services Reference – Lists HIPAA eligible services. Not all AWS services are HIPAA eligible.
- AWS Compliance Resources – This collection of workbooks and guides might apply to your industry and location.

- AWS Customer Compliance Guides – Understand the shared responsibility model through the lens of compliance. The guides summarize the best practices for securing AWS services and map the guidance to security controls across multiple frameworks (including National Institute of Standards and Technology (NIST), Payment Card Industry Security Standards Council (PCI), and International Organization for Standardization (ISO)).
- Evaluating Resources with Rules in the *AWS Config Developer Guide* – The AWS Config service assesses how well your resource configurations comply with internal practices, industry guidelines, and regulations.
- AWS Security Hub – This AWS service provides a comprehensive view of your security state within AWS. Security Hub uses security controls to evaluate your AWS resources and to check your compliance against security industry standards and best practices. For a list of supported services and controls, see Security Hub controls reference.
- Amazon GuardDuty – This AWS service detects potential threats to your AWS accounts, workloads, containers, and data by monitoring your environment for suspicious and malicious activities. GuardDuty can help you address various compliance requirements, like PCI DSS, by meeting intrusion detection requirements mandated by certain compliance frameworks.
- AWS Audit Manager – This AWS service helps you continuously audit your AWS usage to simplify how you manage risk and compliance with regulations and industry standards.

Security Best Practices for Amazon SageMaker Unified Studio

Amazon SageMaker Unified Studio provides a number of security features to consider as you develop and implement your own security policies. The following best practices are general guidelines and don't represent a complete security solution. Because these best practices might not be appropriate or sufficient for your environment, treat them as helpful considerations rather than prescriptions.

Implement least privilege access

When granting permissions, you decide who is getting what permissions to which Amazon SageMaker Unified Studio resources. You enable specific actions that you want to allow on those resources. Therefore you should grant only the permissions that are required to perform a task. Implementing least privilege access is fundamental in reducing security risk and the impact that could result from errors or malicious intent.

Use IAM roles

Producer and client applications must have valid credentials to access Amazon SageMaker Unified Studio resources. You should not store AWS credentials directly in a client application or in an Amazon S3 bucket. These are long-term credentials that are not automatically rotated and could have a significant business impact if they are compromised.

Instead, you should use an IAM role to manage temporary credentials for your producer and client applications to access Amazon SageMaker Unified Studio resources. When you use a role, you don't have to use long-term credentials (such as a user name and password or access keys) to access other resources.

For more information, see the following topics in the *IAM User Guide*:

- IAM Roles
- Common Scenarios for Roles: Users, Applications, and Services

Implement Server-Side Encryption in Dependent Resources

Data at rest and data in transit can be encrypted in Amazon SageMaker Unified Studio.

Use CloudTrail to Monitor API Calls

Amazon SageMaker Unified Studio is integrated with AWS CloudTrail, a service that provides a record of actions taken by a user, role, or an AWS service in Amazon SageMaker Unified Studio.

Using the information collected by CloudTrail, you can determine the request that was made to Amazon SageMaker Unified Studio, the IP address from which the request was made, who made the request, when it was made, and additional details.

Resilience in Amazon SageMaker Unified Studio

The AWS global infrastructure is built around AWS Regions and Availability Zones. AWS Regions provide multiple physically separated and isolated Availability Zones, which are connected with low-latency, high-throughput, and highly redundant networking. With Availability Zones, you can design and operate applications and databases that automatically fail over between zones without interruption. Availability Zones are more highly available, fault tolerant, and scalable than traditional single or multiple data center infrastructures.

For more information about AWS Regions and Availability Zones, see AWS Global Infrastructure.

In addition to the AWS global infrastructure, Amazon SageMaker Unified Studio offers several features to help support your data resiliency and backup needs.

Infrastructure Security in Amazon SageMaker Unified Studio

As a managed service, Amazon SageMaker Unified Studio is protected by the AWS global network security procedures that are described in the Amazon Web Services: Overview of Security Processes whitepaper.

You use AWS published API calls to access Amazon SageMaker Unified Studio through the network. Clients must support Transport Layer Security (TLS) 1.0 or later. We recommend TLS 1.2 or later. Clients must also support cipher suites with perfect forward secrecy (PFS) such as DHE (Ephemeral Diffie-Hellman) or ECDHE (Elliptic Curve Ephemeral Diffie-Hellman). Most modern systems such as Java 7 and later support these modes.

