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# What is Azure role-based access control (Azure RBAC)?

5/9/2020 • 6 minutes to read • [Edit Online](#)

Access management for cloud resources is a critical function for any organization that is using the cloud. Azure role-based access control (Azure RBAC) helps you manage who has access to Azure resources, what they can do with those resources, and what areas they have access to.

Azure RBAC is an authorization system built on [Azure Resource Manager](#) that provides fine-grained access management of Azure resources.

## What can I do with Azure RBAC?

Here are some examples of what you can do with Azure RBAC:

- Allow one user to manage virtual machines in a subscription and another user to manage virtual networks
- Allow a DBA group to manage SQL databases in a subscription
- Allow a user to manage all resources in a resource group, such as virtual machines, websites, and subnets
- Allow an application to access all resources in a resource group

## How Azure RBAC works

The way you control access to resources using Azure RBAC is to create role assignments. This is a key concept to understand – it's how permissions are enforced. A role assignment consists of three elements: security principal, role definition, and scope.

### Security principal

A *security principal* is an object that represents a user, group, service principal, or managed identity that is requesting access to Azure resources.

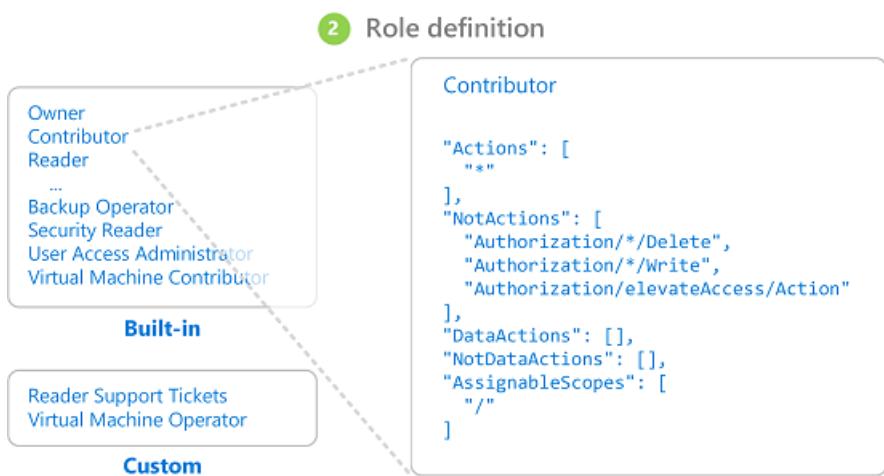


- User - An individual who has a profile in Azure Active Directory. You can also assign roles to users in other tenants. For information about users in other organizations, see [Azure Active Directory B2B](#).
- Group - A set of users created in Azure Active Directory. When you assign a role to a group, all users within that group have that role.
- Service principal - A security identity used by applications or services to access specific Azure resources. You can think of it as a *user identity* (username and password or certificate) for an application.
- Managed identity - An identity in Azure Active Directory that is automatically managed by Azure. You typically use [managed identities](#) when developing cloud applications to manage the credentials for authenticating to Azure services.

### Role definition

A *role definition* is a collection of permissions. It's typically just called a *role*. A role definition lists the operations that can be performed, such as read, write, and delete. Roles can be high-level, like owner, or specific, like virtual

machine reader.



Azure includes several [built-in roles](#) that you can use. The following lists four fundamental built-in roles. The first three apply to all resource types.

- [Owner](#) - Has full access to all resources including the right to delegate access to others.
- [Contributor](#) - Can create and manage all types of Azure resources but can't grant access to others.
- [Reader](#) - Can view existing Azure resources.
- [User Access Administrator](#) - Lets you manage user access to Azure resources.

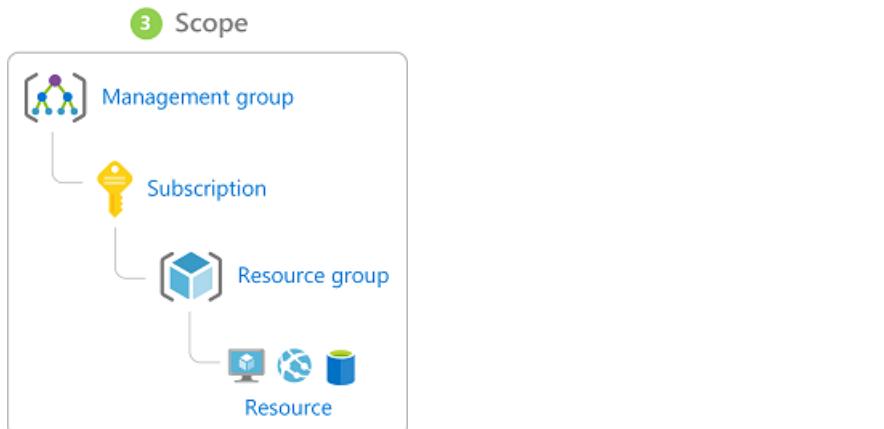
The rest of the built-in roles allow management of specific Azure resources. For example, the [Virtual Machine Contributor](#) role allows a user to create and manage virtual machines. If the built-in roles don't meet the specific needs of your organization, you can create your own [Azure custom roles](#).

Azure has data operations that enable you to grant access to data within an object. For example, if a user has read data access to a storage account, then they can read the blobs or messages within that storage account. For more information, see [Understand Azure role definitions](#).

## Scope

*Scope* is the set of resources that the access applies to. When you assign a role, you can further limit the actions allowed by defining a scope. This is helpful if you want to make someone a [Website Contributor](#), but only for one resource group.

In Azure, you can specify a scope at multiple levels: [management group](#), subscription, resource group, or resource. Scopes are structured in a parent-child relationship.



When you grant access at a parent scope, those permissions are inherited to the child scopes. For example:

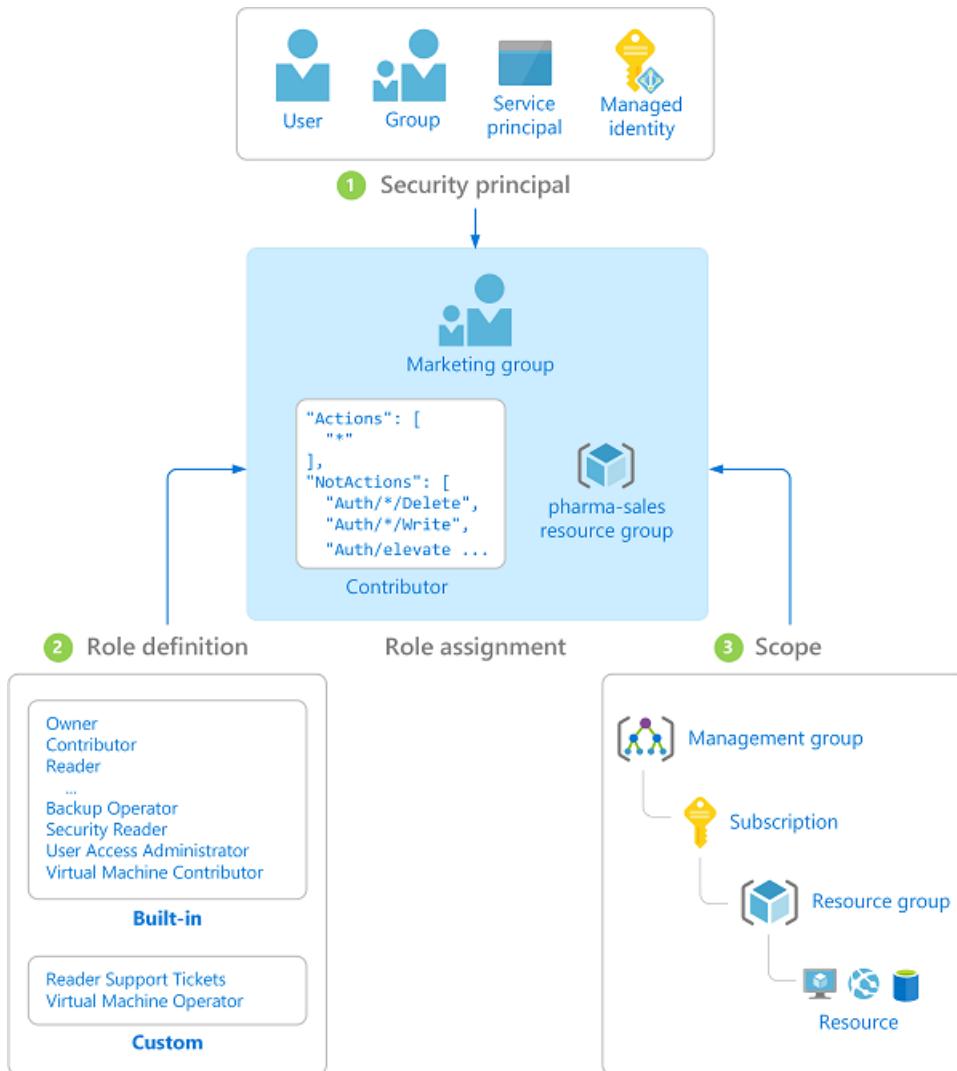
- If you assign the [Owner](#) role to a user at the management group scope, that user can manage everything in all subscriptions in the management group.

- If you assign the [Reader](#) role to a group at the subscription scope, the members of that group can view every resource group and resource in the subscription.
- If you assign the [Contributor](#) role to an application at the resource group scope, it can manage resources of all types in that resource group, but not other resource groups in the subscription.

## Role assignments

A *role assignment* is the process of attaching a role definition to a user, group, service principal, or managed identity at a particular scope for the purpose of granting access. Access is granted by creating a role assignment, and access is revoked by removing a role assignment.

The following diagram shows an example of a role assignment. In this example, the Marketing group has been assigned the [Contributor](#) role for the pharma-sales resource group. This means that users in the Marketing group can create or manage any Azure resource in the pharma-sales resource group. Marketing users do not have access to resources outside the pharma-sales resource group, unless they are part of another role assignment.

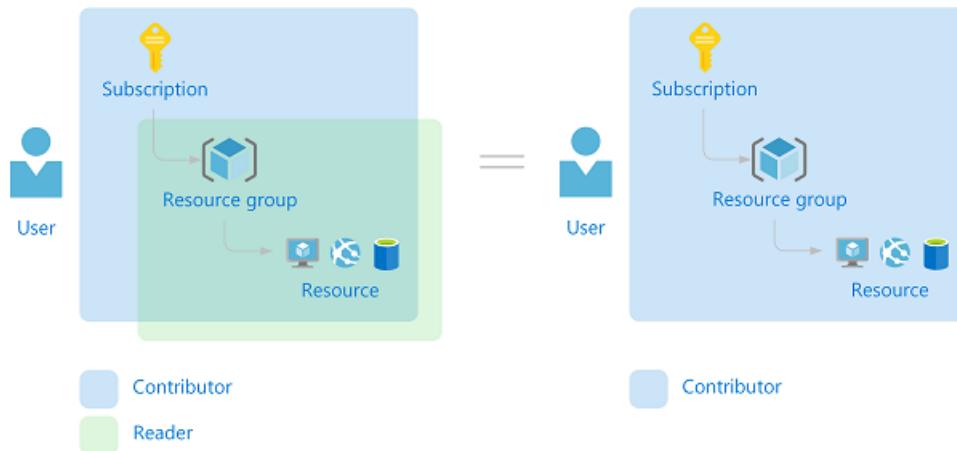


You can create role assignments using the Azure portal, Azure CLI, Azure PowerShell, Azure SDKs, or REST APIs. You can have up to **2000** role assignments in each subscription. This limit includes role assignments at the subscription, resource group, and resource scopes. You can have up to **500** role assignments in each management group. To create and remove role assignments, you must have `Microsoft.Authorization/roleAssignments/*` permission. This permission is granted through the [Owner](#) or [User Access Administrator](#) roles.

## Multiple role assignments

So what happens if you have multiple overlapping role assignments? Azure RBAC is an additive model, so your

effective permissions are the sum of your role assignments. Consider the following example where a user is granted the Contributor role at the subscription scope and the Reader role on a resource group. The sum of the Contributor permissions and the Reader permissions is effectively the Contributor role for the resource group. Therefore, in this case, the Reader role assignment has no impact.



## Deny assignments

Previously, Azure RBAC was an allow-only model with no deny, but now Azure RBAC supports deny assignments in a limited way. Similar to a role assignment, a *deny assignment* attaches a set of deny actions to a user, group, service principal, or managed identity at a particular scope for the purpose of denying access. A role assignment defines a set of actions that are *allowed*, while a deny assignment defines a set of actions that are *not allowed*. In other words, deny assignments block users from performing specified actions even if a role assignment grants them access. Deny assignments take precedence over role assignments. For more information, see [Understand Azure deny assignments](#).

## How Azure RBAC determines if a user has access to a resource

The following are the high-level steps that Azure RBAC uses to determine if you have access to a resource on the management plane. This is helpful to understand if you are trying to troubleshoot an access issue.

1. A user (or service principal) acquires a token for Azure Resource Manager.  
The token includes the user's group memberships (including transitive group memberships).
2. The user makes a REST API call to Azure Resource Manager with the token attached.
3. Azure Resource Manager retrieves all the role assignments and deny assignments that apply to the resource upon which the action is being taken.
4. Azure Resource Manager narrows the role assignments that apply to this user or their group and determines what roles the user has for this resource.
5. Azure Resource Manager determines if the action in the API call is included in the roles the user has for this resource.
6. If the user doesn't have a role with the action at the requested scope, access is not granted. Otherwise, Azure Resource Manager checks if a deny assignment applies.
7. If a deny assignment applies, access is blocked. Otherwise access is granted.

## License requirements

Using this feature is free and included in your Azure subscription.

