

# Alibaba Cloud

## DataWorks Preparation

Document Version: 20201026

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# Document conventions

Style	Description	Example
 <b>Danger</b>	A danger notice indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results.	 <b>Danger:</b> Resetting will result in the loss of user configuration data.
 <b>Warning</b>	A warning notice indicates a situation that may cause major system changes, faults, physical injuries, and other adverse results.	 <b>Warning:</b> Restarting will cause business interruption. About 10 minutes are required to restart an instance.
 <b>Notice</b>	A caution notice indicates warning information, supplementary instructions, and other content that the user must understand.	 <b>Notice:</b> If the weight is set to 0, the server no longer receives new requests.
 <b>Note</b>	A note indicates supplemental instructions, best practices, tips, and other content.	 <b>Note:</b> You can use Ctrl + A to select all files.
>	Closing angle brackets are used to indicate a multi-level menu cascade.	Click <b>Settings&gt; Network&gt; Set network type</b> .
<b>Bold</b>	<b>Bold</b> formatting is used for buttons, menus, page names, and other UI elements.	Click <b>OK</b> .
<b>Courier font</b>	Courier font is used for commands	Run the <code>cd /d C:/window</code> command to enter the Windows system folder.
<i>Italic</i>	Italic formatting is used for parameters and variables.	<code>bae log list --instanceid</code> <i>Instance_ID</i>
[ ] or [a b]	This format is used for an optional value, where only one item can be selected.	<code>ipconfig [-all -t]</code>
{ } or {a b}	This format is used for a required value, where only one item can be selected.	<code>switch {active stand}</code>

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# 1. Use a RAM user

This topic describes how to log on to the DataWorks console as a RAM user to update personal information and create workspaces.

RAM user update personal information create a workspace

## Prerequisites

If this is the first time you log on to the DTplus console and use DataWorks as a RAM user, make sure that the following information is obtained or confirmed:

- Domain alias of the Alibaba Cloud account to which the RAM user belongs.
- Username and password of the RAM user.
- AccessKey ID and AccessKey secret of the RAM user.
- The Alibaba Cloud account has granted the RAM user the permission to log on to the Alibaba Cloud Management Console.
- The Alibaba Cloud account has granted the RAM user the permission to manage the AccessKey ID and AccessKey secret.

If the preceding information cannot be obtained or confirmed, make sure that the following operations are completed by the Alibaba Cloud account to which the RAM user belongs:

- All configurations and information required by the RAM user are prepared. For more information, see [Prepare an Alibaba Cloud account](#) and [Prepare a RAM user](#).
- A workspace is created. The RAM user is added to the workspace as a member, and the necessary role is assigned to the RAM user. For more information, see [Create a workspace](#) and [Add workspace members](#).

## Log on to the DataWorks console

1. Visit the logon link for RAM users provided by the Alibaba Cloud account and log on to the DataWorks console as a RAM user. A user with an Alibaba Cloud account can log on to the [DTplus console](#), copy the logon link for RAM users, and then offer the logon link to the RAM users under the Alibaba Cloud account.
2. In the left-side navigation pane, click **Workspaces**.
3. On the Workspaces page, find the workspace in which you want to perform operations and click **Data Analytics** in the Actions column.

## Update personal information

You must enter your AccessKey pair in the DTplus console before you can use DataWorks.

1. Go to the **Personal Information** page. Use one of the following methods to go to the Personal Information page:
  - If this is the first time you access a DataWorks workspace, you are prompted to enter your AccessKey pair. Click [Here](#) in the message that appears to go to the **Personal Information** page.
  - If you have accessed a DataWorks workspace before, go to the homepage of the DataWorks console, move the pointer over the icon in the upper-left corner, and select [DTplus Overview](#).  
Click **Personal Information**.

2. Click **Modify AccessKey Information**. In the dialog box that appears, enter the AccessKey ID and AccessKey secret that are created and enabled by the Alibaba Cloud account.
3. Go to the **DataStudio** page again or refresh the page. You can use DataWorks to perform data analytics.

## Create a workspace

You can create a workspace as a RAM user only after you are authorized by the corresponding Alibaba Cloud account. For more information, see [Grant permissions to the RAM user](#) and [Create a workspace](#).

