# Tag Management Service

# Service Overview

**Issue** 01

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HUAWEI

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# Security Declaration

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https://securitybulletin.huawei.com/enterprise/en/security-advisory

# Contents



# 1 What Is Tag Management Service?

Tag Management Service (TMS) is a visualized service that allows you to efficiently and centrally manage tags and categorize cloud resources across regions and services.

You can group cloud resources by usage, owner, or environment.

**Figure 1-1** Example tags

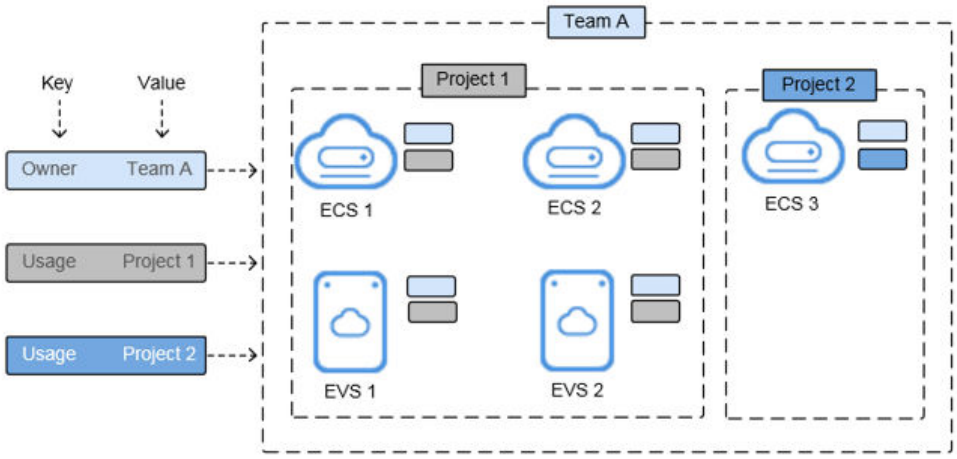



**Figure 1-1** shows how tags work. In this example, two tags are assigned to each cloud resource. Each tag contains a key and a value. The key of one tag is **Owner**, and that of another tag is **Usage**.

You can quickly search for and filter cloud resources based on the tags added to them. For example, if you define tags to specify resource owners or usage and attach these tags to your resources, you can easily filter these resources by owner or usage.

TMS provides the following functions:

- Resource tag management: Allows you to classify resources with tags. You can easily manage one tag or multiple tags at the same time in a visualized table.
- Resource search: Allows you to search for resources across services and regions with one or more tags.

- Predefined tag management: Allows you to create, import, and export predefined tags. You can efficiently plan tags based on your services.

NOTE

TMS is free of charge.

## Accessing TMS

You can access TMS from the management console, or using application programming interfaces (APIs).

- APIs

  To integrate TMS into a third-party system for secondary development, use TMS APIs. For details, see **Tag Management Service API Reference**.

- Management console

  The management console is a web-based GUI where you can easily perform various operations. You can access TMS console by logging in to **the management console**, clicking  , and choosing **Tag Management Service** under **Management & Governance**.

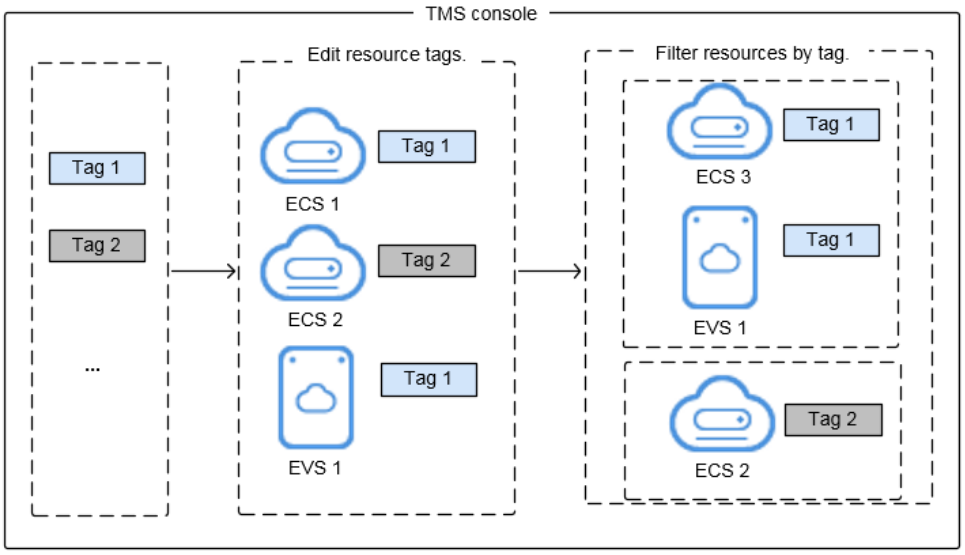
# 2 Application Scenarios

This section describes two typical application scenarios for TMS.