## Next steps

- [Quickstart: View the access a user has to Azure resources](#)
- [Add or remove Azure role assignments using the Azure portal](#)
- [Understand the different roles](#)
- [Cloud Adoption Framework: Resource access management in Azure](#)

# Classic subscription administrator roles, Azure roles, and Azure AD roles

7/21/2020 • 7 minutes to read • [Edit Online](#)

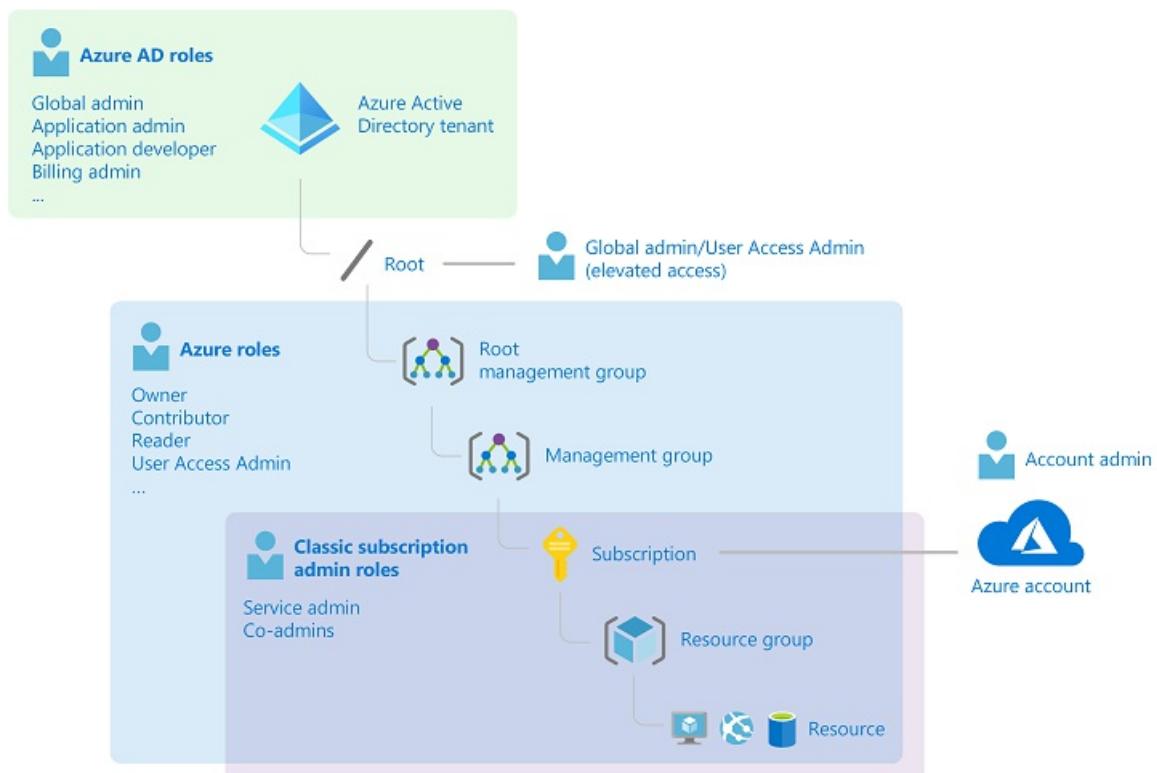
If you are new to Azure, you may find it a little challenging to understand all the different roles in Azure. This article helps explain the following roles and when you would use each:

- Classic subscription administrator roles
- Azure roles
- Azure Active Directory (Azure AD) roles

## How the roles are related

To better understand roles in Azure, it helps to know some of the history. When Azure was initially released, access to resources was managed with just three administrator roles: Account Administrator, Service Administrator, and Co-Administrator. Later, Azure role-based access control (Azure RBAC) was added. Azure RBAC is a newer authorization system that provides fine-grained access management to Azure resources. Azure RBAC includes many built-in roles, can be assigned at different scopes, and allows you to create your own custom roles. To manage resources in Azure AD, such as users, groups, and domains, there are several Azure AD roles.

The following diagram is a high-level view of how the classic subscription administrator roles, Azure roles, and Azure AD roles are related.



## Classic subscription administrator roles

Account Administrator, Service Administrator, and Co-Administrator are the three classic subscription administrator roles in Azure. Classic subscription administrators have full access to the Azure subscription. They can manage resources using the Azure portal, Azure Resource Manager APIs, and the classic deployment model APIs. The account that is used to sign up for Azure is automatically set as both the Account Administrator and

Service Administrator. Then, additional Co-Administrators can be added. The Service Administrator and the Co-Administrators have the equivalent access of users who have been assigned the Owner role (an Azure role) at the subscription scope. The following table describes the differences between these three classic subscription administrative roles.

CLASSIC SUBSCRIPTION ADMINISTRATOR	LIMIT	PERMISSIONS	NOTES
Account Administrator	1 per Azure account	<ul style="list-style-type: none"> <li>Access the <a href="#">Azure Account Center</a></li> <li>Manage all subscriptions in an account</li> <li>Create new subscriptions</li> <li>Cancel subscriptions</li> <li>Change the billing for a subscription</li> <li>Change the Service Administrator</li> </ul>	Conceptually, the billing owner of the subscription. The Account Administrator has no access to the Azure portal.
Service Administrator	1 per Azure subscription	<ul style="list-style-type: none"> <li>Manage services in the <a href="#">Azure portal</a></li> <li>Cancel the subscription</li> <li>Assign users to the Co-Administrator role</li> </ul>	By default, for a new subscription, the Account Administrator is also the Service Administrator. The Service Administrator has the equivalent access of a user who is assigned the Owner role at the subscription scope. The Service Administrator has full access to the Azure portal.
Co-Administrator	200 per subscription	<ul style="list-style-type: none"> <li>Same access privileges as the Service Administrator, but can't change the association of subscriptions to Azure directories</li> <li>Assign users to the Co-Administrator role, but cannot change the Service Administrator</li> </ul>	The Co-Administrator has the equivalent access of a user who is assigned the Owner role at the subscription scope.

In the Azure portal, you can manage Co-Administrators or view the Service Administrator by using the **Classic administrators** tab.

The screenshot shows the Microsoft Azure portal interface. The left sidebar includes links for Overview, Activity log, Access control (IAM), Diagnose and solve problems, Security, Events, Cost Management (Cost analysis, Budgets, Advisor recommendations), Billing, and Partner information. The main content area displays the 'Access control (IAM)' blade for a subscription named 'Free Trial - Access control (IAM)'. At the top, there are tabs for Check access, Role assignments, Deny assignments, and Classic administrators (which is highlighted with a red box). Below these tabs, a message states: 'Classic administrators are only needed if you are still using Azure classic deployments. We recommend using role assignments for all other purposes.' A 'Learn more' link is provided. A table lists users with their roles:

Name	Role
AK Archana Kulkarni	Service administrator
AB Amporn Boonluang	Co-administrator

In the Azure portal, you can view or change the Service Administrator or view the Account Administrator on the properties blade of your subscription.

The screenshot shows the Microsoft Azure portal interface. The left sidebar includes links for Resources, Usage + quotas, Policies, Management certificates, My permissions, Resource providers, Properties (highlighted with a red box), Resource locks, Support + troubleshooting, and New support request. The main content area displays the 'Properties' blade for a subscription named 'Free Trial - Properties'. The blade contains the following fields:

- Service Admin: Offer: Free Trial (with a copy icon)
- OFFER ID: (empty field with a copy icon)
- ACCOUNT ADMIN: (empty field with a copy icon)
- SERVICE ADMIN: (empty field with a copy icon)

For more information, see [Azure classic subscription administrators](#).

### Azure account and Azure subscriptions

An Azure account represents a billing relationship. An Azure account is a user identity, one or more Azure subscriptions, and an associated set of Azure resources. The person who creates the account is the Account Administrator for all subscriptions created in that account. That person is also the default Service Administrator for the subscription.

Azure subscriptions help you organize access to Azure resources. They also help you control how resource usage is reported, billed, and paid for. Each subscription can have a different billing and payment setup, so you can have different subscriptions and different plans by office, department, project, and so on. Every service belongs to a subscription, and the subscription ID may be required for programmatic operations.

Each subscription is associated with an Azure AD directory. To find the directory the subscription is associated with, open **Subscriptions** in the Azure portal and then select a subscription to see the directory.

Accounts and subscriptions are managed in the [Azure Account Center](#).

## Azure roles

Azure RBAC is an authorization system built on [Azure Resource Manager](#) that provides fine-grained access management to Azure resources, such as compute and storage. Azure RBAC includes over 70 built-in roles. There are four fundamental Azure roles. The first three apply to all resource types:

AZURE ROLE	PERMISSIONS	NOTES
Owner	<ul style="list-style-type: none"><li>Full access to all resources</li><li>Delegate access to others</li></ul>	The Service Administrator and Co-Administrators are assigned the Owner role at the subscription scope Applies to all resource types.
Contributor	<ul style="list-style-type: none"><li>Create and manage all of types of Azure resources</li><li>Create a new tenant in Azure Active Directory</li><li>Cannot grant access to others</li></ul>	Applies to all resource types.
Reader	<ul style="list-style-type: none"><li>View Azure resources</li></ul>	Applies to all resource types.
User Access Administrator	<ul style="list-style-type: none"><li>Manage user access to Azure resources</li></ul>	

The rest of the built-in roles allow management of specific Azure resources. For example, the [Virtual Machine Contributor](#) role allows the user to create and manage virtual machines. For a list of all the built-in roles, see [Azure built-in roles](#).

Only the Azure portal and the Azure Resource Manager APIs support Azure RBAC. Users, groups, and applications that are assigned Azure roles cannot use the [Azure classic deployment model APIs](#).

In the Azure portal, role assignments using Azure RBAC appear on the **Access control (IAM)** blade. This blade can be found throughout the portal, such as management groups, subscriptions, resource groups, and various resources.

Dashboard > Subscriptions > Free Trial - Access control (IAM)

### Free Trial - Access control (IAM)

Subscription

Search (Ctrl+ /) Add Edit columns Refresh Remove

Overview Access control (IAM) **Role assignments** Deny assignments Classic administrators Roles

Manage access to Azure resources for users, groups, service principals and managed identities at this scope by creating role assignments. [Learn more](#)

Name Type Role  
Search by name or email All 6 selected  
Scope Group by  
All scopes Role

33 items (32 Users, 1 Service Principals)

NAME	TYPE	ROLE	SCOPE
AK Ashish	User	Billing Contributor	This resource
AD admin	User	CheckAccess Test Role	Root (Inherited)
AB abene	User	Contributor	This resource

BILLING CONTRIBUTOR

CHECKACCESS TEST ROLE

CONTRIBUTOR

When you click the **Roles** tab, you will see the list of built-in and custom roles.

Add Edit columns Refresh Remove

Check access Role assignments Deny assignments Classic administrators **Roles**

A role definition is a collection of permissions. You can use the built-in roles or you can create your own custom roles. [Learn more](#)

NAME	TYPE	USERS	GROUPS
Owner	BuiltInRole	0	1
Contributor	BuiltInRole	0	0
Reader	BuiltInRole	1	0
AcrlImagePuller	BuiltInRole	0	0
AcrlImagePusher	BuiltInRole	0	0
AcrlImageSigner	BuiltInRole	0	0
AcrQuarantineReader	BuiltInRole	0	0
AcrQuarantineWriter	BuiltInRole	0	0
API Management Service Contributor	BuiltInRole	0	0
API Management Service Operator Role	BuiltInRole	0	0
API Management Service Reader Role	BuiltInRole	0	0

For more information, see [Add or remove Azure role assignments using the Azure portal](#).

## Azure AD roles

Azure AD roles are used to manage Azure AD resources in a directory such as create or edit users, assign administrative roles to others, reset user passwords, manage user licenses, and manage domains. The following table describes a few of the more important Azure AD roles.

AZURE AD ROLE	PERMISSIONS	NOTES
Global Administrator	<ul style="list-style-type: none"><li>Manage access to all administrative features in Azure Active Directory, as well as services that federate to Azure Active Directory</li><li>Assign administrator roles to others</li><li>Reset the password for any user and all other administrators</li></ul>	The person who signs up for the Azure Active Directory tenant becomes a Global Administrator.
User Administrator	<ul style="list-style-type: none"><li>Create and manage all aspects of users and groups</li><li>Manage support tickets</li><li>Monitor service health</li><li>Change passwords for users, Helpdesk administrators, and other User Administrators</li></ul>	
Billing Administrator	<ul style="list-style-type: none"><li>Make purchases</li><li>Manage subscriptions</li><li>Manage support tickets</li><li>Monitors service health</li></ul>	

In the Azure portal, you can see the list of Azure AD roles on the **Roles and administrators** blade. For a list of all the Azure AD roles, see [Administrator role permissions in Azure Active Directory](#).

**Default Directory - Roles and administrators**

Get just-in-time access to a role when you need it using PIM. Learn more about PIM →

**Your Role:** Global administrator and 2 other roles

ROLE	DESCRIPTION	...
Application administrator	Can create and manage all aspects of app registrations and enterprise...	...
Application developer	Can create application registrations independent of the 'Users can reg...	...
Billing administrator	Can perform common billing related tasks like updating payment info...	...
Cloud application administrator	Can create and manage all aspects of app registrations and enterprise...	...
Cloud device administrator	Full access to manage devices in Azure AD.	...
Compliance administrator	Can read and manage compliance configuration and reports in Azure ...	...
Conditional Access administrator	Can manage conditional access capabilities.	...
Customer LockBox access approver	Can approve Microsoft support requests to access customer organizati...	...
Desktop Analytics administrator	Can access and manage Desktop management tools and services.	...
Dynamics 365 administrator	Can manage all aspects of the Dynamics 365 product.	...
Exchange administrator	Can manage all aspects of the Exchange product.	...
Global administrator	Can manage all aspects of Azure AD and Microsoft services that use A...	...
Guest inviter	Can invite guest users independent of the 'members can invite guests...	...
Information Protection administrator	Can manage all aspects of the Azure Information Protection product.	...

## Differences between Azure roles and Azure AD roles

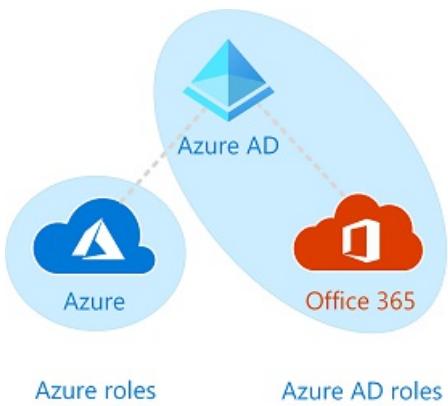
At a high level, Azure roles control permissions to manage Azure resources, while Azure AD roles control permissions to manage Azure Active Directory resources. The following table compares some of the differences.

AZURE ROLES	AZURE AD ROLES
Manage access to Azure resources	Manage access to Azure Active Directory resources
Supports custom roles	Supports custom roles
Scope can be specified at multiple levels (management group, subscription, resource group, resource)	Scope is at the tenant level
Role information can be accessed in Azure portal, Azure CLI, Azure PowerShell, Azure Resource Manager templates, REST API	Role information can be accessed in Azure admin portal, Microsoft 365 admin center, Microsoft Graph, AzureAD PowerShell

### Do Azure roles and Azure AD roles overlap?

By default, Azure roles and Azure AD roles do not span Azure and Azure AD. However, if a Global Administrator elevates their access by choosing the **Access management for Azure resources** switch in the Azure portal, the Global Administrator will be granted the [User Access Administrator](#) role (an Azure role) on all subscriptions for a particular tenant. The User Access Administrator role enables the user to grant other users access to Azure resources. This switch can be helpful to regain access to a subscription. For more information, see [Elevate access to manage all Azure subscriptions and management groups](#).