## 2. Administrator Operations

### 2.1. Prepare an Alibaba Cloud account

This topic describes how to create an Alibaba Cloud account and create an AccessKey for the account.


You can log on to the DTplus console by using an Alibaba Cloud account or as a **Resource Access Management (RAM)** user.

- An Alibaba Cloud account owns Alibaba Cloud resources. Resource usage is measured and billed to the Alibaba Cloud account. You can use the Alibaba Cloud account to create RAM users for your enterprise. You can also use the Alibaba Cloud account to manage and grant permissions to RAM users.
- RAM users are created and managed by the Alibaba Cloud account in the RAM system. RAM users do not own resources, so the resource usage of a RAM user is not measured and billed to the RAM user. The Alibaba Cloud account centrally controls all RAM users, including the payment for resources used by RAM users.

Therefore, you must have an Alibaba Cloud account and manage your RAM users in RAM before using DTplus services.


#### Create an Alibaba Cloud account

If you have not created an Alibaba Cloud account, go to the [Alibaba Cloud official website](#). Click **Free Account** to open the Alibaba Cloud account creation page and create an Alibaba Cloud account.

 **Notice** An Alibaba Cloud account is a privileged account to which resource usage is billed. Keep the username and password safe and regularly change the password.

#### Complete real-name verification


Only an Alibaba Cloud account that is verified with a real name can purchase and use services in Alibaba Cloud. If you have not completed real-name verification, go to the [real-name verification page](#) and complete the verification.

 **Note**

- To make sure that you can use services in Alibaba Cloud, you must complete real-name verification.
- If you are an enterprise user, we recommend that you complete enterprise-level verification for more convenience.

#### Create an AccessKey


To make sure that nodes created in DataWorks workspaces can be run, you must create an AccessKey for your Alibaba Cloud account. Different from the username and password that you use to log on to the Alibaba Cloud console, an AccessKey is used by Alibaba Cloud services to verify permissions of ether other. An AccessKey consists of an AccessKey ID and an AccessKey secret.

 **Notice** After creating an AccessKey for your Alibaba Cloud account, keep the AccessKey ID and AccessKey secret safe. If the AccessKey ID or AccessKey secret is or may be disclosed, update the AccessKey in time.

If you disable the AccessKey of your Alibaba Cloud account, nodes created by RAM users under the Alibaba Cloud account fail to be run. Therefore, exercise caution when disabling an AccessKey.

1. Log on to the Alibaba Cloud console, move the pointer over your profile picture in the upper-right corner, and then click **AccessKey** to go to the **Security Management** page.
2. In the **Security Tips** dialog box that appears, click **Continue to manage AccessKey**.
3. Click **Create AccessKey** in the upper-right corner. In the dialog box that appears, click **Send verification code** to obtain an SMS verification code and enter it in the **Verification code** field. Then click **Confirm**.
4. On the **Security Management** page that appears, view the status of the AccessKey that is created. You can click **Disable** or **Delete** in the **Action** column to disable or delete the AccessKey.



 **Note** If you disable the AccessKey, all of the services that use the AccessKey fail to be run and report errors. Therefore, after you update your AccessKey, you must check the running status of services that use the AccessKey and recover the services in time.

## 2.2. Prepare a RAM user

This topic describes how to create a RAM user, create an AccessKey pair for the RAM user, grant permissions to the RAM user, and allocate the RAM user to a person.

### Context

- If you use DTplus alone, you can skip this topic after you create an Alibaba Cloud account. For more information, see [Prepare an Alibaba Cloud account](#).
- If you need to use DTplus together with others, follow the instructions in this topic to create RAM users.


### Create a RAM user

1. Log on to the **RAM console** with your Alibaba Cloud account.
2. In the left-side navigation pane, click **Users** under **Identities**.
3. Click **Create User**.

 **Note** To create multiple RAM users at a time, click **Add User**.

4. Specify the **Logon Name** and **Display Name** parameters.
5. Under **Access Mode**, select **Console Password Logon**.
6. Click **OK**.



 **Notice** After you create a RAM user, take note of the logon username and password of the RAM user and send them to the person who needs to use the RAM user.


## Create an AccessKey pair for the RAM user

An AccessKey pair ensures that nodes created in your DataWorks workspace can be run. You must create an AccessKey pair for each RAM user.