Additionally, requests must be signed by using an access key ID and a secret access key that is associated with an IAM principal. Or you can use the AWS Security Token Service (AWS STS) to generate temporary security credentials to sign requests.

Configuration and vulnerability analysis for Amazon SageMaker Unified Studio

AWS handles basic security tasks like guest operating system (OS) and database patching, firewall configuration, and disaster recovery. These procedures have been reviewed and certified by the appropriate third parties. For more information, see the AWS shared responsibility model.

Cross-service confused deputy prevention

The confused deputy problem is a security issue where an entity that doesn't have permission to perform an action can coerce a more-privileged entity to perform the action. In AWS, cross-service impersonation can result in the confused deputy problem. Cross-service impersonation can occur when one service (the *calling service*) calls another service (the *called service*). The calling service can be manipulated to use its permissions to act on another customer's resources in a way it should not otherwise have permission to access. To prevent this, AWS provides tools that help you protect

your data for all services with service principals that have been given access to resources in your account.

We recommend using the aws:SourceArn and aws:SourceAccount global condition context keys in resource policies to limit the permissions that ServiceNameLongEntity gives another service to the resource. Use aws:SourceArn if you want only one resource to be associated with the cross-service access. Use aws:SourceAccount if you want to allow any resource in that account to be associated with the cross-service use.

The most effective way to protect against the confused deputy problem is to use the aws:SourceArn global condition context key with the full ARN of the resource. If you don't know the full ARN of the resource or if you are specifying multiple resources, use the aws:SourceArn global context condition key with wildcard characters (*) for the unknown portions of the ARN. For example, arn:aws:*servicename*:*:*123456789012*:*.

If the aws:SourceArn value does not contain the account ID, such as an Amazon S3 bucket ARN, you must use both global condition context keys to limit permissions.

The value of aws:SourceArn must be ResourceDescription.

The following example shows how you can use the aws:SourceArn and aws:SourceAccount global condition context keys in ServiceNameEntity to prevent the confused deputy problem.

```
{
  "Version": "2012-10-17",
  "Statement": {
    "Sid": "ConfusedDeputyPreventionExamplePolicy",
    "Effect": "Allow",
    "Principal": {
      "Service": "servicename.amazonaws.com"
    },
    "Action": "servicename:ActionName",
    "Resource": [
      "arn:aws:servicename:::ResourceName/*"
    ],
    "Condition": {
      "ArnLike": {
        "aws:SourceArn": "arn:aws:servicename:*:123456789012:*"
      },
      "StringEquals": {
        "aws:SourceAccount": "123456789012"
      }
```

```
      }
    }
}
```

Quotas and limits for Amazon SageMaker Unified Studio

Your AWS account has default quotas, formerly referred to as limits, for each AWS service. Unless otherwise noted, each quota is account specific and region-specific.

Resource quotas

The resource quotas are applied at the account level, meaning the depletion of resource quotas in one project can affect all other projects within the account.

Amazon SageMaker Unified Studio has the following quotas and limits.

Resource	Default
Maximum number of JupyterLab instances	2500
Maximum number of project members for your Amazon SageMaker unified domain. The total number of project members is the product of project members and projects.	2500
Maximum number of spaces	2500
Maximum number of projects	2500
Maximum number of Micro environments	200

For more information about other AWS service quotas, see AWS service quotas.

For more quotas information, see the following:

- Amazon SageMaker Supported Regions and Quotas
- Amazon Managed Workflows for Apache Airflow endpoints and quotas
- Amazon Redshift endpoints and quotas
- Amazon EMR endpoints and quotas
- Amazon DataZone endpoints and quotas

- Amazon Q Business endpoints and quotas
- Amazon Athena endpoints and quotas
- Amazon Bedrock endpoints and quotas
- AWS Glue endpoints and quotas

Document history for the Amazon SageMaker Unified Studio Administrator Guide

The following table describes the documentation releases for Amazon SageMaker Unified Studio.