Several Azure AD roles span Azure AD and Microsoft Office 365, such as the Global Administrator and User Administrator roles. For example, if you are a member of the Global Administrator role, you have global administrator capabilities in Azure AD and Office 365, such as making changes to Microsoft Exchange and Microsoft SharePoint. However, by default, the Global Administrator doesn't have access to Azure resources.



## Next steps

- [What is Azure role-based access control \(Azure RBAC\)?](#)
- [Administrator role permissions in Azure Active Directory](#)
- [Azure classic subscription administrators](#)
- [Cloud Adoption Framework: Resource access management in Azure](#)

# Quickstart: View the access a user has to Azure resources

5/3/2020 • 2 minutes to read [Edit Online](#)

You can use the **Access control (IAM)** blade in [Azure role-based access control \(Azure RBAC\)](#) to view the access a user or another security principal has to Azure resources. However, sometimes you just need to quickly view the access for a single user or another security principal. The easiest way to do this is to use the **Check access** feature in the Azure portal.

## View role assignments

The way that you view the access for a user is to list their roles assignments. Follow these steps to view the role assignments for a single user, group, service principal, or managed identity at the subscription scope.

1. In the Azure portal, click **All services** and then **Subscriptions**.
2. Click your subscription.
3. Click **Access control (IAM)**.
4. Click the **Check access** tab.

The screenshot shows the Microsoft Azure portal with the URL [https://accesscontrol.azure.com/](#). The left sidebar shows various service categories like All resources, App Services, and Azure Active Directory. The main content area is titled "Free Trial - Access control (IAM)" under "Subscription". The top navigation bar includes "Search resources, services, and docs", a user profile icon, and several icons for refresh, refresh, settings, and help. Below the search bar, there are tabs: "Check access" (which is highlighted with a red box), "Role assignments", "Deny assignments", "Classic administrators", and "Roles". A "Find" dropdown is set to "Azure AD user, group, or service principal" and a search bar below it contains "Search by name or email address". To the right, there are three main sections: "Add a role assignment" (with a "Add" button and "Learn more" link), "View role assignments" (with a "View" button and "Learn more" link), and "View deny assignments" (with a "View" button and "Learn more" link).

5. In the **Find** list, select the type of security principal you want to check access for.
6. In the search box, enter a string to search the directory for display names, email addresses, or object identifiers.

**Add** **Edit columns** **Refresh** | **Remove**

**Check access** **Role assignments** **Deny assignments** **C**

**Check access**  
Review the level of access a user, group, service principal, or managed identity has to this resource. [Learn more](#)

Find **i**  
Azure AD user, group, or service principal

admin

AD admin

7. Click the security principal to open the **assignments** pane.

Dashboard > Subscriptions > Free Trial - Access control

Free Trial - Access control Subscription

Search (Ctrl+ /)

Overview

**Access control (IAM)**

Diagnose and solve problems

Security

Events

Cost Management

Cost analysis

Billing

External services

**admin - assignments**

Search by assignment name or description

Role assignments (2)

ROLE	DESCRIPTION	SCOPE	GROUP ASSIGNMENT
Owner	Lets you manage everything, incl...	Management group (Inherited)	--
Reader	Lets you view everything, but not ...	Management group (Inherited)	--

Deny assignments (0)

Classic administrators (0)

On this pane, you can see the roles assigned to the selected security principal and the scope. If there are any deny assignments at this scope or inherited to this scope, they will be listed.

## Next steps

[Tutorial: Grant a user access to Azure resources using the Azure portal](#)

# Quickstart: Add an Azure role assignment using an ARM template

7/21/2020 • 3 minutes to read • [Edit Online](#)

Azure role-based access control (Azure RBAC) is the way that you manage access to Azure resources. In this quickstart, you create a resource group and grant a user access to create and manage virtual machines in the resource group. This quickstart uses an Azure Resource Manager template (ARM template) to grant the access.

An [ARM template](#) is a JavaScript Object Notation (JSON) file that defines the infrastructure and configuration for your project. The template uses declarative syntax, which lets you state what you intend to deploy without having to write the sequence of programming commands to create it.

If your environment meets the prerequisites and you're familiar with using ARM templates, select the **Deploy to Azure** button. The template will open in the Azure portal.



## Prerequisites

To add role assignments, you must have:

- If you don't have an Azure subscription, create a [free account](#) before you begin.
- `Microsoft.Authorization/roleAssignments/write` and `Microsoft.Authorization/roleAssignments/delete` permissions, such as [User Access Administrator](#) or [Owner](#)
- To add a role assignment, you must specify three elements: security principal, role definition, and scope. For this quickstart, the security principal is you or another user in your directory, the role definition is [Virtual Machine Contributor](#), and the scope is a resource group that you specify.

## Review the template

The template used in this quickstart is from [Azure Quickstart Templates](#). The template has three parameters and a resources section. In the resources section, notice that it has the three elements of a role assignment: security principal, role definition, and scope.

```
{
    "$schema": "https://schema.management.azure.com/schemas/2019-04-01/deploymentTemplate.json#",
    "contentVersion": "1.0.0.0",
    "parameters": {
        "roleAssignmentName": {
            "type": "string",
            "metadata": {
                "description": "Specifies the name of the role assignment to create. It can be any valid GUID."
            }
        },
        "roleDefinitionID": {
            "type": "string",
            "metadata": {
                "description": "Specifies the role definition ID used in the role assignment."
            }
        },
        "principalId": {
            "type": "string",
            "metadata": {
                "description": "Specifies the principal ID assigned to the role."
            }
        }
    },
    "resources": [
        {
            "type": "Microsoft.Authorization/roleAssignments",
            "apiVersion": "2017-09-01",
            "name": "[parameters('roleAssignmentName')]",
            "properties": {
                "roleDefinitionId": "[resourceId('Microsoft.Authorization/roleDefinitions',
parameters('roleDefinitionId'))]",
                "principalId": "[parameters('principalId')]",
                "scope": "[resourceGroup().id]"
            }
        }
    ]
}
```

The resource defined in the template is:

- [Microsoft.Authorization/roleAssignments](#)

## Deploy the template

1. Sign in to the [Azure portal](#).
2. Determine your email address that is associated with your Azure subscription. Or determine the email address of another user in your directory.
3. Open Azure Cloud Shell for PowerShell.
4. Copy and paste the following script into Cloud Shell.

```

$resourceGroupName = Read-Host -Prompt "Enter a resource group name (i.e. ExampleGrouprg)"
$emailAddress = Read-Host -Prompt "Enter an email address for a user in your directory"
$location = Read-Host -Prompt "Enter a location (i.e. centralus)"

$roleAssignmentName = New-Guid
$principalId = (Get-AzAdUser -Mail $emailAddress).id
$roleDefinitionId = (Get-AzRoleDefinition -name "Virtual Machine Contributor").id
$templateUri = "https://raw.githubusercontent.com/Azure/azure-quickstart-templates/master/101-rbac-
builtinrole-resourcegroup/azuredeploy.json"

New-AzResourceGroup -Name $resourceGroupName -Location $location
New-AzResourceGroupDeployment -ResourceGroupName $resourceGroupName -TemplateUri $templateUri -
roleAssignmentName $roleAssignmentName -roleDefinitionID $roleDefinitionId -principalId $principalId

```

5. Enter a resource group name such as ExampleGrouprg.
6. Enter an email address for yourself or another user in your directory.
7. Enter a location for the resource group such as centralus.
8. If necessary, press Enter to run the New-AzResourceGroupDeployment command.

The [New-AzResourceGroup](#) command creates a new resource group and the [New-AzResourceGroupDeployment](#) command deploys the template to add the role assignment.

You should see output similar to the following:

```

PS> New-AzResourceGroupDeployment -ResourceGroupName $resourceGroupName -TemplateUri $templateUri -
roleAssignmentName $roleAssignmentName -roleDefinitionID $roleDefinitionId -principalId $principalId

DeploymentName      : azuredeploy
ResourceGroupName   : ExampleGrouprg
ProvisioningState   : Succeeded
Timestamp          : 5/22/2020 9:01:30 PM
Mode                : Incremental
TemplateLink        :
                      Uri           : https://raw.githubusercontent.com/Azure/azure-quickstart-
templates/master/101-rbac-builtinrole-resourcegroup/azuredeploy.json
                      ContentVersion : 1.0.0.0

Parameters          :
                      Name          Type          Value
                      ======      ======      =====
                      roleAssignmentName String       {roleAssignmentName}
                      roleDefinitionID  String       9980e02c-c2be-4d73-94e8-
173b1dc7cf3c
                      principalId    String       {principalId}

Outputs             :
DeploymentLogLevel  :

```

## Review deployed resources

1. In the Azure portal, open the resource group you created.
2. In the left menu, click **Access control (IAM)**.
3. Click the **Role assignments** tab.
4. Verify that the **Virtual Machine Contributor** role is assigned to the user you specified.

The screenshot shows the 'Access control (IAM)' blade for the 'ExampleGrouprg' resource group. On the left, there's a navigation menu with options like Overview, Activity log, Access control (IAM), Tags, Events, Settings, Quickstart, Deployments, Policies, Properties, Locks, Export template, Cost Management, Cost analysis, Cost alerts (preview), and Budgets. The 'Access control (IAM)' option is selected. The main area lists role assignments:

	Principal	Type	Role	Inherited From
<input type="checkbox"/>	Ann Mack annm@contoso...	User	Reader	Subscription (Inherited)
<input type="checkbox"/>	App2	App	Reader	Subscription (Inherited)
<input type="checkbox"/>	azure-user azure-user@co...	User	Reader	Subscription (Inherited)
Security Reader				
<input type="checkbox"/>	TestUser1 testuser1@cont...	User	Security Reader	Subscription (Inherited)
Storage Blob Data Reader				
<input type="checkbox"/>	Alain Charon alain@contoso....	User	Storage Blob Data Reader	Subscription (Inherited)
User Access Administrator				
<input type="checkbox"/>	MS-PIM	App	User Access Administrator	Subscription (Inherited)
Virtual Machine Contributor				
<input type="checkbox"/>	Admin admin@contos...	User	Virtual Machine Contributor	This resource

## Clean up resources

To remove the role assignment and resource group you created, follow these steps.

1. Copy and paste the following script into Cloud Shell.

```
$emailAddress = Read-Host -Prompt "Enter the email address of the user with the role assignment to remove"
$resourceGroupName = Read-Host -Prompt "Enter the resource group name to remove (i.e. ExampleGrouprg)"

$principalId = (Get-AzAdUser -Mail $emailAddress).id

Remove-AzRoleAssignment -ObjectId $principalId -RoleDefinitionName "Virtual Machine Contributor" -
ResourceGroupName $resourceGroupName
Remove-AzResourceGroup -Name $resourceGroupName
```

2. Enter the email address of the user with the role assignment to remove.
3. Enter the resource group name to remove such as ExampleGrouprg.
4. If necessary, press Enter to run the Remove-AzResourceGroup command.
5. Enter Y to confirm that you want to remove the resource group.

## Next steps

[Tutorial: Grant a user access to Azure resources using Azure PowerShell](#)

# Tutorial: Grant a user access to Azure resources using the Azure portal

7/21/2020 • 2 minutes to read • [Edit Online](#)

Azure role-based access control (Azure RBAC) is the way that you manage access to Azure resources. In this tutorial, you grant a user access to create and manage virtual machines in a resource group.

In this tutorial, you learn how to:

- Grant access for a user at a resource group scope
- Remove access

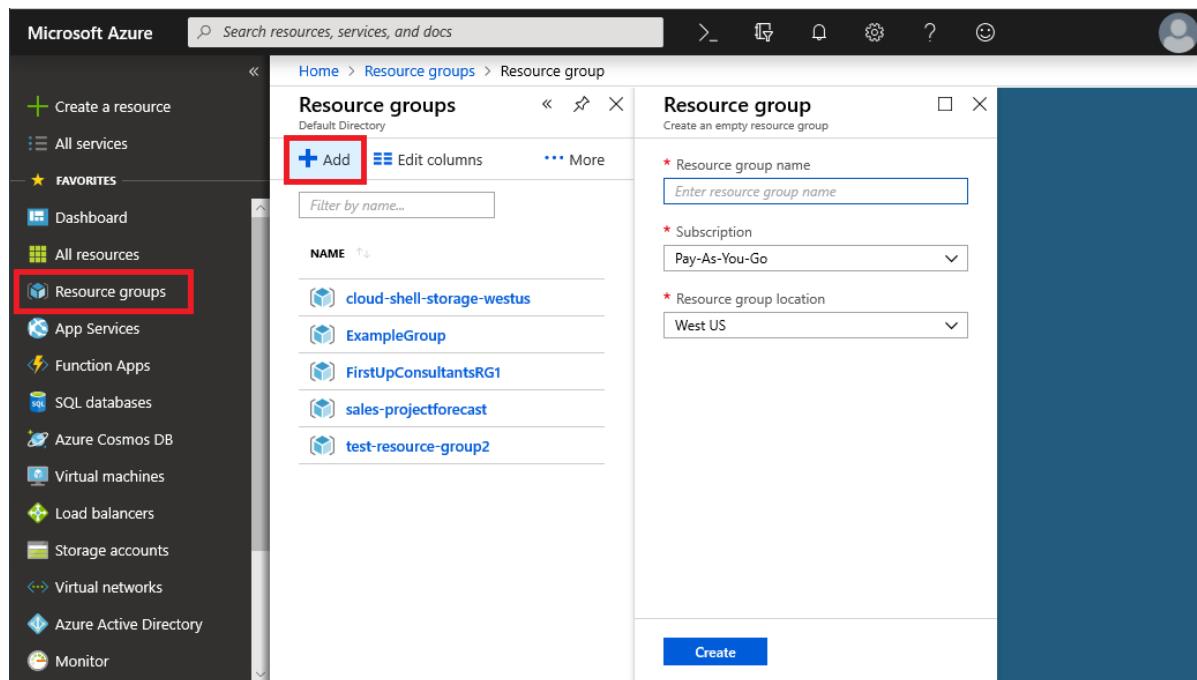
If you don't have an Azure subscription, create a [free account](#) before you begin.

## Sign in to Azure

Sign in to the Azure portal at <https://portal.azure.com>.

## Create a resource group

1. In the navigation list, click **Resource groups**.
2. Click **Add** to open the **Resource group** blade.



3. For **Resource group name**, enter **rbac-resource-group**.
4. Select a subscription and a location.
5. Click **Create** to create the resource group.
6. Click **Refresh** to refresh the list of resource groups.

The new resource group appears in your resource groups list.

**Resource groups**

Default Directory

+ Add Edit columns Refresh | Assign

**Subscriptions:** Pay-As-You-Go

Filter by name... All locations

6 items

NAME
cloud-shell-storage-westus
ExampleGroup
FirstUpConsultantsRG1
<b>rbac-resource-group</b>
sales-projectforecast
test-resource-group2

The 'rbac-resource-group' item is highlighted with a red box.