If you grant a RAM user the permission to manage AccessKey pairs, the RAM user can create AccessKey pairs in the RAM console.

To create an AccessKey pair for a RAM user, perform the following steps:

1. In the left-side navigation pane, click **Users** under **Identities**.
2. In the **User Logon Name/Display Name** column, click the username of the target RAM user.
3. In the **User AccessKey Pairs** section, click **Create AccessKey**.

 **Note** You must enter a verification code if you are creating an AccessKey pair for the first time.

4. Click **OK**.

 **Note**

- The AccessKey Secret is displayed only once when you first create it. You cannot retrieve the AccessKey Secret if you forget it. We recommend that you save the AccessKey Secret for subsequent use.
- If the AccessKey pair is disclosed or lost, you must create a new one. Currently, you can create a maximum of two AccessKey pairs.

## Grant permissions to the RAM user

To allow a RAM user to create a DataWorks workspace, you must grant the `AliyunDataWorksFullAccess` permission to the RAM user.

1. In the left-side navigation pane, click **Users** under **Identities**.
2. In the **User Logon Name/Display Name** column, find the target RAM user.
3. Click **Add Permissions**. On the page that appears, the principal is automatically filled in.
4. In the **Policy Name** column, select the target policies by clicking the corresponding rows.

 **Note** You can click **X** in the section on the right side of the page to delete the selected policy.

5. Click **OK**.
6. Click **Finished**.

## Allocate the RAM user to a person

 **Note**

- A RAM user belongs to your Alibaba Cloud account and does not own resources, so the resource usage of a RAM user is not measured and billed to the RAM user.
- All charges generated for using Alibaba Cloud services by RAM users are paid by your Alibaba Cloud account.
- You must take note of the logon link for RAM users and the default domain or domain alias of your Alibaba Cloud account. Then, send them to the person to whom you want to allocate a RAM user.

When you allocate the RAM user to a person, you must provide the following information for the person:

- **Logon link for RAM users**

Log on to the RAM console with your Alibaba Cloud account and click **Overview** in the left-side navigation pane. View the logon link for RAM users in the **Account Management** section.

- **Domain alias or default domain of your Alibaba Cloud account**

Log on to the RAM console with your Alibaba Cloud account and click **Settings** in the left-side navigation pane. On the **Settings** page, click the **Advanced** tab and view the default domain and domain alias in the **Default Domain** and **Domain Alias** sections.

- **Username and password of the RAM user**
- **AccessKey ID and AccessKey secret of the RAM user**

In addition to providing the preceding information, make sure that:

- You grant the RAM user the permission to log on to the Alibaba Cloud Management Console.
- You grant the RAM user the permission to manage AccessKey pairs. For more information, see [Set security policies for RAM users](#).

## What's next


After you prepare a RAM user, you can create a workspace for the RAM user to perform data analytics operations. For more information, see [Create a workspace](#).

## 2.3. Create a workspace

A workspace in DataWorks is similar to a project in MaxCompute. This topic describes how to create a workspace in the DataWorks console.

### Prerequisites

An Alibaba Cloud account is prepared. For more information, see [Prepare an Alibaba Cloud account](#). The Alibaba Cloud account is required to create a workspace, as described in this topic.

 **Note** The procedure for creating a workspace as a RAM user is the same as that described in this topic.

### Procedure

1. Log on to the [DataWorks console](#) with your Alibaba Cloud account.

2. On the Overview page, click **Create Workspace** in the **Shortcuts** section on the right. You can also click **Workspaces** in the left-side navigation pane and click **Create Workspace** on the page that appears.
3. In the **Create Workspace** pane, set the parameters in the **Basic Settings** step and click **Next**.