Change	Description	Date
Policy updates - SageMaker StudioProjectUserRolePolicy	Policy updates to SageMaker StudioProjectUserRolePolicy - adding permissions to access Amazon Athena default catalog resource. Amazon SageMaker Unified Studio updates to AWS managed policies.	June 25, 2025
Policy updates - SageMaker StudioDomainExecutionRolePolicy	Policy updates to the SageMakerStudioDomainExecutionRolePolicy - adding support for the Amazon Q `GetIdentityMetadata` API action in order to obtain user's Q subscription information to set an appropriate subscription tier badge. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	June 18, 2025
Policy updates - SageMaker StudioProjectUserRolePolicy	Policy updates to the SageMakerStudioProjectUserRolePolicy - adding permissions to list Amazon Bedrock foundation models.	June 13, 2025

	Removing permissions to terminate EMR Cluster, change security group rules, Amazon Athena default catalog permissions, and list S3 buckets permissions at bucket level. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	
Policy updates - SageMaker StudioProjectUserRolePolicy	Policy updates to the SageMakerStudioProjectUserRolePolicy - bring back previously removed permission to `ListBucket` to fix issues in AWS Glue sessions and connections. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	June 13, 2025

Policy updates - SageMaker StudioProjectProvisioningRolePolicy	Policy updates to the SageMakerStudioProjectProvisioningRolePolicy - adding the untag role permission to fix project update failure. Also adding permissions to integrate with Amazon QuickSight. Also optimizing to reduce the policy size. And adding permissions to enable automatic sync of repositories. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	June 4, 2025
Policy update - SageMaker StudioProjectUserRolePolicy	Policy updates to the SageMakerStudioProjectUserRolePolicy - removing RedshiftDbUser format restriction. Adding KMS permissions required by dependent services for Federated Data Connection. Adding permissions to support Amazon QuickSight integration.For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	June 4, 2025

Policy updates - AmazonDataZoneBedrockModelConsumptionPolicy	Policy updates to the AmazonDataZoneBedrockModelConsumptionPolicy - adding permissions to call the `ListFoundationModels` action. This permission is added to help get model metadata more programmatically when the user is selecting which models to invoke.For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	May 28, 2025
Policy update - SageMakerStudioFullAccess	Policy updates to the SageMakerStudioFullAccess - adding permissions to support attaching or updating AWS managed permissions in AWS RAM resource shares in the Amazon SageMaker console. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	May 22, 2025

Policy update - AmazonDataZoneBedrockModelConsumptionPolicy	Policy updates to the AmazonDataZoneBedrockModelConsumptionPolicy - adding support for the conversation history feature powered by Amazon Bedrock session management in generative AI playgrounds. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	May 13, 2025
Policy update - SageMakerStudioProjectRoleMachineLearningPolicy	Policy updates to the SageMakerStudioProjectRoleMachineLearningPolicy - as CodeEditor (VS Code) is introduced into Amazon SageMaker Unified Studio, users need the ability to create/delete CodeEditor space applications in Amazon SageMaker. Currently, only Amazon SageMaker space apps are allowed to be created with the JupyterLab app type. This change extends the current capability of creating/deleting JupyterLab space applications to CodeEditor (VS Code). For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	May 1, 2025

Policy update - SageMaker StudioProjectUserRolePolicy	Policy updates to the SageMakerStudioProjectUserRolePolicy - adding permissions for integration with Amazon Bedrock Data Automation. Adding permissions to show Amazon Bedrock agent versions and their details to users. Adding permission to support Trusted Identity Propagation in QEv2. Ensuring project isolation for Amazon Bedrock Inline Agents. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	April 28, 2025

Policy update - SageMaker StudioProjectProvisioningRolePolicy	Policy updates to the SageMakerStudioProjectProvisioningRolePolicy - adding IAM permissions for the AmazonSageMakerQueryExecution role to support query execution role creation during enabling of the Tooling blueprint. Adding the DeleteSchedule permission so that when projects are deleted, the Schedule Group can be deleted. EventBridge runs DeleteSchedule automatically on Schedule Groups when it attempts to delete them, regardless of whether the Schedule Group actually has schedules in it. This permission allows for that deleteSchedule call to be made during project deletion. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	April 28, 2025

Policy update - SageMaker StudioBedrockKnowledgeBaseServiceRolePolicy	Policy updates to the SageMakerStudioBedrockKnowledgeBaseServiceRolePolicy - adding support for structured data sources in Amazon Bedrock knowledge bases for generative AI app development projects. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	April 16, 2025
Policy update - SageMaker StudioProjectUserRolePolicy	Policy updates to the SageMakerStudioProjectUserRolePolicy - preventing sharing provisioned Amazon Redshift-Serverless across all projects. Adding EventBridge Scheduler permissions for users to create schedules in the project schedule group. Adding permissions to handle Amazon SageMaker Studio migration to Amazon SageMaker Unified Studio. Adding support for the Amazon SageMaker App type CodeEditor. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	April 9, 2025