## Grant access

In Azure RBAC, to grant access, you create a role assignment.

1. In the list of **Resource groups**, click the new **rbac-resource-group** resource group.
2. Click **Access control (IAM)**.
3. Click the **Role assignments** tab to see the current list of role assignments.

Home > Resource groups > rbac-resource-group - Access control (IAM)

**rbac-resource-group - Access control (IAM)**

Resource group

Search (Ctrl+ /) Add Edit columns Refresh Remove

Check access **Role assignments** Deny assignments Classic administrators Roles

Manage access to Azure resources for users, groups, service principals and managed identities at this scope by creating role assignments. [Learn more](#)

Name Type Role

Scope Group by All scopes Role

6 items (3 Users, 1 Groups, 2 Service Principals)

NAME	TYPE	ROLE	SCOPE
<b>Sales Admins</b>	Group	Billing Reader	Subscription (Inherited)
<b>Admin</b>	User	Owner	Subscription (Inherited)
<b>Admin ?</b>			

The 'Role assignments' tab is highlighted with a red box.

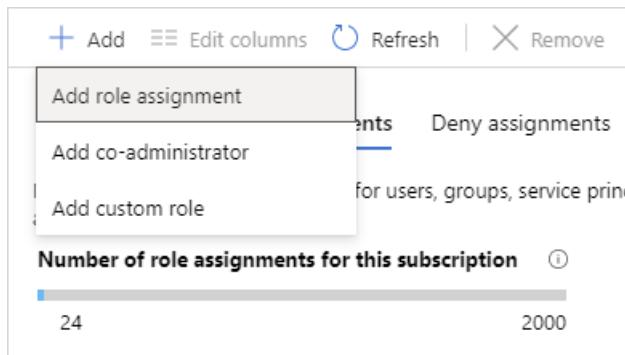
4. Click **Add > Add role assignment** to open the Add role assignment pane.

If you don't have permissions to assign roles, the Add role assignment option will be disabled.

Add   Edit columns   Refresh | Remove

Add role assignment   Deny assignments  
Add co-administrator   for users, groups, service principals  
Add custom role

**Number of role assignments for this subscription**   ⓘ  
24   2000



The Add role assignment pane opens.

**Add role assignment**

Role ⓘ  
Select a role

Assign access to ⓘ  
Azure AD user, group, or service principal

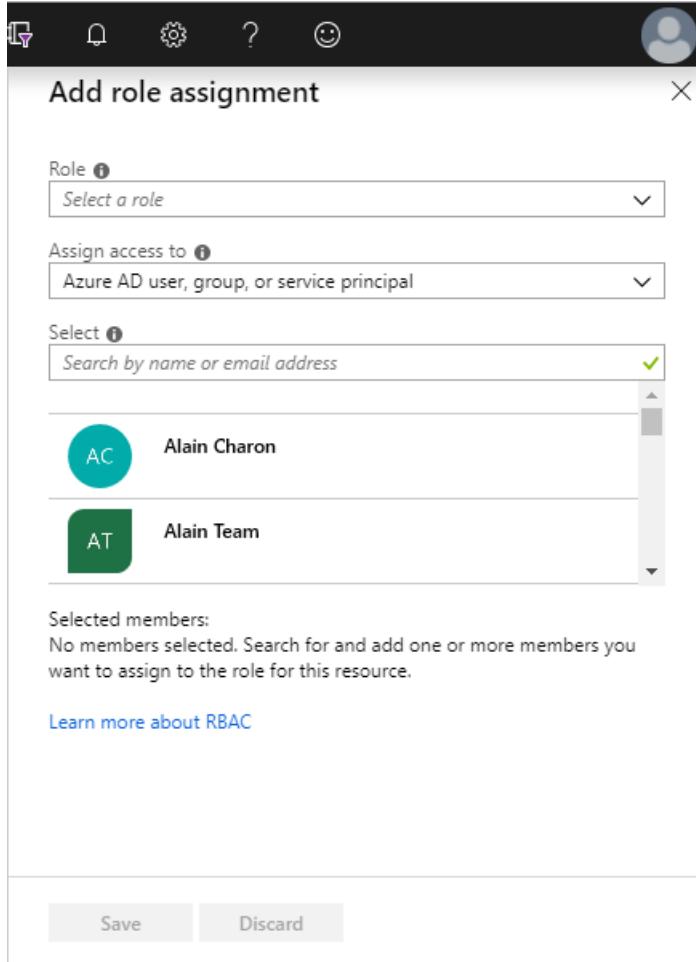
Select ⓘ  
Search by name or email address

AC   Alain Charon  
AT   Alain Team

Selected members:  
No members selected. Search for and add one or more members you want to assign to the role for this resource.

[Learn more about RBAC](#)

Save   Discard



5. In the **Role** drop-down list, select **Virtual Machine Contributor**.
6. In the **Select** list, select yourself or another user.
7. Click **Save** to create the role assignment.

After a few moments, the user is assigned the Virtual Machine Contributor role at the rbac-resource-group resource group scope.

**Access control (IAM)**

**OWNER**

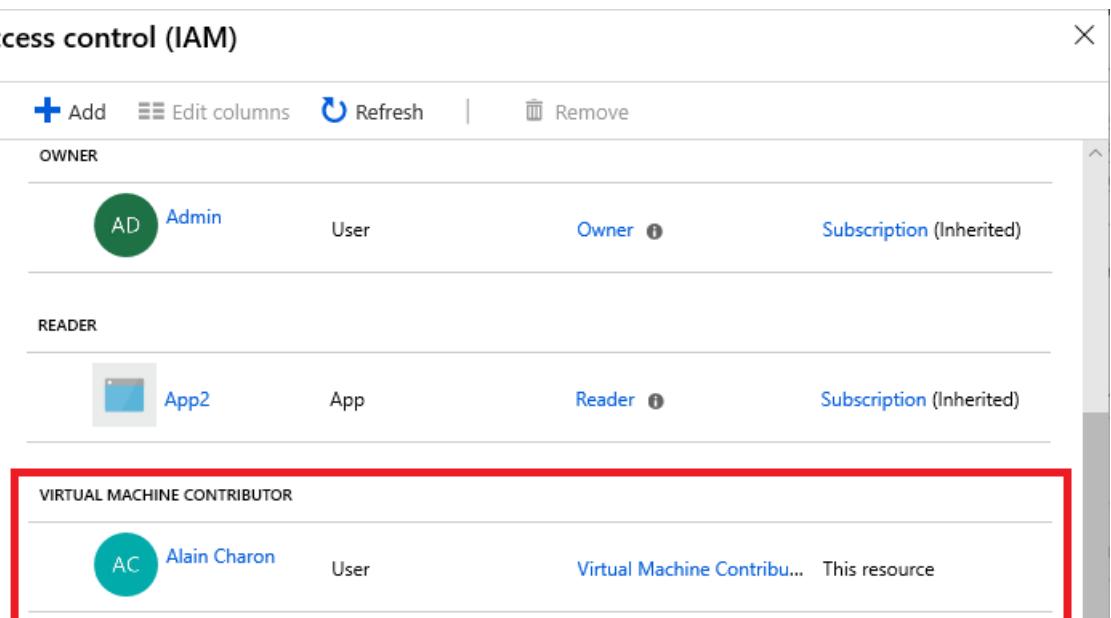
AD Admin	User	Owner	Subscription (Inherited)
AD Admin	User	Owner	Subscription (Inherited)

**READER**

App2	App	Reader	Subscription (Inherited)
App2	App	Reader	Subscription (Inherited)

**VIRTUAL MACHINE CONTRIBUTOR**

AC Alain Charon	User	Virtual Machine Contribu...	This resource
AC Alain Charon	User	Virtual Machine Contribu...	This resource



## Remove access

In Azure RBAC, to remove access, you remove a role assignment.

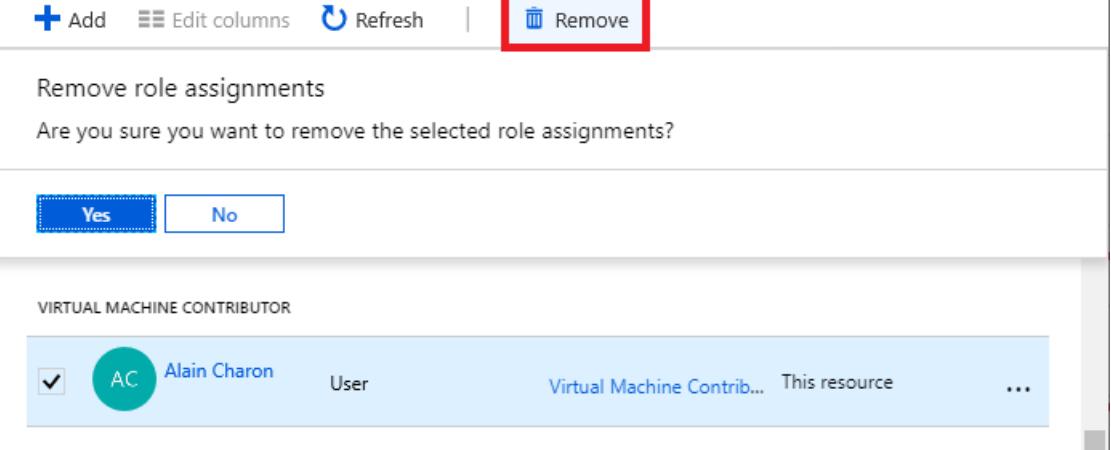
1. In the list of role assignments, add a checkmark next to the user with the Virtual Machine Contributor role.
2. Click **Remove**.

**Remove role assignments**  
Are you sure you want to remove the selected role assignments?

**Yes**   **No**

**VIRTUAL MACHINE CONTRIBUTOR**

<input checked="" type="checkbox"/> AC Alain Charon	User	Virtual Machine Contribu...	This resource	...
<input checked="" type="checkbox"/> AC Alain Charon	User	Virtual Machine Contribu...	This resource	...



3. In the remove role assignment message that appears, click **Yes**.

## Clean up

1. In the navigation list, click **Resource groups**.
2. Click **rbac-resource-group** to open the resource group.
3. Click **Delete resource group** to delete the resource group.

The screenshot shows the Azure portal interface for a resource group named 'rbac-resource-group'. The top navigation bar includes a search bar, 'Add', 'Edit columns', 'Delete resource group' (which is highlighted with a red box), 'Refresh', and 'Move' buttons. Below the navigation is a summary section with 'Subscription (change)' showing 'Free Trial', 'Deployments' showing 'No deployments', and 'Tags (change)' with a link to 'Click here to add tags'. On the left, a sidebar menu lists 'Overview', 'Activity log', 'Access control (IAM)', 'Tags', and 'Events'.

4. On the **Are you sure you want to delete** blade, type the resource group name: **rbac-resource-group**.
5. Click **Delete** to delete the resource group.

## Next steps

[Tutorial: Grant a user access to Azure resources using Azure PowerShell](#)

# Tutorial: Grant a user access to Azure resources using Azure PowerShell

5/3/2020 • 4 minutes to read • [Edit Online](#)

Azure role-based access control (Azure RBAC) is the way that you manage access to Azure resources. In this tutorial, you grant a user access to view everything in a subscription and manage everything in a resource group using Azure PowerShell.

In this tutorial, you learn how to:

- Grant access for a user at different scopes
- List access
- Remove access

If you don't have an Azure subscription, create a [free account](#) before you begin.

## NOTE

This article has been updated to use the new Azure PowerShell Az module. You can still use the AzureRM module, which will continue to receive bug fixes until at least December 2020. To learn more about the new Az module and AzureRM compatibility, see [Introducing the new Azure PowerShell Az module](#). For Az module installation instructions, see [Install Azure PowerShell](#).

## Prerequisites

To complete this tutorial, you will need:

- Permissions to create users in Azure Active Directory (or have an existing user)
- [Azure Cloud Shell](#)

## Role assignments

In Azure RBAC, to grant access, you create a role assignment. A role assignment consists of three elements: security principal, role definition, and scope. Here are the two role assignments you will perform in this tutorial:

SECURITY PRINCIPAL	ROLE DEFINITION	SCOPE
User (RBAC Tutorial User)	<a href="#">Reader</a>	Subscription
User (RBAC Tutorial User)	<a href="#">Contributor</a>	Resource group (rbac-tutorial-resource-group)



## Create a user

To assign a role, you need a user, group, or service principal. If you don't already have a user, you can create one.

1. In Azure Cloud Shell, create a password that complies with your password complexity requirements.

```
$PasswordProfile = New-Object -TypeName Microsoft.Open.AzureAD.Model.PasswordProfile
$PasswordProfile.Password = "Password"
```

2. Create a new user for your domain using the [New-AzureADUser](#) command.

```
New-AzureADUser -DisplayName "RBAC Tutorial User" -PasswordProfile $PasswordProfile ` 
-UserPrincipalName "rbacuser@example.com" -AccountEnabled $true -MailNickname "rbacuser"
```

ObjectId	DisplayName	UserPrincipalName	UserType
-----	-----	-----	-----
11111111-1111-1111-1111-111111111111	RBAC Tutorial User	rbacuser@example.com	Member

## Create a resource group

You use a resource group to show how to assign a role at a resource group scope.

1. Get a list of region locations using the [Get-AzLocation](#) command.

```
Get-AzLocation | select Location
```

2. Select a location near you and assign it to a variable.

```
$location = "westus"
```

3. Create a new resource group using the [New-AzResourceGroup](#) command.

```
New-AzResourceGroup -Name "rbac-tutorial-resource-group" -Location $location
```

```
ResourceGroupName : rbac-tutorial-resource-group
Location        : westus
ProvisioningState : Succeeded
Tags            :
ResourceId      : /subscriptions/00000000-0000-0000-0000-000000000000/resourceGroups/rbac-tutorial-
resource-group
```

## Grant access

To grant access for the user, you use the [New-AzRoleAssignment](#) command to assign a role. You must specify the security principal, role definition, and scope.