Section	Parameter	Description
Basic Information	Workspace Name	The name of the workspace. The name must be 3 to 27 characters in length and start with a letter. It can contain only letters, underscores (_), and digits.
	Display Name	The display name of the workspace. The display name can be up to 27 characters in length. It must start with a letter and can contain only letters, underscores (_), and digits.
	Mode	<p>The mode of the workspace. Valid values: <b>Basic Mode (Production Environment Only)</b> and <b>Standard Mode (Development and Production Environments)</b>.</p> <ul style="list-style-type: none"> <li>○ <b>Basic Mode (Production Environment Only):</b> A basic workspace is associated with only one MaxCompute project. Basic workspaces do not isolate the development environment from the production environment. In basic workspaces, you can only perform basic data development and cannot strictly control the data development process and table permissions.</li> <li>○ <b>Standard Mode (Development and Production Environments):</b> A standard workspace is associated with two different MaxCompute projects. One of the projects serves as the development environment, and the other serves as the production environment. Standard workspaces guarantee code development in a standard way and allow you to strictly control table permissions. Standard workspaces impose limits on table operations in the production environment for data security.</li> </ul> <p>For more information, see <a href="#">Basic mode and standard mode</a>.</p>
	Description	The description of the workspace.

Section	Parameter	Description
Advanced Settings	Download SELECT Query Result	Specifies whether workspace members can download the query results returned by SELECT statements in DataStudio. If you disable this option, workspace members cannot download the query results.



4. In the **Select Engines and Services** step, select required compute engines and services and click **Next**.

**Note**

- If you need to bind a compute engine of the following types, you must first activate the corresponding service: Realtime Compute, E-MapReduce, Hologres, Graph Compute, or AnalyticDB for PostgreSQL. Otherwise, the compute engine does not appear in the **Select Engines and Services** step for you to select.
- If you do not select a compute engine when you create a workspace, you cannot perform operations, such as creating tables, that are related to that compute engine on the DataStudio page.

DataWorks is now available as a commercial service. If you have not activated DataWorks in a region, activate it first before you create a workspace in the region.

Section	Service or Engine	Description
<b>DataWorks Services</b>  <b>Note</b> The services that are enabled for the workspace. The check box in this section is selected by default.	<b>Data Integration</b>	Provides a stable, efficient, and scalable data synchronization platform. Data Integration is designed to transmit and synchronize data efficiently between various heterogeneous data stores in complex networks.
	<b>Data Analytics</b>	Allows you to design a data computing process that consists of multiple mutually dependent nodes based on business needs to automatically run them in Operation Center.
	<b>Operation Center</b>	Allows you to view all your nodes and node instances and perform relevant operations on them as needed.
	<b>Data Quality</b>	Provides a comprehensive data quality scheme that relies on DataWorks. For example, you can explore data, compare data, monitor data quality, scan SQL statements, and use intelligent alerting. For more information, see <a href="#">Data Quality</a> .

Section	Service or Engine	Description
Compute Engines	MaxCompute	<p>Provides a rapid and fully-managed data warehouse solution that can process terabytes or petabytes of data. MaxCompute supports fast computing on a large amount of data, effectively saves costs for enterprises, and ensures data security. For more information, see the <a href="#">MaxCompute documentation</a>.</p> <div style="border: 1px solid #add8e6; padding: 5px; background-color: #e6f2ff;"> <p> <b>Note</b> After you create workspaces in DataWorks, you must associate them with MaxCompute projects. Otherwise, the error <code>project not found</code> is returned when you run commands in the workspaces.</p> </div>
	Realtime Compute	Allows you to use Stream Studio in DataWorks to develop streaming computing nodes.
	E-MapReduce	Allows you to use E-MapReduce to develop big data processing nodes in DataWorks. For more information, see the <a href="#">E-MapReduce documentation</a> .
	Hologres	Allows you to use HoloStudio in DataWorks to manage internal and foreign tables and develop SQL nodes of Hologres.
	Graph Compute	Allows you to use Graph Studio in DataWorks to manage Graph Compute instances.
	AnalyticDB for PostgreSQL	<p>Allows you to use AnalyticDB for PostgreSQL to develop AnalyticDB for PostgreSQL nodes in DataWorks. For more information, see <a href="#">Overview</a>.</p> <div style="border: 1px solid #add8e6; padding: 5px; background-color: #e6f2ff;"> <p> <b>Note</b> You can use the AnalyticDB for PostgreSQL compute engine only in DataWorks Standard Edition or a more advanced edition.</p> </div>
Machine Learning Services	PAI Studio	Uses statistical algorithms to learn large amounts of historical data and generate an empirical model to provide business strategies.