Policy update - SageMaker StudioProjectProvisioningRolePolicy	Policy updates to the SageMakerStudioProjectProvisioningRolePolicy - adding `lakeformation:DescribeResource` to improve deregistering of federated connections. Adding EventBridge Scheduler permissions to manage a schedule group for each project. Adding permission to manage Amazon Bedrock resources directly from the Amazon DataZone service. Add support for the Amazon SageMaker App type CodeEditor. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	April 9, 2025
Policy update - SageMaker StudioBedrockFlowServiceRolePolicy	Policy updates to the SageMakerStudioBedrockFlowServiceRolePolicy - adding support for using Amazon Bedrock agent nodes in Amazon Bedrock flows for generative AI app development projects. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	April 9, 2025

Policy update - SageMaker StudioDomainExecutionRolePolicy	Policy updates to the SageMakerStudioDomainExecutionRolePolicy - adding support for the GetUpdateEligibility API required by Amazon SageMaker Unified Studio to fetch update comments and determine project's eligibility for the workflow of updating projects. Also adding support for the existing Amazon DataZone Rule APIs required by Amazon SageMaker Unified Studio to mange and enforce rules. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	March 25, 2025
Policy update - SageMaker StudioProjectUserRolePolicy	Policy updates to the SageMakerStudioProjectUserRolePolicy - preventing default AWS Glue database from being listed as it causes issues with Spark SQL. Also adding permission to use new project-wide Amazon Bedrock service role for improved scalability.For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	March 21, 2025

Policy update - SageMaker StudioProjectProvisioningRolePolicy	Policy updates to the SageMakerStudioProjectProvisioningRolePolicy - adding permission to describe stack event for better error reporting. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	March 21, 2025
Policy update - SageMaker StudioBedrockFlowServiceRolePolicy	Policy updates to the SageMakerStudioBedrockFlowServiceRolePolicy - adding KMS permissions to decrypt Amazon Bedrock guardrails attached to the Amazon Bedrock flows. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	March 10, 2025
Policy update - SageMaker StudioProjectProvisioningRolePolicy	Policy updates to the SageMakerStudioProjectProvisioningRolePolicy - adding permission to change trust policy during project update to address confused deputy problem. Also adding permission to attach PartnerApps policy to the user role. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	March 5, 2025

Policy update - SageMaker StudioProjectProvisioningRolePolicy	Policy updates to the - renaming Amazon Bedrock tag and adding permission to removeSageMakerStudioProjectProvisioningRolePolicy deprecated tag on roles. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	March 4, 2025

Policy update - SageMaker StudioProjectUserRolePolicy	Policy updates to the SageMakerStudioProjectUserRolePolicy - changes to support shared VPC by removing ResourceAccount condition on actions dependent on VPC/subnets. Moving permissions from inline to this AWS managed policy for Amazon EMR, EMR-Serverless, and federated connections. Adding support for buckets with public access blocked with permission `s3:GetBucketPublicAccessBlock` . Adding permission to support data lineage in Amazon DataZone. Supporting Amazon LakeFormation ABAC by adding session tag the access role. Supporting users operating on private ECR. Also adding support for managing AWS Glue subscriptions by the user. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	February 28, 2025

Policy update - SageMaker StudioProjectRoleMachineLearningPolicy	Policy updates to the SageMakerStudioProjectRoleMachineLearningPolicy - adding support for the MLFlow Tracking Server for Shared VPC, applying visibility condition to Amazon SageMaker Search API. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	February 28, 2025
Policy update - SageMaker StudioProjectProvisioningRolePolicy	Policy updates to the - renaming Amazon Bedrock tag and adding permission to removeSageMakerStudioProjectProvisioningRolePolicy deprecated tag on roles. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	February 28, 2025
Policy update - SageMaker StudioEMRServiceRolePolicy	Policy updates to the SageMakerStudioEMRServiceRolePolicy - adding permissions to allow Amazon EMR to create network interfaces against Shared VPC.For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	February 28, 2025