1. Get the ID of your subscription using the [Get-AzSubscription](#) command.

```
Get-AzSubscription
```

```
Name      : Pay-As-You-Go
Id        : 00000000-0000-0000-0000-000000000000
TenantId  : 22222222-2222-2222-2222-222222222222
State     : Enabled
```

2. Save the subscription scope in a variable.

```
$subScope = "/subscriptions/00000000-0000-0000-0000-000000000000"
```

3. Assign the [Reader](#) role to the user at the subscription scope.

```
New-AzRoleAssignment -SignInName rbacuser@example.com ` 
-RoleDefinitionName "Reader" ` 
-Scope $subScope
```

```
RoleAssignmentId    : /subscriptions/00000000-0000-0000-0000-
000000000000/providers/Microsoft.Authorization/roleAssignments/44444444-4444-4444-4444-444444444444
Scope              : /subscriptions/00000000-0000-0000-0000-000000000000
DisplayName        : RBAC Tutorial User
SignInName         : rbacuser@example.com
RoleDefinitionName : Reader
RoleDefinitionId   : acdd72a7-3385-48ef-bd42-f606fba81ae7
ObjectId           : 11111111-1111-1111-1111-111111111111
ObjectType         : User
CanDelegate        : False
```

4. Assign the [Contributor](#) role to the user at the resource group scope.

```
New-AzRoleAssignment -SignInName rbacuser@example.com ` 
-RoleDefinitionName "Contributor" ` 
-ResourceGroupName "rbac-tutorial-resource-group"
```

```
RoleAssignmentId    : /subscriptions/00000000-0000-0000-000000000000/resourceGroups/rbac-tutorial-
resource-group/providers/Microsoft.Authorization/roleAssignments/33333333-3333-3333-333333333333
Scope              : /subscriptions/00000000-0000-0000-000000000000/resourceGroups/rbac-tutorial-
resource-group
DisplayName        : RBAC Tutorial User
SignInName         : rbacuser@example.com
RoleDefinitionName : Contributor
RoleDefinitionId   : b24988ac-6180-42a0-ab88-20f7382dd24c
ObjectId           : 11111111-1111-1111-111111111111
ObjectType         : User
CanDelegate        : False
```

## List access

1. To verify the access for the subscription, use the [Get-AzRoleAssignment](#) command to list the role assignments.

```
Get-AzRoleAssignment -SignInName rbacuser@example.com -Scope $subScope
```

```
RoleAssignmentId    : /subscriptions/00000000-0000-0000-0000-000000000000/providers/Microsoft.Authorization/roleAssignments/22222222-2222-2222-2222-222222222222
Scope              : /subscriptions/00000000-0000-0000-0000-000000000000
DisplayName        : RBAC Tutorial User
SignInName         : rbacuser@example.com
RoleDefinitionName : Reader
RoleDefinitionId   : acdd72a7-3385-48ef-bd42-f606fba81ae7
ObjectId           : 11111111-1111-1111-1111-111111111111
ObjectType         : User
CanDelegate        : False
```

In the output, you can see that the Reader role has been assigned to the RBAC Tutorial User at the subscription scope.

2. To verify the access for the resource group, use the [Get-AzRoleAssignment](#) command to list the role assignments.

```
Get-AzRoleAssignment -SignInName rbacuser@example.com -ResourceGroupName "rbac-tutorial-resource-group"
```

```
RoleAssignmentId    : /subscriptions/00000000-0000-0000-0000-000000000000/resourceGroups/rbac-tutorial-resource-group/providers/Microsoft.Authorization/roleAssignments/33333333-3333-3333-333333333333
Scope              : /subscriptions/00000000-0000-0000-0000-000000000000/resourceGroups/rbac-tutorial-resource-group
DisplayName        : RBAC Tutorial User
SignInName         : rbacuser@example.com
RoleDefinitionName : Contributor
RoleDefinitionId   : b24988ac-6180-42a0-ab88-20f7382dd24c
ObjectId           : 11111111-1111-1111-1111-111111111111
ObjectType         : User
CanDelegate        : False

RoleAssignmentId    : /subscriptions/00000000-0000-0000-0000-000000000000/providers/Microsoft.Authorization/roleAssignments/22222222-2222-2222-2222-222222222222
Scope              : /subscriptions/00000000-0000-0000-0000-000000000000
DisplayName        : RBAC Tutorial User
SignInName         : rbacuser@example.com
RoleDefinitionName : Reader
RoleDefinitionId   : acdd72a7-3385-48ef-bd42-f606fba81ae7
ObjectId           : 11111111-1111-1111-1111-111111111111
ObjectType         : User
CanDelegate        : False
```

In the output, you can see that both the Contributor and Reader roles have been assigned to the RBAC Tutorial User. The Contributor role is at the rbac-tutorial-resource-group scope and the Reader role is inherited at the subscription scope.

## (Optional) List access using the Azure Portal

1. To see how the role assignments look in the Azure portal, view the **Access control (IAM)** blade for the subscription.

The screenshot shows the 'Access control (IAM)' blade for a subscription. The left sidebar includes links for Overview, Access control (IAM), Diagnose and solve problems, Cost management + Billing (Invoices, Cost analysis, External services, Payment methods, Partner information), Programmatic deployment, Resource groups, and Resources. The main area displays role assignments:

	NAME	TYPE	ROLE	SCOPE
BILLING READER	PS Pharma Sales Admin... Group	Group	Billing Reader	This resource
OWNER	RL Robert User	User	Owner	Service administrat... This resource
READER	RT RBAC Tutorial User rbacuser@ User	User	Reader	This resource

## 2. View the Access control (IAM) blade for the resource group.

The screenshot shows the 'Access control (IAM)' blade for a resource group named 'rbac-tutorial-resource-group'. The left sidebar includes links for Overview, Activity log, Access control (IAM), Tags, Settings (Quickstart, Resource costs, Deployments, Policies, Properties, Locks, Automation script), Monitoring (Metrics, Alerts (classic), Diagnostics logs), and a 'CONTRIBUTOR' section. The main area displays role assignments:

	NAME	TYPE	ROLE	SCOPE
BILLING READER	PS Pharma Sales Admins Group	Group	Billing Reader	Subscription (Inherited)
CONTRIBUTOR	RT RBAC Tutorial User rbacuser@ User	User	Contributor	This resource
OWNER	RL Robert User	User	Owner	Subscription (Inherited)
READER	RT RBAC Tutorial User rbacuser@ User	User	Reader	Subscription (Inherited)

## Remove access

To remove access for users, groups, and applications, use [Remove-AzRoleAssignment](#) to remove a role assignment.

1. Use the following command to remove the Contributor role assignment for the user at the resource group scope.

```
Remove-AzRoleAssignment -SignInName rbacuser@example.com ` 
    -RoleDefinitionName "Contributor" ` 
    -ResourceGroupName "rbac-tutorial-resource-group"
```

2. Use the following command to remove the Reader role assignment for the user at the subscription scope.

```
Remove-AzRoleAssignment -SignInName rbacuser@example.com `  
-RoleDefinitionName "Reader" `  
-Scope $subScope
```

## Clean up resources

To clean up the resources created by this tutorial, delete the resource group and the user.

1. Delete the resource group using the [Remove-AzResourceGroup](#) command.

```
Remove-AzResourceGroup -Name "rbac-tutorial-resource-group"
```

```
Confirm  
Are you sure you want to remove resource group 'rbac-tutorial-resource-group'  
[Y] Yes [N] No [S] Suspend [?] Help (default is "Y"):
```

2. When asked to confirm, type **Y**. It will take a few seconds to delete.

3. Delete the user using the [Remove-AzureADUser](#) command.

```
Remove-AzureADUser -ObjectId "rbacuser@example.com"
```

## Next steps

[Add or remove Azure role assignments using Azure PowerShell](#)

# Tutorial: Grant a group access to Azure resources using Azure PowerShell

5/3/2020 • 4 minutes to read • [Edit Online](#)

Azure role-based access control (Azure RBAC) is the way that you manage access to Azure resources. In this tutorial, you grant a group access to view everything in a subscription and manage everything in a resource group using Azure PowerShell.

In this tutorial, you learn how to:

- Grant access for a group at different scopes
- List access
- Remove access

If you don't have an Azure subscription, create a [free account](#) before you begin.

## NOTE

This article has been updated to use the new Azure PowerShell Az module. You can still use the AzureRM module, which will continue to receive bug fixes until at least December 2020. To learn more about the new Az module and AzureRM compatibility, see [Introducing the new Azure PowerShell Az module](#). For Az module installation instructions, see [Install Azure PowerShell](#).

## Prerequisites

To complete this tutorial, you will need:

- Permissions to create groups in Azure Active Directory (or have an existing group)
- [Azure Cloud Shell](#)

## Role assignments

In Azure RBAC, to grant access, you create a role assignment. A role assignment consists of three elements: security principal, role definition, and scope. Here are the two role assignments you will perform in this tutorial:

SECURITY PRINCIPAL	ROLE DEFINITION	SCOPE
Group (RBAC Tutorial Group)	<a href="#">Reader</a>	Subscription
Group (RBAC Tutorial Group)	<a href="#">Contributor</a>	Resource group (rbac-tutorial-resource-group)



## Create a group

To assign a role, you need a user, group, or service principal. If you don't already have a group, you can create one.

- In Azure Cloud Shell, create a new group using the [New-AzureADGroup](#) command.

```
New-AzureADGroup -DisplayName "RBAC Tutorial Group" `  
-MailEnabled $false -SecurityEnabled $true -MailNickname "NotSet"
```

ObjectId	DisplayName	Description
11111111-1111-1111-1111-111111111111	RBAC Tutorial Group	

If you don't have permissions to create groups, you can try the [Tutorial: Grant a user access to Azure resources using Azure PowerShell](#) instead.

## Create a resource group

You use a resource group to show how to assign a role at a resource group scope.

- Get a list of region locations using the [Get-AzLocation](#) command.

```
Get-AzLocation | select Location
```

- Select a location near you and assign it to a variable.

```
$location = "westus"
```

- Create a new resource group using the [New-AzResourceGroup](#) command.

```
New-AzResourceGroup -Name "rbac-tutorial-resource-group" -Location $location
```

```
ResourceGroupName : rbac-tutorial-resource-group
Location        : westus
ProvisioningState : Succeeded
Tags            :
ResourceId      : /subscriptions/00000000-0000-0000-0000-000000000000/resourceGroups/rbac-tutorial-resource-group
```

## Grant access

To grant access for the group, you use the [New-AzRoleAssignment](#) command to assign a role. You must specify the security principal, role definition, and scope.

1. Get the object ID of the group using the [Get-AzureADGroup](#) command.

```
Get-AzureADGroup -SearchString "RBAC Tutorial Group"
```

ObjectId	DisplayName	Description
-----	-----	-----
11111111-1111-1111-1111-111111111111	RBAC Tutorial Group	

2. Save the group object ID in a variable.

```
$groupId = "11111111-1111-1111-1111-111111111111"
```

3. Get the ID of your subscription using the [Get-AzSubscription](#) command.

```
Get-AzSubscription
```

Name	:	Pay-As-You-Go
Id	:	00000000-0000-0000-0000-000000000000
TenantId	:	22222222-2222-2222-2222-222222222222
State	:	Enabled

4. Save the subscription scope in a variable.

```
$subScope = "/subscriptions/00000000-0000-0000-0000-000000000000"
```

5. Assign the [Reader](#) role to the group at the subscription scope.

```
New-AzRoleAssignment -ObjectId $groupId `  
-RoleDefinitionName "Reader" `  
-Scope $subScope
```

RoleAssignmentId	:	/subscriptions/00000000-0000-0000-0000-000000000000/providers/Microsoft.Authorization/roleAssignments/44444444-4444-4444-4444-444444444444
Scope	:	/subscriptions/00000000-0000-0000-0000-000000000000
DisplayName	:	RBAC Tutorial Group
SignInName	:	
RoleDefinitionName	:	Reader
RoleDefinitionId	:	acdd72a7-3385-48ef-bd42-f606fba81ae7
ObjectId	:	11111111-1111-1111-1111-111111111111
ObjectType	:	Group
CanDelegate	:	False

6. Assign the [Contributor](#) role to the group at the resource group scope.

```
New-AzRoleAssignment -ObjectId $groupId `  
-RoleDefinitionName "Contributor" `  
-ResourceGroupName "rbac-tutorial-resource-group"
```

```
RoleAssignmentId : /subscriptions/00000000-0000-0000-0000-000000000000/resourceGroups/rbac-tutorial-resource-group/providers/Microsoft.Authorization/roleAssignments/33333333-3333-3333-3333-333333333333
Scope           : /subscriptions/00000000-0000-0000-0000-000000000000/resourceGroups/rbac-tutorial-resource-group
DisplayName     : RBAC Tutorial Group
SignInName      :
RoleDefinitionName : Contributor
RoleDefinitionId : b24988ac-6180-42a0-ab88-20f7382dd24c
ObjectId        : 11111111-1111-1111-1111-111111111111
ObjectType      : Group
CanDelegate     : False
```

## List access

1. To verify the access for the subscription, use the [Get-AzRoleAssignment](#) command to list the role assignments.

```
Get-AzRoleAssignment -ObjectId $groupId -Scope $subScope
```

```
RoleAssignmentId : /subscriptions/00000000-0000-0000-0000-000000000000/providers/Microsoft.Authorization/roleAssignments/22222222-2222-2222-2222-222222222222
Scope           : /subscriptions/00000000-0000-0000-0000-000000000000
DisplayName     : RBAC Tutorial Group
SignInName      :
RoleDefinitionName : Reader
RoleDefinitionId : acdd72a7-3385-48ef-bd42-f606fba81ae7
ObjectId        : 11111111-1111-1111-1111-111111111111
ObjectType      : Group
CanDelegate     : False
```

In the output, you can see that the Reader role has been assigned to the RBAC Tutorial Group at the subscription scope.

2. To verify the access for the resource group, use the [Get-AzRoleAssignment](#) command to list the role assignments.

```
Get-AzRoleAssignment -ObjectId $groupId -ResourceGroupName "rbac-tutorial-resource-group"
```

```

RoleAssignmentId : /subscriptions/00000000-0000-0000-0000-000000000000/resourceGroups/rbac-tutorial-
resource-group/providers/Microsoft.Authorization/roleAssignments/33333333-3333-3333-3333-333333333333
Scope           : /subscriptions/00000000-0000-0000-0000-000000000000/resourceGroups/rbac-tutorial-
resource-group
DisplayName     : RBAC Tutorial Group
SignInName      :
RoleDefinitionName : Contributor
RoleDefinitionId : b24988ac-6180-42a0-ab88-20f7382dd24c
ObjectId        : 11111111-1111-1111-1111-111111111111
ObjectType      : Group
CanDelegate     : False

RoleAssignmentId : /subscriptions/00000000-0000-0000-0000-
000000000000/providers/Microsoft.Authorization/roleAssignments/22222222-2222-2222-2222-222222222222
Scope           : /subscriptions/00000000-0000-0000-0000-000000000000
DisplayName     : RBAC Tutorial Group
SignInName      :
RoleDefinitionName : Reader
RoleDefinitionId : acdd72a7-3385-48ef-bd42-f606fba81ae7
ObjectId        : 11111111-1111-1111-1111-111111111111
ObjectType      : Group
CanDelegate     : False

```

In the output, you can see that both the Contributor and Reader roles have been assigned to the RBAC Tutorial Group. The Contributor role is at the rbac-tutorial-resource-group scope and the Reader role is inherited at the subscription scope.