## Centralized Resource Management

TMS allows you to search among a wealth of cloud resources with specific tags. You can review, modify, and delete tags in a unified manner.

**Figure 2-1** Central management of resources



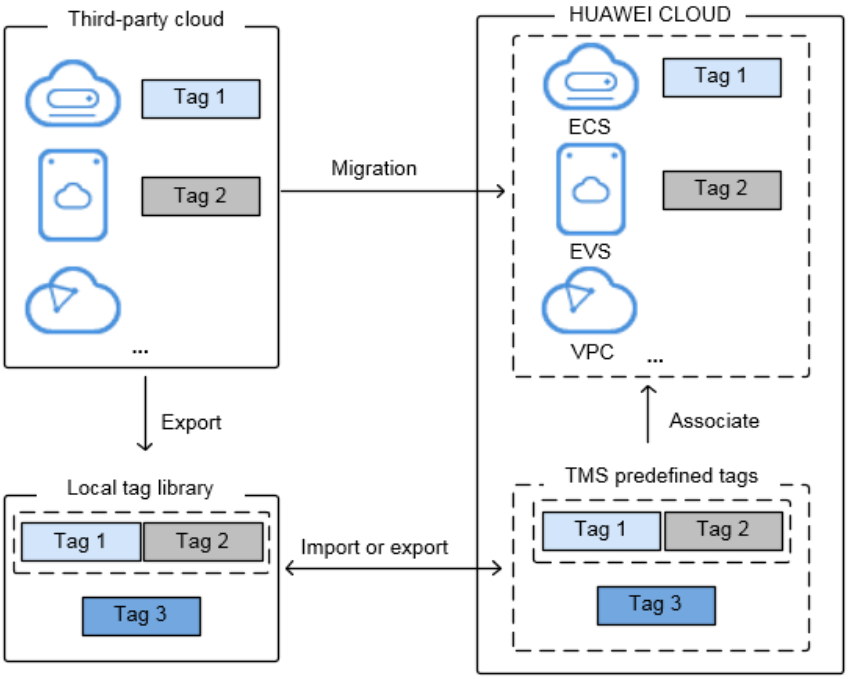

## Resource Migration

If you need to migrate large numbers of resources, you can create or import predefined tags in batches for these resources. You can also export predefined tags to batch modify them. This improves the accuracy and efficiency of resource migration while eliminating the need to repeatedly set tags.

- Creating predefined tags: You can create predefined tags before the migration, and then add these tags to the migrated resources.
- You can batch import predefined tags and add them to migrated resources. You can also export predefined tags for editing.

**Figure 2-2** Adding predefined tags to migrated resources



# 3 Security

## 3.1 Shared Responsibilities

Huawei guarantees that its commitment to cyber security will never be outweighed by the consideration of commercial interests. To cope with emerging cloud security challenges and pervasive cloud security threats and attacks, Huawei Cloud builds a comprehensive cloud service security assurance system for different regions and industries based on Huawei's unique software and hardware advantages, laws, regulations, industry standards, and security ecosystem.

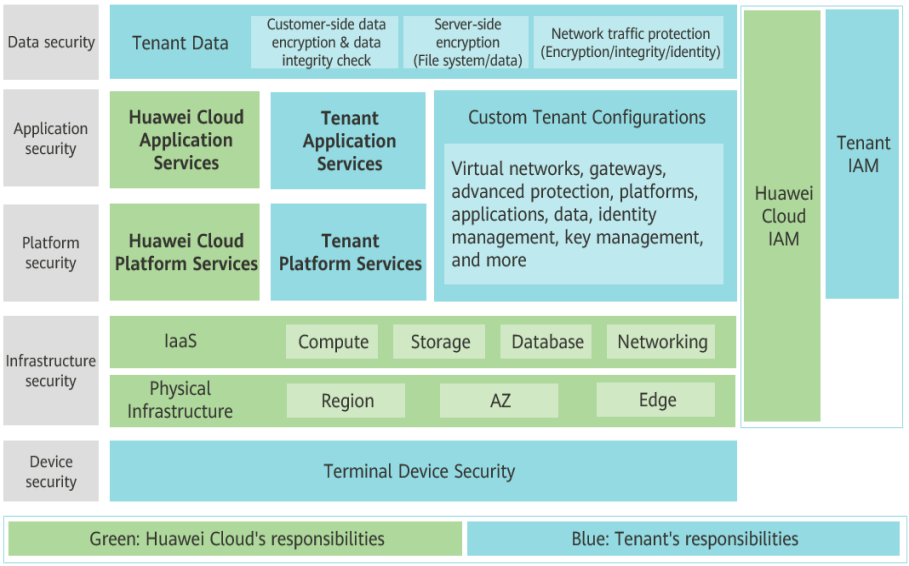
**Figure 3-1** illustrates the responsibilities shared by Huawei Cloud and users.