5. In the **Engine Details** step, set the parameters for the selected engines or services.

Engine	Parameter	Description
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Engine	Parameter	Description
MaxCompute	Instance display name	The display name of the compute engine instance. The display name must be 3 to 27 characters in length and start with a letter. It can contain only letters, underscores (_), and digits.
	MaxCompute Project Name	The name of the MaxCompute project. By default, the name is the same as that of the DataWorks workspace.
	Account for Accessing MaxCompute	The identity used to access the MaxCompute project. For the development environment, the value is fixed to <b>Node Owner</b> . For the production environment, the valid values are <b>Alibaba Cloud account</b> and <b>RAM User</b> .
	Resource Group	The quotas of computing resources and disk spaces for the compute engine instance.
Realtime Compute	Instance display name	The display name of the compute engine instance.
	Realtime Compute Project	The Realtime Compute project to be bound to the workspace. If no Realtime Compute project exists, create one in the Realtime Compute console. For more information, see <a href="#">Activate Realtime Compute and create a project</a> .
E-MapReduce	Instance display name	The display name of the compute engine instance.
	Access ID	The AccessKey ID of the account authorized to access the E-MapReduce cluster to be added as the compute engine instance.
	Access Key	The AccessKey secret of the account authorized to access the E-MapReduce cluster.
	Cluster ID	The ID of the E-MapReduce cluster. You can obtain the ID from the E-MapReduce console.
	EmrUserID	The ID of the user who created the E-MapReduce cluster.

Engine	Parameter	Description
	<b>Workspace ID</b>	The ID of the project in the E-MapReduce cluster.
	<b>YARN Resource Queue</b>	The name of the resource queue in the E-MapReduce cluster. Unless otherwise specified, set the value to <i>default</i> .
	<b>Endpoint</b>	The endpoint that you can use to connect to the E-MapReduce cluster. You can obtain the endpoint from the E-MapReduce console.
<b>Hologres</b>	<b>Instance display name</b>	The display name of the compute engine instance.
	<b>Hologres instance name</b>	The name of the Hologres instance.
	<b>Database Name</b>	The name of the database.
	<b>Server</b>	The endpoint used to connect to the Hologres instance.
	<b>Port</b>	The port used to connect to the Hologres instance.
<b>Graph Compute</b>	<b>Instance display name</b>	The display name of the compute engine instance.
	<b>Bind Graph Compute Instance</b>	The Graph Compute instance to be bound to the workspace.
<b>AnalyticDB for PostgreSQL</b>	<b>Instance display name</b>	The display name of the compute engine instance. Set a unique display name.
	<b>InstanceName</b>	The name of the AnalyticDB for PostgreSQL instance to be added as the compute engine instance.
	<b>DatabaseName</b>	The name of the database to be connected to in the AnalyticDB for PostgreSQL instance.
	<b>Username</b>	The username of the account used to connect to the database.
	<b>Password</b>	The password of the account used to connect to the database.

Engine	Parameter	Description
	Test connectivity	AnalyticDB for PostgreSQL nodes must be run on exclusive resource groups. Specify an exclusive resource group for running these nodes. Click Test connectivity to test the connectivity between the specified exclusive resource group and AnalyticDB for PostgreSQL instance.
PAI	GPU Utilization	By default, this feature is disabled. If you need to use this feature, enable it on the Workspace Management page.

- Click **Create Workspace**. After the workspace is created, you can view information about the workspace on the **Workspaces** page.

 **Note**

- If you are the owner of a workspace, all data in the workspace belongs to you. Other users have no access to your workspace before you grant permissions to them. If you create a workspace as a RAM user under an Alibaba Cloud account, the workspace belongs to both the RAM user and the Alibaba Cloud account.
- You can add a RAM user to a workspace to allow the RAM user to use the workspace instead of creating a workspace as the RAM user.

## What's next

Now you have learned how to create a workspace. You can proceed with the next tutorial to [add workspace members](#) or directly perform operations that are described in [Quick Start](#). Quick Start guides you through a complete process of data analytics and O&M.


## 2.4. Add workspace members

This topic describes how to add workspace members and assign roles to them. This topic also describes the permissions of each role.

### Prerequisites

If you need to use DTplus together with others, create RAM users, create a workspace, and then follow the instructions in this topic to add members to your workspace. For more information about how to create RAM users and workspaces, see [Prepare a RAM user](#) and [Create a workspace](#).