## (Optional) List access using the Azure Portal

- To see how the role assignments look in the Azure portal, view the **Access control (IAM)** blade for the subscription.

NAME	TYPE	ROLE	SCOPE
PS Pharma Sales Admin...	Group	Billing Reader	This resource
RL Robert	User	Owner	Service administrator, This resource
RT RBAC Tutorial Group	Group	Reader	This resource

- View the **Access control (IAM)** blade for the resource group.

## Remove access

To remove access for users, groups, and applications, use [Remove-AzRoleAssignment](#) to remove a role assignment.

1. Use the following command to remove the Contributor role assignment for the group at the resource group scope.

```
Remove-AzRoleAssignment -ObjectId $groupId ` 
    -RoleDefinitionName "Contributor" ` 
    -ResourceGroupName "rbac-tutorial-resource-group"
```

2. Use the following command to remove the Reader role assignment for the group at the subscription scope.

```
Remove-AzRoleAssignment -ObjectId $groupId ` 
    -RoleDefinitionName "Reader" ` 
    -Scope $subScope
```

## Clean up resources

To clean up the resources created by this tutorial, delete the resource group and the group.

1. Delete the resource group using the [Remove-AzResourceGroup](#) command.

```
Remove-AzResourceGroup -Name "rbac-tutorial-resource-group"
```

**Confirm**  
Are you sure you want to remove resource group 'rbac-tutorial-resource-group'  
[Y] Yes [N] No [S] Suspend [?] Help (default is "Y"):

2. When asked to confirm, type Y. It will take a few seconds to delete.
3. Delete the group using the [Remove-AzureADGroup](#) command.

```
Remove-AzureADGroup -ObjectId $groupId
```

If you receive an error when you try to delete the group, you can also delete the group in the portal.

## Next steps

[Add or remove Azure role assignments using Azure PowerShell](#)

# Tutorial: Create an Azure custom role using Azure PowerShell

5/3/2020 • 4 minutes to read • [Edit Online](#)

If the [Azure built-in roles](#) don't meet the specific needs of your organization, you can create your own custom roles. For this tutorial, you create a custom role named Reader Support Tickets using Azure PowerShell. The custom role allows the user to view everything in the management plane of a subscription and also open support tickets.

In this tutorial, you learn how to:

- Create a custom role
- List custom roles
- Update a custom role
- Delete a custom role

If you don't have an Azure subscription, create a [free account](#) before you begin.

## NOTE

This article has been updated to use the new Azure PowerShell Az module. You can still use the AzureRM module, which will continue to receive bug fixes until at least December 2020. To learn more about the new Az module and AzureRM compatibility, see [Introducing the new Azure PowerShell Az module](#). For Az module installation instructions, see [Install Azure PowerShell](#).

## Prerequisites

To complete this tutorial, you will need:

- Permissions to create custom roles, such as [Owner](#) or [User Access Administrator](#)
- [Azure Cloud Shell](#) or [Azure PowerShell](#)

## Sign in to Azure PowerShell

Sign in to [Azure PowerShell](#).

## Create a custom role

The easiest way to create a custom role is to start with a built-in role, edit it, and then create a new role.

1. In PowerShell, use the [Get-AzProviderOperation](#) command to get the list of operations for the Microsoft.Support resource provider. It's helpful to know the operations that are available to create your permissions. You can also see a list of all the operations at [Azure Resource Manager resource provider operations](#).

```
Get-AzProviderOperation "Microsoft.Support/*" | FT Operation, Description -AutoSize
```

Operation	Description
Microsoft.Support/register/action	Registers to Support Resource Provider
Microsoft.Support/supportTickets/read	Gets Support Ticket details (including status, severity, contact ...
Microsoft.Support/supportTickets/write	Creates or Updates a Support Ticket. You can create a Support Tic...

2. Use the [Get-AzRoleDefinition](#) command to output the **Reader** role in JSON format.

```
Get-AzRoleDefinition -Name "Reader" | ConvertTo-Json | Out-File C:\CustomRoles\ReaderSupportRole.json
```

3. Open the **ReaderSupportRole.json** file in an editor.

The following shows the JSON output. For information about the different properties, see [Azure custom roles](#).

```
{
  "Name": "Reader",
  "Id": "acdd72a7-3385-48ef-bd42-f606fba81ae7",
  "IsCustom": false,
  "Description": "Lets you view everything, but not make any changes.",
  "Actions": [
    "*/*read"
  ],
  "NotActions": [],
  "DataActions": [],
  "NotDataActions": [],
  "AssignableScopes": [
    "/"
  ]
}
```

4. Edit the JSON file to add the `"Microsoft.Support/*"` operation to the `Actions` property. Be sure to include a comma after the read operation. This action will allow the user to create support tickets.
5. Get the ID of your subscription using the [Get-AzSubscription](#) command.

```
Get-AzSubscription
```

6. In `AssignableScopes`, add your subscription ID with the following format:

```
"/subscriptions/00000000-0000-0000-0000-000000000000"
```

You must add explicit subscription IDs, otherwise you won't be allowed to import the role into your subscription.

7. Delete the `Id` property line and change the `IsCustom` property to `true`.
8. Change the `Name` and `Description` properties to "Reader Support Tickets" and "View everything in the subscription and also open support tickets."

Your JSON file should look like the following:

```
{
  "Name": "Reader Support Tickets",
  "IsCustom": true,
  "Description": "View everything in the subscription and also open support tickets.",
  "Actions": [
    "*/*",
    "Microsoft.Support/*"
  ],
  "NotActions": [],
  "DataActions": [],
  "NotDataActions": [],
  "AssignableScopes": [
    "/subscriptions/00000000-0000-0000-0000-000000000000"
  ]
}
```

9. To create the new custom role, use the [New-AzRoleDefinition](#) command and specify the JSON role definition file.

```
New-AzRoleDefinition -InputFile "C:\CustomRoles\ReaderSupportRole.json"
```

Name	:	Reader Support Tickets
Id	:	22222222-2222-2222-2222-222222222222
IsCustom	:	True
Description	:	View everything in the subscription and also open support tickets.
Actions	:	{*/*, Microsoft.Support/*}
NotActions	:	{}
DataActions	:	{}
NotDataActions	:	{}
AssignableScopes	:	{/subscriptions/00000000-0000-0000-0000-000000000000}

The new custom role is now available in the Azure portal and can be assigned to users, groups, or service principals just like built-in roles.

## List custom roles

- To list all your custom roles, use the [Get-AzRoleDefinition](#) command.

```
Get-AzRoleDefinition | ? {$_._IsCustom -eq $true} | FT Name, IsCustom
```

Name	IsCustom
-----	-----
Reader Support Tickets	True

You can also see the custom role in the Azure portal.

The screenshot shows the Microsoft Azure portal interface. The left sidebar contains navigation links for creating resources, all services, favorites, and specific service categories like App Services, Function Apps, and SQL databases. The main content area is titled 'Roles' under 'Pay-As-You-Go - Access control (IAM)'. A list of roles is displayed, with 'Reader Support Tickets' highlighted by a red box. Other roles listed include Monitoring Contributor, Monitoring Reader, Network Contributor, New Relic APM Account Contributor, Reader and Data Access, Redis Cache Contributor, Resource Policy Contributor (Preview), Scheduler Job Collections Contributor, Search Service Contributor, Security Admin, Security Manager (Legacy), Security Reader, Site Recovery Contributor, and Site Recovery Operator. Each role entry shows its ID and count of assignments.

## Update a custom role

To update the custom role, you can update the JSON file or use the `PSRoleDefinition` object.

1. To update the JSON file, use the `Get-AzRoleDefinition` command to output the custom role in JSON format.

```
Get-AzRoleDefinition -Name "Reader Support Tickets" | ConvertTo-Json | Out-File C:\CustomRoles\ReaderSupportRole2.json
```

2. Open the file in an editor.

3. In `Actions`, add the operation to create and manage resource group deployments

```
"Microsoft.Resources/deployments/*"
```

Your updated JSON file should look like the following:

```
{
  "Name": "Reader Support Tickets",
  "Id": "22222222-2222-2222-2222-222222222222",
  "IsCustom": true,
  "Description": "View everything in the subscription and also open support tickets.",
  "Actions": [
    "*/*",
    "Microsoft.Support/*",
    "Microsoft.Resources/deployments/*"
  ],
  "NotActions": [],
  "DataActions": [],
  "NotDataActions": [],
  "AssignableScopes": [
    "/subscriptions/00000000-0000-0000-0000-000000000000"
  ]
}
```

- To update the custom role, use the [Set-AzRoleDefinition](#) command and specify the updated JSON file.

```
Set-AzRoleDefinition -InputFile "C:\CustomRoles\ReaderSupportRole2.json"
```

```
Name      : Reader Support Tickets
Id       : 22222222-2222-2222-2222-222222222222
IsCustom  : True
Description : View everything in the subscription and also open support tickets.
Actions   : {*/read, Microsoft.Support/*, Microsoft.Resources/deployments/*}
NotActions : {}
DataActions: {}
NotDataActions: {}
AssignableScopes : {/subscriptions/00000000-0000-0000-0000-000000000000}
```

- To use the `PSRoleDefintion` object to update your custom role, first use the [Get-AzRoleDefinition](#) command to get the role.

```
$role = Get-AzRoleDefinition "Reader Support Tickets"
```

- Call the `Add` method to add the operation to read diagnostic settings.

```
$role.Actions.Add("Microsoft.Insights/diagnosticSettings/*/read")
```

- Use the [Set-AzRoleDefinition](#) to update the role.

```
Set-AzRoleDefinition -Role $role
```

```
Name      : Reader Support Tickets
Id       : 22222222-2222-2222-2222-222222222222
IsCustom  : True
Description : View everything in the subscription and also open support tickets.
Actions   : {*/read, Microsoft.Support/*, Microsoft.Resources/deployments/*,
            Microsoft.Insights/diagnosticSettings/*/read}
NotActions : {}
DataActions: {}
NotDataActions: {}
AssignableScopes : {/subscriptions/00000000-0000-0000-0000-000000000000}
```

## Delete a custom role

- Use the [Get-AzRoleDefinition](#) command to get the ID of the custom role.

```
Get-AzRoleDefinition "Reader Support Tickets"
```

- Use the [Remove-AzRoleDefinition](#) command and specify the role ID to delete the custom role.

```
Remove-AzRoleDefinition -Id "22222222-2222-2222-2222-222222222222"
```

Confirm

Are you sure you want to remove role definition with id '22222222-2222-2222-222222222222'.  
[Y] Yes [N] No [S] Suspend [?] Help (default is "Y"):

3. When asked to confirm, type Y.

## Next steps

[Create or update Azure custom roles using Azure PowerShell](#)

# Tutorial: Create an Azure custom role using Azure CLI

5/3/2020 • 3 minutes to read • [Edit Online](#)

If the [Azure built-in roles](#) don't meet the specific needs of your organization, you can create your own custom roles. For this tutorial, you create a custom role named Reader Support Tickets using Azure CLI. The custom role allows the user to view everything in the management plane of a subscription and also open support tickets.

In this tutorial, you learn how to:

- Create a custom role
- List custom roles
- Update a custom role
- Delete a custom role

If you don't have an Azure subscription, create a [free account](#) before you begin.

## Prerequisites

To complete this tutorial, you will need:

- Permissions to create custom roles, such as [Owner](#) or [User Access Administrator](#)
- [Azure Cloud Shell](#) or [Azure CLI](#)

## Sign in to Azure CLI

Sign in to [Azure CLI](#).

## Create a custom role

The easiest way to create a custom role is to start with a JSON template, add your changes, and then create a new role.

1. Review the list of operations for the [Microsoft.Support resource provider](#). It's helpful to know the operations that are available to create your permissions.

OPERATION	DESCRIPTION
Microsoft.Support/register/action	Registers to Support Resource Provider
Microsoft.Support/supportTickets/read	Gets Support Ticket details (including status, severity, contact details and communications) or gets the list of Support Tickets across subscriptions.
Microsoft.Support/supportTickets/write	Creates or Updates a Support Ticket. You can create a Support Ticket for Technical, Billing, Quotas or Subscription Management related issues. You can update severity, contact details and communications for existing support tickets.

2. Create a new file named `ReaderSupportRole.json`.
3. Open `ReaderSupportRole.json` in an editor and add the following JSON.

For information about the different properties, see [Azure custom roles](#).

```
{  
  "Name": "",  
  "IsCustom": true,  
  "Description": "",  
  "Actions": [],  
  "NotActions": [],  
  "DataActions": [],  
  "NotDataActions": [],  
  "AssignableScopes": [  
    "/subscriptions/{subscriptionId1}"  
  ]  
}
```

4. Add the following operations to the `Actions` property. These actions allow the user to view everything in the subscription and create support tickets.

```
  "*/*/  
  "Microsoft.Support/*"
```

5. Get the ID of your subscription using the `az account list` command.

```
az account list --output table
```

6. In `AssignableScopes`, replace `{subscriptionId1}` with your subscription ID.

You must add explicit subscription IDs, otherwise you won't be allowed to import the role into your subscription.

7. Change the `Name` and `Description` properties to "Reader Support Tickets" and "View everything in the subscription and also open support tickets."

Your JSON file should look like the following:

```
{  
  "Name": "Reader Support Tickets",  
  "IsCustom": true,  
  "Description": "View everything in the subscription and also open support tickets.",  
  "Actions": [  
    "*/*/  
    "Microsoft.Support/*"  
  ],  
  "NotActions": [],  
  "DataActions": [],  
  "NotDataActions": [],  
  "AssignableScopes": [  
    "/subscriptions/00000000-0000-0000-0000-000000000000"  
  ]  
}
```

8. To create the new custom role, use the `az role definition create` command and specify the JSON role definition file.

```
az role definition create --role-definition "~/CustomRoles/ReaderSupportRole.json"
```

```
{  
    "additionalProperties": {},  
    "assignableScopes": [  
        "/subscriptions/00000000-0000-0000-0000-000000000000"  
    ],  
    "description": "View everything in the subscription and also open support tickets.",  
    "id": "/subscriptions/00000000-0000-0000-0000-  
000000000000/providers/Microsoft.Authorization/roleDefinitions/22222222-2222-2222-2222-222222222222",  
    "name": "22222222-2222-2222-2222-222222222222",  
    "permissions": [  
        {  
            "actions": [  
                "*/*",  
                "Microsoft.Support/*"  
            ],  
            "additionalProperties": {},  
            "dataActions": [],  
            "notActions": [],  
            "notDataActions": []  
        }  
    ],  
    "roleName": "Reader Support Tickets",  
    "roleType": "CustomRole",  
    "type": "Microsoft.Authorization/roleDefinitions"  
}
```

The new custom role is now available and can be assigned to users, groups, or service principals just like built-in roles.