New policies - SageMaker StudioEMRInstanceRolePolicy	Amazon SageMaker Unified Studio creates IAM roles for projects users to perform data analytics, artificial intelligence, and machine learning actions, and uses this policy when creating these roles to define the permissions related to EMR. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	February 28, 2025
New policy - SageMaker StudioBedrockKnowledgeBaseServiceRolePolicy	This policy allows Amazon Bedrock Knowledge Bases to access Amazon Bedrock models and data sources in Amazon SageMaker Unified Studio. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	February 25, 2025
New policy - SageMaker StudioBedrockKnowledgeBaseCustomResourcePolicy	This policy provides access to configure vector stores and Amazon Bedrock knowledge bases in Amazon SageMaker Unified Studio. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	February 25, 2025

New policy - SageMaker StudioBedrockFunctionExecutionRolePolicy	This policy allows AWS Lambda to access an Amazon Bedrock function component 's configuration in Amazon SageMaker Unified Studio. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	February 25, 2025
Policy update - SageMaker StudioProjectProvisioningRolePolicy	Policy updates to the SageMakerStudioProjectProvisioningRolePolicy - adding permissions for batch grants in AWS LakeFormation to give grants to IDC users. Adding various `Update*` permissions to allow managing project resources . Removing `ResourceAccount` condition on resources depending on VPC to allow usage of shared VPC. Using new Amazon Bedrock managed policy name. Adding permissions to clean up Amazon EMR project level resources during project deletion. For more informati on, see Amazon SageMaker Unified Studio updates to AWS managed policies.	February 24, 2025

Policy update - SageMaker StudioProjectRoleMachineLearningPolicy	Policy updates to the SageMakerStudioProjectRoleMachineLearningPolicy - adding permission for `DescribeAutoMLJobV2` , moving multiple Amazon SageMaker `List` operations to tag based authorization, adding CMK permissions for JupyterLab, add Amazon SageMaker `ListModelPackages` and `CreateModel` permissions for cross-account use case. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	February 14, 2025
New policy - SageMaker StudioBedrockPromptUserRolePolicy	This policy provides access to an Amazon Bedrock prompt and its configuration in Amazon SageMaker Unified Studio. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	February 14, 2025

New policy - SageMaker StudioBedrockFlowServiceRolePolicy	This policy allows Amazon Bedrock Flows to access Amazon Bedrock models and other resources attached to a flow in Amazon SageMaker Unified Studio. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	February 14, 2025
New policy - SageMaker StudioBedrockEvaluationJobServiceRolePolicy	This policy allows Amazon Bedrock to access Amazon Bedrock models and datasets for evaluation jobs in Amazon SageMaker Unified Studio. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	February 14, 2025
New policy - SageMaker StudioBedrockChatAgentUserRolePolicy	This policy provides access to an Amazon Bedrock chat agent app's configuration and Amazon Bedrock agent in Amazon SageMaker Unified Studio. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	February 14, 2025

New policy - SageMaker StudioBedrockAgent ServiceRolePolicy	This policy allows Amazon Bedrock Agents to access Amazon Bedrock models and other resources attached to an agent in Amazon SageMaker Unified Studio. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	February 14, 2025
Policy updates to SageMaker StudioProjectProvisioningRolePolicy	Policy updates to SageMaker StudioProjectProvisioningRolePolicy - adding permissions to manage IAM roles with only AWS managed policies attached to them and no permissions boundary. Also adding permissions to update the AWS Lambda function for Amazon Athena federated connections.For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	January 31, 2025

New policy SageMaker StudioQueryExecutionRolePolicy	New policy SageMaker StudioQueryExecutionRolePolicy - this is the default policy for the SageMakerQueryExecutionRole role. This policy provides permissions to run query executions on federated connections. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	January 31, 2025
New policy SageMaker StudioEMRServiceRolePolicy	New policy SageMaker StudioEMRServiceRolePolicy - Amazon SageMaker Unified Studio creates IAM roles for project users to perform data analytics, artificial intelligence, and machine learning actions and uses this policy when creating these roles to define the permissions related to Amazon EMR. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	January 31, 2025

Policy update to SageMaker StudioFullAccess	Policy updates to SageMaker StudioFullAccess - updating the CodeConnections tagging permissions to support tagging for CodeConnections host resources in the Amazon SageMaker console. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	January 24, 2025
Policy update to SageMaker StudioDomainExecut ionRolePolicy	Policy updates to SageMaker StudioDomainExecut ionRolePolicy - adding support for the AWS CodeConnections APIs in order to make the Copy button available for self-managed Git providers. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	January 24, 2025