- **Huawei Cloud**: Ensure the security of cloud services and provide secure clouds. Huawei Cloud's security responsibilities include ensuring the security of our IaaS, PaaS, and SaaS services, as well as the physical environments of the Huawei Cloud data centers where our IaaS, PaaS, and SaaS services operate. Huawei Cloud is responsible for not only the security functions and performance of our infrastructure, cloud services, and technologies, but also for the overall cloud O&M security and, in the broader sense, the security and compliance of our infrastructure and services.
- **Tenant**: Use the cloud securely. Tenants of Huawei Cloud are responsible for the secure and effective management of the tenant-customized configurations of cloud services including IaaS, PaaS, and SaaS. This includes but is not limited to virtual networks, the OS of virtual machine hosts and guests, virtual firewalls, API Gateway, advanced security services, all types of cloud services, tenant data, identity accounts, and key management.

**Huawei Cloud Security White Paper** elaborates on the ideas and measures for building Huawei Cloud security, including cloud security strategies, the shared responsibility model, compliance and privacy, security organizations and personnel, infrastructure security, tenant service and security, engineering security, O&M security, and ecosystem security.

**Figure 3-1** Huawei Cloud shared security responsibility model




# 3.2 Identity Authentication and Access Control

Identity and Access Management (IAM) is a basic service provided by Huawei Cloud for permissions management, access control, and identity authentication. You can use IAM to create and manage users and user groups, grant permissions to allow or deny their access to cloud services and resources, and configure policies to improve account and resource security. IAM also provides you with multiple secure access credentials.

You can use IAM to control access to your TMS resources. IAM permissions define which actions on your cloud resources are allowed or denied. After creating an IAM user, the administrator needs to add the user to a user group and grants the required permissions by TMS to the user group. Then, all users in this group automatically inherit the granted permissions.

For details, see **User Permissions** and **Permissions**.

# 3.3 Auditing and Logging

Cloud Trace Service (CTS) is a log audit service for Huawei Cloud security. It allows you to collect, store, and query cloud resource operation records. You can use these records for security analysis, audit compliance, resource tracking, and fault locating.

After CTS is enabled, TMS operations can be recorded for auditing.

- For details about how to enable and configure CTS, see **Enabling CTS**.
- For details about TMS operations that can be audited, see **Key TMS Operations**.
- For details about how to view CTS traces, see **Viewing CTS Traces**.

# 3.4 Data Protection Technologies

## Data Protection

TMS does not support modifying, adding, or deleting resources. It collects the following information:

- Predefined tag keys
- Predefined tag values

## Transmission Protection

An encryption protocol is used when data is transmitted to TMS. You cannot configure transmission protection.

When you call TMS APIs, you can use HTTP and HTTPS. HTTPS is recommended over HTTP for higher security.

## Data Destruction

After data is deleted, the data is stored in a historical database list. After a Huawei Cloud account is deleted, the data from the account will be retained for seven days before being permanently deleted.

# 4 TMS and Other Services

- **Services supported by TMS**

  TMS allows you to manage resource tags centrally. For details about services supported by TMS, see **Table 4-1**.

  A cloud service may contain multiple resource types. You can specify a resource type and then centrally manage tags on TMS console as need.