### Context

 **Note** If you need to perform all operations in your workspace by using only the Alibaba Cloud account, you can skip this topic and directly create tables and import data. For more information, see [Create tables and import data](#).

For more information about the permissions of Alibaba Cloud accounts and RAM users in MaxCompute and DataWorks, see [Users and roles](#).




For more information about the permission relationships between MaxCompute and DataWorks, see [Permission relationship between MaxCompute and DataWorks](#).


You can log on to the DTplus console by using an Alibaba Cloud account or as a **RAM user**.

Alibaba Cloud adopts the following billing rules for RAM users:


- An Alibaba Cloud account owns Alibaba Cloud resources. Resource usage is measured and billed to the Alibaba Cloud account. You can use the Alibaba Cloud account to create RAM users for your enterprise. You can also use the Alibaba Cloud account to manage and grant permissions to RAM users.
- RAM users are created and managed by the Alibaba Cloud account in the RAM system. RAM users do not own resources, so the resource usage of a RAM user is not measured and billed to the RAM user. The Alibaba Cloud account controls all RAM users in a unified manner, including the payment for resources used by RAM users.

## Procedure

1. Go to the **Workspace Management** page of the workspace to which you want to add members.
  - i. Log on to the [DataWorks console](#).
  - ii. In the left-side navigation pane, click **Workspaces**.
  - iii. On the **Workspaces** page, find the workspace to which you want to add members and click **Workspace Settings** in the **Actions** column.
  - iv. In the **Workspace Settings** pane, click **More**. The **Workspace Management** page appears. You can also click **Data Analytics** in the **Actions** column of the workspace on the **Workspaces** page. On the **DataStudio** page, click the  icon in the upper-right corner to go to the **Workspace Management** page.
2. In the left-side navigation pane, click **User Management**.
3. On the **User Management** page, click **Add Member** in the upper-right corner.
4. In the **Add Member** dialog box, click **Refresh**. All the created RAM users under your Alibaba Cloud account appear in the **Account to be added** section.

 **Note** If you need to create more RAM users, click **RAM Console** in the **Add Member** dialog box to go to the RAM console and create RAM users as required. For more information about how to create a RAM user and allocate the RAM user to a person, see [Prepare an Alibaba Cloud account](#).


5. Select RAM users in the **Account to be added** section and click the **>** icon to move them to the **Added** account section.
6. Select the roles to be assigned to the RAM users and click **Confirm**.

 **Notice** You must move RAM users from the **Account to be added** section to the **Added** account section before you assign roles to them.

7. Go to the **User Management** page and view or modify the roles of each added member. You

can click Remove in the Operation column of a member to delete the member. You can assign the following roles to workspace members: **Owner**, **Space Administrator**, **Development**, **Operation & Maintenance (O & M)**, **Deployment**, **Visitors**, and **Security Administrator**. The creator of a workspace is assigned the Space Administrator role by default.

Role	Description
Owner	The member with this role has full permissions on the workspace.
Space Administrator	This role has all permissions of the Development and Operation & Maintenance (O & M) roles. A member with this role can also manage the workspace. For example, the member can add and delete workspace members and create custom resource groups.
Development	A member with this role can design and maintain nodes on the DataStudio page in the workspace.
Operation & Maintenance (O & M)	A member with this role can manage the running of all nodes in the workspace in Operation Center.
Deployment	In a workspace in standard mode, a member with this role can review the code of each node and determine whether to commit the nodes to Operation Center.
Visitors	A member with this role can only view workflows and code on the DataStudio page in the workspace.
Security Administrator	A member with this role can perform operations only in Data Security Guard. For more information, see <a href="#">Data Security Guard</a> .

 **Note** After you add a RAM user as a workspace member, the RAM user can log on to the DataWorks console and access the workspace. The RAM user must update the AccessKey pair in the DTplus console after the logon. For more information, see [Use a RAM user](#).

The following table compares the permissions of roles in MaxCompute projects and DataWorks workspaces.