Policy updates to SageMaker StudioProjectProvisioningRolePolicy, SageMakerStudioProjectUserRolePolicy, and SageMakerStudioProjectUserRolePermissionsBoundary	Policy updates to SageMaker StudioProjectProvisioningRolePolicy (adding permissions to support CMK in CodeCommit, AWS Glue Catalog, and Amazon Redshift Serverless), SageMaker StudioProjectUserRolePolicy (adding permissions to support CMK in CodeCommit, and AWS Glue Catalog), and SageMakerStudioProjectUserRolePermissionsBoundary (adding permissions to support CMK in CodeCommit, AWS Glue Catalog, Amazon Redshift Serverless, and EMR on EC2.) For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	December 18, 2024

New policy - SageMaker StudioProjectUserRolePolicy	Adding a new managed policy - SageMakerStudioProjectUserRolePolicy. Amazon SageMaker Unified Studio creates IAM roles for projects users to perform data analytics, artificial intelligence, and machine learning actions, and uses this policy when creating these roles to define the permissions. This is the main policy for the SageMakerUnifiedStudioProjectRole role. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	December 2, 2024
New policy - SageMaker StudioProjectUserRolePermissionsBoundary	Adding a new managed policy - SageMakerStudioProjectUserRolePermissionsBoundary. Amazon SageMaker Unified Studio creates IAM roles for Projects users to perform data analytics, artificial intelligence, and machine learning actions, and uses this policy when creating these roles to define the boundary of their permissions. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	December 2, 2024

New policy - SageMaker StudioProjectRoleMachineLearningPolicy	Adding a new managed policy - SageMakerStudioProjectRoleMachineLearningPolicy. Amazon SageMaker Unified Studio creates IAM roles for projects users to perform data analytics, artificial intelligence, and machine learning actions, and uses this policy when creating these roles to define the permissions related to Amazon SageMaker. This is the SageMaker policy for the SageMakerUnifiedStudioProjectRole role. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	December 2, 2024
New policy - SageMaker StudioProjectProvisioningRolePolicy	Adding a new managed policy - SageMakerStudioProjectProvisioningRolePolicy. Amazon SageMaker Unified Studio uses this policy to provision and manage resources in your account.For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	December 2, 2024

New policy - SageMaker StudioFullAccess	Adding a new managed policy - SageMakerStudioFullAccess. This policy provides full access to Amazon SageMaker Unified Studio via the Amazon SageMaker management console. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	December 2, 2024

New policy - SageMaker StudioDomainServiceRolePolicy	Adding a new managed policy - SageMakerStudioDomainServiceRolePolicy. This is the default policy for the SageMakerUnifiedStudioDomainServiceRole service role. This policy is used by Amazon SageMaker Unified Studio to access the SSM parameters in the user's account. Those parameters are set by the administrator in the Amazon SageMaker Unified Studio project profiles. This policy also has permissions to AWS KMS for encrypted SSM parameters. The KMS key must be tagged with EnableKeyForAmazonDataZone to allow decrypting the SSM parameters. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	December 2, 2024

New policy - SageMakerStudioDomainExecutionRolePolicy	Adding a new managed policy - SageMakerStudioDomainExecutionRolePolicy - default policy for the SageMakerUnifiedStudioDomainExecutionRole service role. This role is used by Amazon SageMaker Unified Studio to catalog, discover, govern, share, and analyze data in the Amazon SageMaker Unified Studio domain. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	December 2, 2024
New policy - AmazonDataZoneBedrockModelManagementPolicy	Adding a new managed policy - AmazonDataZoneBedrockModelManagementPolicy - that provides permissions to manage Amazon Bedrock model access, including creating, tagging and deleting application inference profiles. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	December 2, 2024

New policy - AmazonDataZoneBedrockModelConsumptionPolicy	Adding a new managed policy - AmazonDataZoneBedrockModelConsumptionPolicy - that provides permissions to consume Amazon Bedrock models, including invoking Amazon Bedrock application inference profile created for particular Amazon DataZone domain. For more information, see Amazon SageMaker Unified Studio updates to AWS managed policies.	December 2, 2024
Initial release	Initial release of the Amazon SageMaker Unified Studio Administrator Guide	December 2, 2024