  **Table 4-1** Services that support TMS

| Service | Resource Type |
| --- | --- |
| VPC Endpoint (VPCEP) | • VPC endpoint<br>• VPC endpoint service |
| Data Replication Service (DRS) | • Data synchronization task<br>• Data subscription task<br>• Disaster recovery task<br>• Backup migration task<br>• Real-time migration task |
| Bare Metal Server (BMS) | BMS |
| Elastic Cloud Server (ECS) | ECS |
| Object Storage Service (OBS) | Bucket |
| Virtual Private Cloud (VPC) | • VPC<br>• Subnet |
| Elastic IP (EIP) | EIP-EIP |
| Elastic Volume Service (EVS) | Disk |
| Auto Scaling (AS) | AS group |
| Image Management Service (IMS) | Private image |
| Distributed Cache Service (DCS) | DCS-DCS |

| Service | Resource Type |
| --- | --- |
| Workspace | Desktop |
| Domain Name Service (DNS) | • Private zone<br>• Public zone<br>• PTR record<br>• Private record set<br>• Public record set |
| Virtual Private Network (VPN) | • VPN connection<br>• VPN gateway<br>• Customer gateway |
| Scalable File Service Turbo (SFS Turbo) | SFS Turbo |
| Elastic Load Balance (ELB) | • Enhanced load balancer<br>• Enhanced load balancer listener |
| Simple Message Notification (SMN) | Topic |
| Distributed Message Service (DMS) | • Kafka instance<br>• RabbitMQ instance<br>• RocketMQ instance |
| Data Lake Insight (DLI) | • Queue<br>• Resource package<br>• Flink template<br>• Flink job<br>• Basic datasource connection<br>• Enhanced datasource connection<br>• Database<br>• Elastic resource pool |
| Relational Database Service (RDS) | DB instance |
| MapReduce Service (MRS) | Cluster |
| Data Warehouse Service (DWS) | Cluster |
| Document Database Service (DDS) | DB instance |
| Data Ingestion Service (DIS) | Stream |
| Web Application Firewall (WAF) | Instance |
| Cloud Search Service (CSS) | CSS-Cluster |

| Service | Resource Type |
| --- | --- |
| NAT Gateway | • Public gateway<br>• Private gateway<br>• Transit IP |
| Cloud Backup and Recovery (CBR) | Vault |
| Data Encryption Workshop (DEW) | KMS key |
| Cloud Container Engine (CCE) | • Cluster<br>• Autopilot cluster |
| DataArts Studio (DAYU) | • Workspace<br>• Instance |
| GaussDB | Instance |
| Database Security Service (DBSS) | Instance |
| Content Delivery Network (CDN) | Domain name |
| Direct Connect | • Direct connection<br>• GDGW (virtual interface) |
| Database and Application Migration UGO | • Object migration<br>• Database evaluation |
| Cloud Connect (CC) | • Cloud connection<br>• Bandwidth package |
| Cloud Native Anti-DDoS (CNAD) | Package |
| Graph Engine Service (GES) | Cluster |
| Enterprise Router (ER) | Instance |
| Host Security Service (HSS) | Host security service |
| Log Tank Service (LTS) | Log stream |
| Cloud Data Migration (CDM) | Cluster |
| IoT Device Access (IoTDA) | Instance |
| Global Accelerator (GA) | • Accelerator<br>• Listener |
| Cloud Service Engine (CSE) | Engine |
| ServiceStage | • Environment<br>• Application |
| Cloud Trace Service (CTS) | Tracker |
| Cloud Bastion Host (CBH) | Cloud bastion host |

| Service | Resource Type |
| --- | --- |
| Cloud Firewall (CFW) | Cloud firewall |
| Cloud Eye | Alarm |
| API Gateway (APIG) | Dedicated API gateway |
| Application Operations Management (AOM) | Alarm rule |
| FunctionGraph | Function |
| Distributed Database Middleware (DDM) | Instance |
| ModelArts | • Training job<br>• Resource pool<br>• Notebook instance<br>• Real-time service |
| LakeFormation | Instance |
| Anti-DDoS | Cloud Native Anti-DDoS Basic |
| Resource Access Manager (RAM) | Resource share |
| Organizations | • Root<br>• OU<br>• Account<br>• Policy |
| Industrial Digital Model Engine (iDME) | • iDME-linkx-f<br>• iDME-mbm<br>• iDME-runtime<br>• iDME-studio |
| Cloud Secret Management Service (CSMS) | Secret |

- Related services

**Table 4-2** Relationships with other services

| Function | Service | Reference |
| --- | --- | --- |
| With CTS, you can record operations associated with TMS for later query, audit, and backtrack operations. | Cloud Trace Service (CTS) | **Key TMS Operations** |

# 5 Notes and Constraints

The following are basic constraints on using tags:

**Table 5-1** Constraints

| Item | Specifications |
| --- | --- |
| Maximum number of key-value pairs you can add for each resource | 10 |
| Tags of each resource | For each resource, each tag key must be unique, and each tag key can have only one tag value. |
| The maximum predefined tags that each account can create. | 500 |
| Predefined tags | Predefined tags cannot be identical. Either their keys or values must be different. If you create a predefined tag that is identical to an existing predefined tag, the existing predefined tag will be overwritten. |
| Tag keys | A tag key can contain a maximum of 36 characters, including digits, letters, underscores (_), and hyphens (-). |
| Tag values | A tag value can contain a maximum of 43 characters, including digits, letters, underscores (_), periods (.), and hyphens (-). |

**NOTE**

Not all resources are supported by TMS. For which services and resources are supported, you can go to the service console to check it out.

# 6 Accessing TMS

You can access TMS from the management console, or using application programming interfaces (APIs).

- APIs

  To integrate TMS into a third-party system for secondary development, call APIs to access TMS. For details, see **Tag Management Service API Reference**.

- Management console

  Log in to the **management console**, click  on the upper left corner, and choose **Tag Management Service** under **Management & Governance**. The **Tag Management Service** page is displayed.

# 7 User Permissions

You have permissions to manage users and resources.

- You add users to user groups so that users can inherit permissions attached to user groups which they are in.
- You can control which resources and what actions a user can access.

To use resource tags, you must have required permissions of corresponding services. Otherwise, the tag operations on cloud resources may not take effect.

Contact the system administrator to assign required permissions to the user group which you are in.

**NOTE**

If you need to perform operations on tags of cloud resources on TMS console, you must have related permissions for viewing, creating, and deleting resource tags and required permissions for the services to which the resources belong. Modify a resource tag involves a process of deleting the old tag and then creating a new tag (with the same tag key but different tag values). So, to modify a cloud resource tag, you must have both related TMS permissions and service permissions to delete and create tags.

- For system-defined permissions: If you need to add or delete tags for ECS resources on TMS console, both **TMS FullAccess** permissions and **ECS FullAccess** permissions are required.
- For custom permissions: If you need to view ECS resources and tags on the TMS console, not only **tms:resourceTags:list** permissions, but **ecs:servers:getTags** and **ecs:servers:get** permissions are required.

For details about all system-defined permissions of services supported by IAM, see **System-defined Permissions**. For more information about fine-grained permissions of each service, see corresponding documentations of each service.

# 8 Permissions

If you need to control resource access for your personnel, Identity and Access Management (IAM) is a good choice for fine-grained permissions management. IAM provides identity authentication, permissions management, and access control, helping you securely access your Huawei Cloud resources.

With IAM, you can create IAM users for your employees, and assign permissions to the users to control their access to specific resource types. For example, if you need to grant some users the permissions to view TMS resources, but do not want these users to delete predefined tags, you can create users using IAM and assign TMS ReadOnlyAccess permissions to these users.

If your Huawei Cloud account does not require IAM for permissions management, you can skip this section.

IAM can be used free of charge. You pay only for the resources in your account. For more information about IAM, see **IAM Service Overview**.

## TMS Permissions

New IAM users do not have any permissions assigned by default. You need to first add them to one or more groups and attach policies or roles to these groups. The users then inherit permissions from the groups and can perform specified operations on cloud services based on the permissions they have been assigned.

TMS is a global service deployed for all regions. When you set the authorization scope to **Global services**, users have permission to access TMS resources in all regions.

You can grant permissions by using roles and policies.

- Roles: A coarse-grained authorization strategy provided by IAM to assign permissions based on users' job responsibilities Only a limited number of service-level roles are available for authorization. When using roles to grant permissions, you must also assign other roles which the permissions depend on to take effect. Roles are not ideal for fine-grained authorization and least privilege access.
- Policies: A fine-grained authorization strategy that defines permissions required to perform operations on specific cloud resources under certain conditions. This type of authorization is more flexible and is ideal for least

privilege access. The administrator can restrict a user to only specified operations on TMS using IAM policies. For example, if the user is granted a fine-grained permission to only view predefined tags, the user cannot perform other operations on predefined tags (such as creating or deleting predefined tags) with this permission. A majority of fine-grained policies contain permissions for specific APIs. For the API actions supported by TMS, see **Permissions Policies and Supported Actions**.