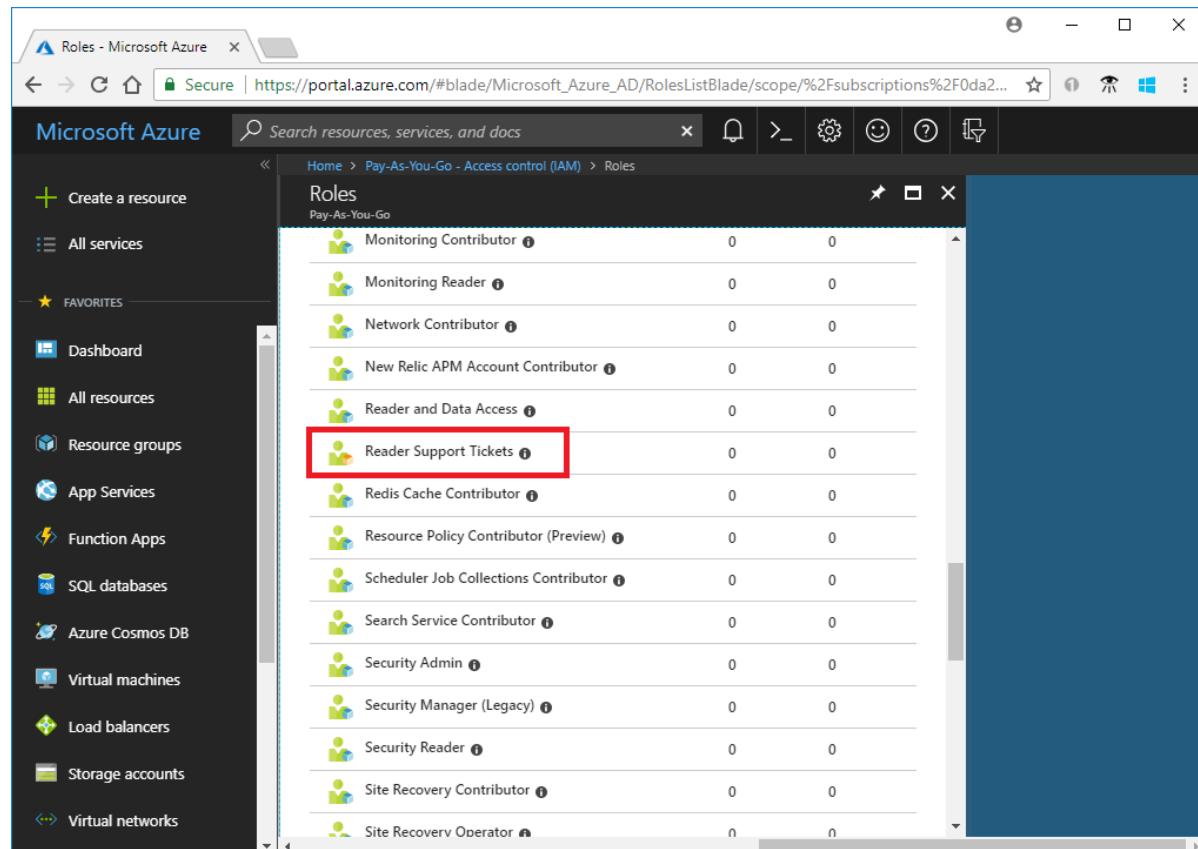
## List custom roles

- To list all your custom roles, use the `az role definition list` command with the `--custom-role-only` parameter.

```
az role definition list --custom-role-only true
```

```
[
  {
    "additionalProperties": {},
    "assignableScopes": [
      "/subscriptions/00000000-0000-0000-0000-000000000000"
    ],
    "description": "View everything in the subscription and also open support tickets.",
    "id": "/subscriptions/00000000-0000-0000-0000-000000000000/providers/Microsoft.Authorization/roleDefinitions/22222222-2222-2222-2222-222222222222",
    "name": "22222222-2222-2222-2222-222222222222",
    "permissions": [
      {
        "actions": [
          "*/*",
          "Microsoft.Support/*",
          "Microsoft.Resources/deployments/*",
          "Microsoft.Insights/diagnosticSettings/*/read"
        ],
        "additionalProperties": {},
        "dataActions": [],
        "notActions": [],
        "notDataActions": []
      }
    ],
    "roleName": "Reader Support Tickets",
    "roleType": "CustomRole",
    "type": "Microsoft.Authorization/roleDefinitions"
  }
]
```

You can also see the custom role in the Azure portal.



The screenshot shows the Microsoft Azure portal interface. The left sidebar contains navigation links for creating resources, all services, favorites, dashboard, all resources, resource groups, app services, function apps, SQL databases, Azure Cosmos DB, virtual machines, load balancers, storage accounts, and virtual networks. The main content area is titled 'Roles' under 'Pay-As-You-Go - Access control (IAM)'. A list of roles is displayed, including Monitoring Contributor, Monitoring Reader, Network Contributor, New Relic APM Account Contributor, Reader and Data Access, and Reader Support Tickets. The 'Reader Support Tickets' role is highlighted with a red box.

Role	Count	Count
Monitoring Contributor	0	0
Monitoring Reader	0	0
Network Contributor	0	0
New Relic APM Account Contributor	0	0
Reader and Data Access	0	0
<b>Reader Support Tickets</b>	0	0
Redis Cache Contributor	0	0
Resource Policy Contributor (Preview)	0	0
Scheduler Job Collections Contributor	0	0
Search Service Contributor	0	0
Security Admin	0	0
Security Manager (Legacy)	0	0
Security Reader	0	0
Site Recovery Contributor	0	0
Site Recovery Operator	0	0

## Update a custom role

To update the custom role, update the JSON file and then update the custom role.

1. Open the ReaderSupportRole.json file.
2. In `Actions`, add the operation to create and manage resource group deployments `"Microsoft.Resources/deployments/*"`. Be sure to include a comma after the previous operation.

Your updated JSON file should look like the following:

```
{  
  "Name": "Reader Support Tickets",  
  "IsCustom": true,  
  "Description": "View everything in the subscription and also open support tickets.",  
  "Actions": [  
    "*/read",  
    "Microsoft.Support/*",  
    "Microsoft.Resources/deployments/*"  
  ],  
  "NotActions": [],  
  "DataActions": [],  
  "NotDataActions": [],  
  "AssignableScopes": [  
    "/subscriptions/00000000-0000-0000-0000-000000000000"  
  ]  
}
```

3. To update the custom role, use the [az role definition update](#) command and specify the updated JSON file.

```
az role definition update --role-definition ~/CustomRoles/ReaderSupportRole.json
```

```
{  
  "additionalProperties": {},  
  "assignableScopes": [  
    "/subscriptions/00000000-0000-0000-0000-000000000000"  
  ],  
  "description": "View everything in the subscription and also open support tickets.",  
  "id": "/subscriptions/00000000-0000-0000-0000-000000000000/  
  providers/Microsoft.Authorization/roleDefinitions/22222222-2222-2222-2222-222222222222",  
  "name": "22222222-2222-2222-222222222222",  
  "permissions": [  
    {  
      "actions": [  
        "*/read",  
        "Microsoft.Support/*",  
        "Microsoft.Resources/deployments/*"  
      ],  
      "additionalProperties": {},  
      "dataActions": [],  
      "notActions": [],  
      "notDataActions": []  
    }  
  ],  
  "roleName": "Reader Support Tickets",  
  "roleType": "CustomRole",  
  "type": "Microsoft.Authorization/roleDefinitions"  
}
```

## Delete a custom role

- Use the [az role definition delete](#) command and specify the role name or role ID to delete the custom role.

```
az role definition delete --name "Reader Support Tickets"
```

## Next steps

[Create or update Azure custom roles using Azure CLI](#)

# Azure Policy built-in definitions for Azure RBAC

7/21/2020 • 2 minutes to read • [Edit Online](#)

This page is an index of [Azure Policy](#) built-in policy definitions for Azure RBAC. For additional Azure Policy built-ins for other services, see [Azure Policy built-in definitions](#).

The name of each built-in policy definition links to the policy definition in the Azure portal. Use the link in the **Version** column to view the source on the [Azure Policy GitHub repo](#).

## Azure RBAC

NAME (AZURE PORTAL)	DESCRIPTION	EFFECT(S)	VERSION (GITHUB)
<a href="#">Audit usage of custom RBAC rules</a>	Audit built-in roles such as 'Owner, Contributer, Reader' instead of custom RBAC roles, which are error prone. Using custom roles is treated as an exception and requires a rigorous review and threat modeling	Audit, Disabled	1.0.0
<a href="#">Custom subscription owner roles should not exist</a>	This policy ensures that no custom subscription owner roles exist.	Audit, Disabled	2.0.0

## Next steps

- See the built-ins on the [Azure Policy GitHub repo](#).
- Review the [Azure Policy definition structure](#).
- Review [Understanding policy effects](#).

# Best practices for Azure RBAC

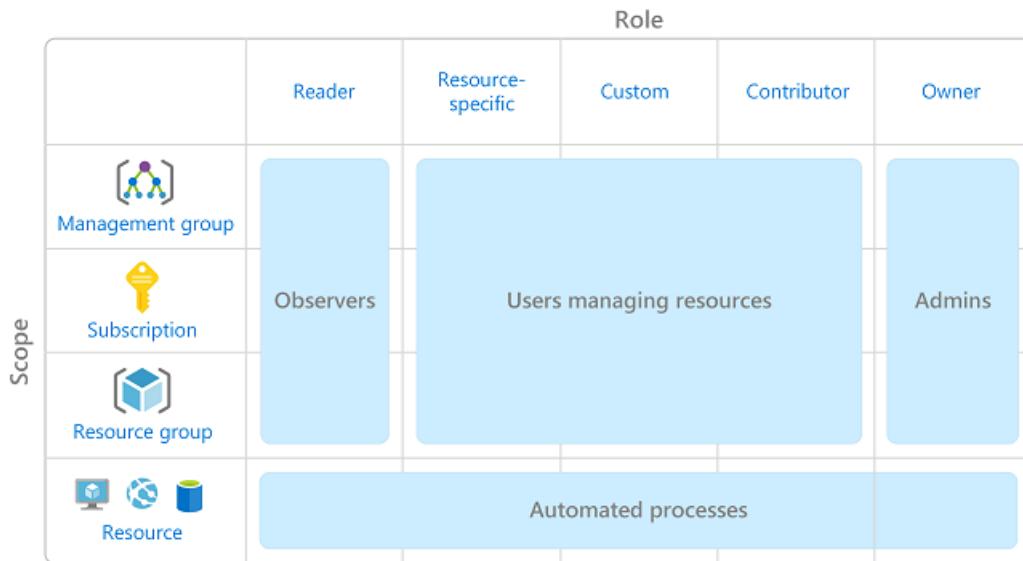
5/3/2020 • 2 minutes to read • [Edit Online](#)

This article describes some best practices for using Azure role-based access control (Azure RBAC). These best practices are derived from our experience with Azure RBAC and the experiences of customers like yourself.

## Only grant the access users need

Using Azure RBAC, you can segregate duties within your team and grant only the amount of access to users that they need to perform their jobs. Instead of giving everybody unrestricted permissions in your Azure subscription or resources, you can allow only certain actions at a particular scope.

When planning your access control strategy, it's a best practice to grant users the least privilege to get their work done. The following diagram shows a suggested pattern for using Azure RBAC.



For information about how to add role assignments, see [Add or remove Azure role assignments using the Azure portal](#).

## Limit the number of subscription owners

You should have a maximum of 3 subscription owners to reduce the potential for breach by a compromised owner. This recommendation can be monitored in Azure Security Center. For other identity and access recommendations in Security Center, see [Security recommendations - a reference guide](#).

## Use Azure AD Privileged Identity Management

To protect privileged accounts from malicious cyber-attacks, you can use Azure Active Directory Privileged Identity Management (PIM) to lower the exposure time of privileges and increase your visibility into their use through reports and alerts. PIM helps protect privileged accounts by providing just-in-time privileged access to Azure AD and Azure resources. Access can be time bound after which privileges are revoked automatically.

For more information, see [What is Azure AD Privileged Identity Management?](#).

## Next steps

- [Troubleshoot Azure RBAC](#)

# Manage access to Azure management with Conditional Access

5/21/2020 • 2 minutes to read • [Edit Online](#)

## Caution

Make sure you understand how Conditional Access works before setting up a policy to manage access to Azure management. Make sure you don't create conditions that could block your own access to the portal.

Conditional Access in Azure Active Directory (Azure AD) controls access to cloud apps based on specific conditions that you specify. To allow access, you create Conditional Access policies that allow or block access based on whether or not the requirements in the policy are met.

Typically, you use Conditional Access to control access to your cloud apps. You can also set up policies to control access to Azure management based on certain conditions (such as sign-in risk, location, or device) and to enforce requirements like multi-factor authentication.

To create a policy for Azure management, you select **Microsoft Azure Management** under **Cloud apps** when choosing the app to which to apply the policy.

The screenshot shows three windows from the Microsoft Conditional Access policy creation interface:

- New Policy Window:** Shows the policy configuration screen with sections for Info, Assignments, Access controls, and Enable policy. The Enable policy section has "On" selected.
- Cloud apps Selection Window:** Shows the "Select Cloud apps" dialog with the "Include" tab selected. It lists "management" under Applications. A red box highlights the "Microsoft Azure Management" option in the list, which is checked.
- Done Button:** A "Done" button at the bottom of the main window.

The policy you create applies to all Azure management endpoints, including the following:

- Azure portal
- Azure Resource Manager provider
- Classic Service Management APIs
- Azure PowerShell
- Visual Studio subscriptions administrator portal
- Azure DevOps
- Azure Data Factory portal

Note that the policy applies to Azure PowerShell, which calls the Azure Resource Manager API. It does not apply to [Azure AD PowerShell](#), which calls Microsoft Graph.

For more information on how to set up a sample policy to enable Conditional Access for Microsoft Azure management, see the article [Conditional Access: Require MFA for Azure management](#).

# Understand Azure role definitions

7/21/2020 • 9 minutes to read • [Edit Online](#)

If you are trying to understand how an Azure role works or if you are creating your own [Azure custom role](#), it's helpful to understand how roles are defined. This article describes the details of role definitions and provides some examples.

## Role definition

A *role definition* is a collection of permissions. It's sometimes just called a *role*. A role definition lists the operations that can be performed, such as read, write, and delete. It can also list the operations that are excluded from allowed operations or operations related to underlying data.

The following shows an example of the properties in a role definition when displayed using Azure PowerShell:

```
Name  
Id  
IsCustom  
Description  
Actions []  
NotActions []  
DataActions []  
NotDataActions []  
AssignableScopes []
```

The following shows an example of the properties in a role definition when displayed using the Azure portal, Azure CLI, or the REST API:

```
roleName  
name  
type  
description  
actions []  
notActions []  
dataActions []  
notDataActions []  
assignableScopes []
```

The following table describes what the role properties mean.