MaxCompute role	MaxCompute permission	DataWorks role	DataWorks permission
Project Owner	This role has all permissions on a project created in MaxCompute.	N/A	N/A
Super_Administrator	This role has permissions on all types of resources in a project and management permissions on the project.	N/A	N/A

MaxCompute role	MaxCompute permission	DataWorks role	DataWorks permission
Admin	<p>When you create a project, the system automatically creates an Admin role for this project and grants the following permissions to the role: access all objects in the project, manage users or roles, and authorize users or roles.</p> <p>Unlike a project owner, an Admin role is not authorized to perform the following operations: assign the role permissions to users, set security policies for projects, modify the authentication model for projects, and modify the role permissions.</p> <p>The project owner can assign an Admin role to a user and authorize this user for security management.</p>	N/A	N/A
Role_Project_Admin	This role has all permissions on projects, tables, functions, resources, instances, jobs, and packages of a workspace.	Project administrator	The administrator of a project. This role has permissions to manage the basic properties, data sources, computing engine configurations, and project members in the project. It can also assign administrator, developer, OAM, deployment, and visitor roles to other project members.

MaxCompute role	MaxCompute permission	DataWorks role	DataWorks permission
Role_Project_Dev	This role has all permissions on projects, functions, resources, instances, jobs, packages, and tables of a workspace.	Developer	This role has the permissions to create or delete tables, create workflows, script files, resources, user-defined functions (UDFs), and publish packages. However, this role does not have permissions to publish jobs.
Role_Project_Pe	This role has all permissions on projects, functions, resources, instances, and jobs of a workspace. It also has READ permissions on packages and both READ and DESCRIBE permissions on tables of a workspace.	OAM role	This role has the publish and online OAM permissions that are granted by the project administrator. However, this role does not have the permissions to develop data.
Role_Project_Deploy	By default, this role does not have any permissions.	Deployment role	This role has the same permissions as the OAM role, except for the online OAM permissions.
Role_Project_Guest	By default, this role does not have any permissions.	Visitor	This role can view data, but cannot edit workflows or code.
Role_Project_Security	By default, this role does not have any permissions.	Security administrator	This role is only used to configure sensitivity rules and audit data risks in Data Security Guard.


## 2.5. Work as a workspace administrator

This topic describes the responsibilities and permissions of a workspace administrator. By default, the Alibaba Cloud account that creates a workspace is the owner and administrator of the workspace and has full permissions on the workspace.

The owner can also specify a RAM user as a workspace administrator.


### Create a workspace

By default, you are the owner and administrator of the workspace that you create with your Alibaba Cloud account. You can also specify a RAM user as a workspace administrator. For more information about how to create a workspace, see [Create a workspace](#).

 **Note** A workspace administrator needs to maintain stable running of the workspace in the production environment, grant least permissions to workspace members, and control operation permissions on tables in the workspace.

## Add workspace members

A workspace administrator can add RAM users as members of the workspace and assign roles to the members as required. For more information about the permissions of each role, see [Permission list](#).

 **Note** We recommend that you do not assign the Development and Operation & Maintenance (O & M) roles to the same member.

## Manage permissions


To ensure stability and security of the production environment, DataWorks does not allow RAM users to perform operations on tables in the production environment by default. For example, RAM users cannot modify or delete tables in the production environment. In addition, workspace members must be authorized to commit nodes.

When you create a workspace, you must first specify whether to use your Alibaba Cloud account or a RAM user to run nodes in the workspace. An invalid setting will damage the permission system of DataWorks.

- **Alibaba Cloud account:** The AccessKey ID and AccessKey secret of your Alibaba Cloud account are required to execute SQL statements. The SQL statements can be executed on tables in all workspaces in the specified region. Exercise caution when you select this option.
- **RAM user:** The AccessKey ID and AccessKey secret of a RAM user are required to execute SQL statements. The permissions of RAM users are strictly controlled. Only authorized RAM users can perform operations on tables in the production environment.

Other permissions:

- **Data Integration:** Only the administrator and owner of a workspace can perform operations such as adding connections and synchronizing tables in the workspace.
- **MaxCompute Management:** A workspace administrator can bind a resource group to the workspace. Then, O&M experts can view the system status, allocate resources, and monitor nodes in MaxCompute Management.
- **Operation Center:** Only workspace administrators and O&M experts can perform operations in Operation Center.

 **Note** We recommend that you assign the least roles to each RAM user to ensure data security.