**Table 8-1** lists all TMS system-defined policies and roles. Some TMS policies depend on the policies of other services to take effect. When you assign TMS permissions to users, you also assign dependent policies for the TMS permissions to take effect.

**Table 8-1** TMS system-defined permissions

| Role/Policy Name | Description | Type | Dependencies |
| --- | --- | --- | --- |
| TMS FullAccess | Full permissions for TMS. | System-defined policy | - |
| TMS ReadOnlyAccess | Read-only permissions for TMS. | System-defined policy | - |

| Role/Policy Name | Description | Type | Dependencies |
| --- | --- | --- | --- |
| TMS Administrator | Full permissions for TMS. Users with these permissions can query, create, delete, import, or export predefined tags, and create, delete, modify, or query resource tags. | System-defined role | Dependent on the following policies:<br>• **Tenant Guest**: a global/project-level policy that grants read-only permissions for all cloud services (except IAM).<br>• **Server Administrator**: A project-level policy, which must be assigned in the same project as the **TMS Administrator** policy.<br>• **Tenant Administrator**: A global/project-level policy that grants permissions of all cloud service administrators (except the IAM administrator permissions).<br>• **IMS Administrator**: a project-level policy, which must be assigned in the same project as the **TMS Administrator** policy<br>• **AutoScaling Administrator**: a project-level policy, which must be assigned in the same project as the **TMS Administrator** policy<br>• **VPC Administrator**: a project-level policy, which must be assigned in the same project as the **TMS Administrator** policy<br>• **VBS Administrator**: a project-level policy, which must be assigned in the same project as the **TMS Administrator** policy |

**Table 8-2** lists the common operations supported by TMS system-defined permissions.

**Table 8-2** Common operations supported by system-defined permissions

| Operation | TMS FullAccess | TMS ReadOnlyAccess | TMS Administrator |
| --- | --- | --- | --- |
| Querying the cloud resource list | Supported (permissions of corresponding services for querying resources required) | Supported (permissions of corresponding services for querying resources required) | Supported (Tenant Guest required) |
| Creating a key | Supported | Not supported | Supported (Tenant Guest required) |
| Viewing resource tags | Supported | Supported | Supported (Tenant Guest required) |
| Creating resource tags | Supported (permissions of corresponding services for creating tags required) | Not supported | Supported (Tenant Guest and corresponding project policies of cloud resources required. For example, if you need to manage VPC tags, select **Tenant Guest** in the same project.) |
| Modifying resource tags | Supported (permissions of corresponding services for creating, deleting, and viewing tags required) | Not supported | Supported (Tenant Guest and corresponding project policies of cloud resources required. For example, if you need to manage VPC tags, select **Tenant Guest** in the same project.) |
| Deleting resource tags | Supported (permissions of corresponding services for deleting tags required) | Not supported | Supported (Tenant Guest and corresponding project policies of cloud resources required. For example, if you need to manage VPC tags, select **Tenant Guest** in the same project.) |
| Querying predefined tags | Supported | Supported | Supported |

| Operation | TMS FullAccess | TMS ReadOnlyAccess | TMS Administrator |
| --- | --- | --- | --- |
| Creating predefined tags | Supported | Not supported | Supported |
| Deleting predefined tags | Supported | Not supported | Supported |
| Exporting predefined tags | Supported | Supported | Supported |
| Importing predefined tags | Supported | Not supported | Supported |

NOTE

If you need to perform operations on tags of cloud resources on TMS console, you must have related permissions for viewing, creating, and deleting resource tags and required permissions for the services to which the resources belong. Modify a resource tag involves a process of deleting the old tag and then creating a new tag (with the same tag key but different tag values). So, to modify a cloud resource tag, you must have both related TMS permissions and service permissions to delete and create tags.

- For system-defined permissions: If you need to add or delete tags for ECS resources on TMS console, both **TMS FullAccess** permissions and **ECS FullAccess** permissions are required.
- For custom permissions: If you need to view ECS resources and tags on the TMS console, not only **tms:resourceTags:list** permissions, but **ecs:servers:getTags** and **ecs:servers:get** permissions are required.

For details about all system-defined permissions of services supported by IAM, see **System-defined Permissions**. For more information about fine-grained permissions of each service, see corresponding documentations of each service.

## Related Documents

- To learn about the IAM service, see **What Is IAM?**.
- For details about how to create a user or a user group and how to grant TMS permissions, see **Creating a User and Granting Permissions**.
- For details about permission policies and supported actions for TMS, see **Permissions Policies and Supported Actions**.