PROPERTY	DESCRIPTION
<code>Name</code> <code>roleName</code>	The display name of the role.
<code>Id</code> <code>name</code>	The unique ID of the role.
<code>IsCustom</code> <code>roleType</code>	Indicates whether this is a custom role. Set to <code>true</code> or <code>CustomRole</code> for custom roles. Set to <code>false</code> or <code>BuiltInRole</code> for built-in roles.

PROPERTY	DESCRIPTION
Description description	The description of the role.
Actions actions	An array of strings that specifies the management operations that the role allows to be performed.
NotActions notActions	An array of strings that specifies the management operations that are excluded from the allowed Actions .
DataActions dataActions	An array of strings that specifies the data operations that the role allows to be performed to your data within that object.
NotDataActions notDataActions	An array of strings that specifies the data operations that are excluded from the allowed DataActions .
AssignableScopes assignableScopes	An array of strings that specifies the scopes that the role is available for assignment.

## Operations format

Operations are specified with strings that have the following format:

- {Company}.{ProviderName}/{resourceType}/{action}

The {action} portion of an operation string specifies the type of operations you can perform on a resource type.

For example, you will see the following substrings in {action} :

ACTION SUBSTRING	DESCRIPTION
*	The wildcard character grants access to all operations that match the string.
read	Enables read operations (GET).
write	Enables write operations (PUT or PATCH).
action	Enables custom operations like restart virtual machines (POST).
delete	Enables delete operations (DELETE).

## Role definition example

Here's the [Contributor](#) role definition as displayed in Azure PowerShell and Azure CLI. The wildcard (\*) operation under Actions indicates that the principal assigned to this role can perform all actions, or in other words, it can manage everything. This includes actions defined in the future, as Azure adds new resource types. The operations under NotActions are subtracted from Actions . In the case of the [Contributor](#) role, NotActions removes this role's ability to manage access to resources and also manage Azure Blueprint assignments.

Contributor role as displayed in Azure PowerShell:

```
{
  "Name": "Contributor",
  "Id": "b24988ac-6180-42a0-ab88-20f7382dd24c",
  "IsCustom": false,
  "Description": "Lets you manage everything except access to resources.",
  "Actions": [
    "*"
  ],
  "NotActions": [
    "Microsoft.Authorization/*/Delete",
    "Microsoft.Authorization/*/Write",
    "Microsoft.Authorization/elevateAccess/Action",
    "Microsoft.Blueprint/blueprintAssignments/write",
    "Microsoft.Blueprint/blueprintAssignments/delete"
  ],
  "DataActions": [],
  "NotDataActions": [],
  "AssignableScopes": [
    "/"
  ]
}
```

Contributor role as displayed in Azure CLI:

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage everything except access to resources.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/b24988ac-6180-42a0-ab88-20f7382dd24c",
  "name": "b24988ac-6180-42a0-ab88-20f7382dd24c",
  "permissions": [
    {
      "actions": [
        "*"
      ],
      "notActions": [
        "Microsoft.Authorization/*/Delete",
        "Microsoft.Authorization/*/Write",
        "Microsoft.Authorization/elevateAccess/Action",
        "Microsoft.Blueprint/blueprintAssignments/write",
        "Microsoft.Blueprint/blueprintAssignments/delete"
      ],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Management and data operations

Role-based access control for management operations is specified in the `Actions` and `NotActions` properties of a role definition. Here are some examples of management operations in Azure:

- Manage access to a storage account
- Create, update, or delete a blob container
- Delete a resource group and all of its resources

Management access is not inherited to your data provided that the container authentication method is set to "Azure

"AD User Account" and not "Access Key". This separation prevents roles with wildcards (\*) from having unrestricted access to your data. For example, if a user has a [Reader](#) role on a subscription, then they can view the storage account, but by default they can't view the underlying data.

Previously, role-based access control was not used for data operations. Authorization for data operations varied across resource providers. The same role-based access control authorization model used for management operations has been extended to data operations.

To support data operations, new data properties have been added to the role definition. Data operations are specified in the `DataActions` and `NotDataActions` properties. By adding these data properties, the separation between management and data is maintained. This prevents current role assignments with wildcards (\*) from suddenly having access to data. Here are some data operations that can be specified in `DataActions` and `NotDataActions`:

- Read a list of blobs in a container
- Write a storage blob in a container
- Delete a message in a queue

Here's the [Storage Blob Data Reader](#) role definition, which includes operations in both the `Actions` and `DataActions` properties. This role allows you to read the blob container and also the underlying blob data.

Storage Blob Data Reader role as displayed in Azure PowerShell:

```
{  
  "Name": "Storage Blob Data Reader",  
  "Id": "2a2b9908-6ea1-4ae2-8e65-a410df84e7d1",  
  "IsCustom": false,  
  "Description": "Allows for read access to Azure Storage blob containers and data",  
  "Actions": [  
    "Microsoft.Storage/storageAccounts/blobServices/containers/read",  
    "Microsoft.Storage/storageAccounts/blobServices/generateUserDelegationKey/action"  
,  
  "NotActions": [],  
  "DataActions": [  
    "Microsoft.Storage/storageAccounts/blobServices/containers/blobs/read"  
,  
  "NotDataActions": [],  
  "AssignableScopes": [  
    "/"  
}
```

Storage Blob Data Reader role as displayed in Azure CLI:

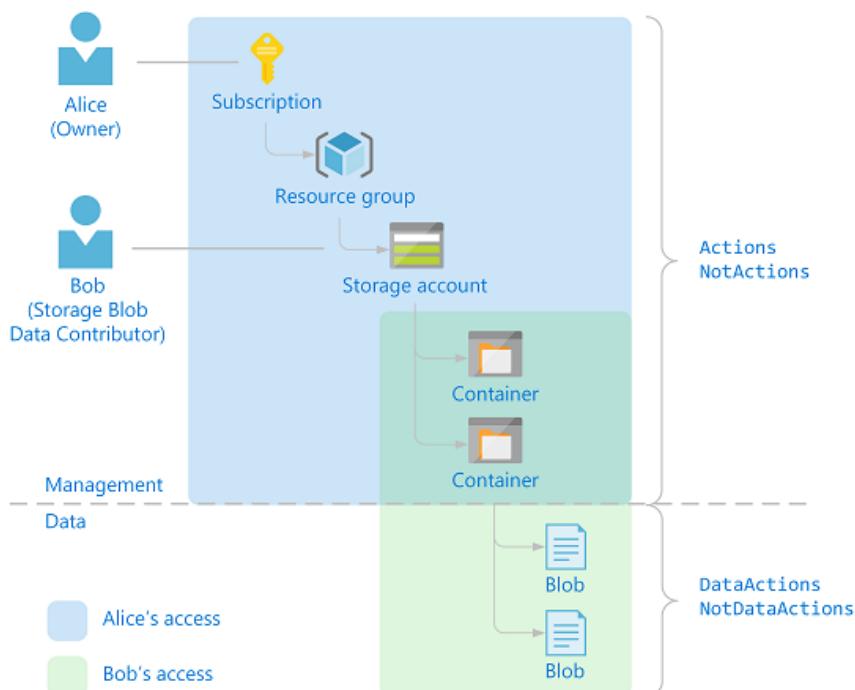
```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Allows for read access to Azure Storage blob containers and data",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/2a2b9908-6ea1-4ae2-8e65-a410df84e7d1",
  "name": "2a2b9908-6ea1-4ae2-8e65-a410df84e7d1",
  "permissions": [
    {
      "actions": [
        "Microsoft.Storage/storageAccounts/blobServices/containers/read",
        "Microsoft.Storage/storageAccounts/blobServices/generateUserDelegationKey/action"
      ],
      "notActions": [],
      "dataActions": [
        "Microsoft.Storage/storageAccounts/blobServices/containers/blobs/read"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Storage Blob Data Reader",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

Only data operations can be added to the `DataActions` and `NotDataActions` properties. Resource providers identify which operations are data operations, by setting the `isDataAction` property to `true`. To see a list of the operations where `isDataAction` is `true`, see [Resource provider operations](#). Roles that do not have data operations are not required to have `DataActions` and `NotDataActions` properties within the role definition.

Authorization for all management operation API calls is handled by Azure Resource Manager. Authorization for data operation API calls is handled by either a resource provider or Azure Resource Manager.

### Data operations example

To better understand how management and data operations work, let's consider a specific example. Alice has been assigned the [Owner](#) role at the subscription scope. Bob has been assigned the [Storage Blob Data Contributor](#) role at a storage account scope. The following diagram shows this example.



The [Owner](#) role for Alice and the [Storage Blob Data Contributor](#) role for Bob have the following actions:

Owner

#### Actions

\*

Storage Blob Data Contributor

#### Actions

Microsoft.Storage/storageAccounts/blobServices/containers/delete  
Microsoft.Storage/storageAccounts/blobServices/containers/read  
Microsoft.Storage/storageAccounts/blobServices/containers/write  
Microsoft.Storage/storageAccounts/blobServices/generateUserDelegationKey/action

#### DataActions

Microsoft.Storage/storageAccounts/blobServices/containers/blobs/delete  
Microsoft.Storage/storageAccounts/blobServices/containers/blobs/read  
Microsoft.Storage/storageAccounts/blobServices/containers/blobs/move/action  
Microsoft.Storage/storageAccounts/blobServices/containers/blobs/write

Since Alice has a wildcard (\*) action at a subscription scope, their permissions inherit down to enable them to perform all management actions. Alice can read, write, and delete containers. However, Alice cannot perform data operations without taking additional steps. For example, by default, Alice cannot read the blobs inside a container. To read the blobs, Alice would have to retrieve the storage access keys and use them to access the blobs.

Bob's permissions are restricted to just the Actions and DataActions specified in the Storage Blob Data Contributor role. Based on the role, Bob can perform both management and data operations. For example, Bob can read, write, and delete containers in the specified storage account and can also read, write, and delete the blobs.

For more information about management and data plane security for storage, see the [Azure Storage security guide](#).

### What tools support using Azure roles for data operations?

To view and work with data operations, you must have the correct versions of the tools or SDKs:

TOOL	VERSION
Azure PowerShell	1.1.0 or later
Azure CLI	2.0.30 or later
Azure for .NET	2.8.0-preview or later
Azure SDK for Go	15.0.0 or later
Azure for Java	1.9.0 or later
Azure for Python	0.40.0 or later
Azure SDK for Ruby	0.17.1 or later

To view and use the data operations in the REST API, you must set the **api-version** parameter to the following version or later:

- 2018-07-01

## Actions

The Actions permission specifies the management operations that the role allows to be performed. It is a collection

of operation strings that identify securable operations of Azure resource providers. Here are some examples of management operations that can be used in `Actions`.

OPERATION STRING	DESCRIPTION
<code>*/read</code>	Grants access to read operations for all resource types of all Azure resource providers.
<code>Microsoft.Compute/*</code>	Grants access to all operations for all resource types in the Microsoft.Compute resource provider.
<code>Microsoft.Network/*/read</code>	Grants access to read operations for all resource types in the Microsoft.Network resource provider.
<code>Microsoft.Compute/virtualMachines/*</code>	Grants access to all operations of virtual machines and its child resource types.
<code>microsoft.web/sites/restart/Action</code>	Grants access to restart a web app.

## NotActions

The `NotActions` permission specifies the management operations that are excluded from the allowed `Actions`. Use the `NotActions` permission if the set of operations that you want to allow is more easily defined by excluding restricted operations. The access granted by a role (effective permissions) is computed by subtracting the `NotActions` operations from the `Actions` operations.

### NOTE

If a user is assigned a role that excludes an operation in `NotActions`, and is assigned a second role that grants access to the same operation, the user is allowed to perform that operation. `NotActions` is not a deny rule – it is simply a convenient way to create a set of allowed operations when specific operations need to be excluded.

## DataActions

The `DataActions` permission specifies the data operations that the role allows to be performed to your data within that object. For example, if a user has read blob data access to a storage account, then they can read the blobs within that storage account. Here are some examples of data operations that can be used in `DataActions`.

OPERATION STRING	DESCRIPTION
<code>Microsoft.Storage/storageAccounts/blobServices/containers/blobs/read</code>	Returns a blob or a list of blobs.
<code>Microsoft.Storage/storageAccounts/blobServices/containers/blobs/write</code>	Returns the result of writing a blob.
<code>Microsoft.Storage/storageAccounts/queueServices/queues/messages/read</code>	Returns a message.
<code>Microsoft.Storage/storageAccounts/queueServices/queues/messages/write</code>	Returns a message or the result of writing or deleting a message.

## NotDataActions

The `NotDataActions` permission specifies the data operations that are excluded from the allowed `DataActions`. The access granted by a role (effective permissions) is computed by subtracting the `NotDataActions` operations from the

`DataActions` operations. Each resource provider provides its respective set of APIs to fulfill data operations.

#### NOTE

If a user is assigned a role that excludes a data operation in `NotDataActions`, and is assigned a second role that grants access to the same data operation, the user is allowed to perform that data operation. `NotDataActions` is not a deny rule – it is simply a convenient way to create a set of allowed data operations when specific data operations need to be excluded.

## AssignableScopes

The `AssignableScopes` property specifies the scopes (management groups, subscriptions, or resource groups) that have this role definition available. You can make the role available for assignment in only the management groups, subscriptions, or resource groups that require it. You must use at least one management group, subscription, or resource group.

Built-in roles have `AssignableScopes` set to the root scope ( `"/"` ). The root scope indicates that the role is available for assignment in all scopes. Examples of valid assignable scopes include:

ROLE IS AVAILABLE FOR ASSIGNMENT	EXAMPLE
One subscription	<code>"/subscriptions/{subscriptionId1}"</code>
Two subscriptions	<code>"/subscriptions/{subscriptionId1}",</code> <code>"/subscriptions/{subscriptionId2}"</code>
Network resource group	<code>"/subscriptions/{subscriptionId1}/resourceGroups/Network"</code>
One management group	<code>"/providers/Microsoft.Management/managementGroups/{groupId1}"</code>
Management group and a subscription	<code>"/providers/Microsoft.Management/managementGroups/{groupId1}",</code> <code>"/subscriptions/{subscriptionId1}"</code>
All scopes (applies only to built-in roles)	<code>"/"</code>

For information about `AssignableScopes` for custom roles, see [Azure custom roles](#).

## Next steps

- [Azure built-in roles](#)
- [Azure custom roles](#)
- [Azure Resource Manager resource provider operations](#)

# List Azure role definitions

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A role definition is a collection of permissions that can be performed, such as read, write, and delete. It's typically just called a role. [Azure role-based access control \(Azure RBAC\)](#) has over 120 [built-in roles](#) or you can create your own custom roles. This article describes how to list the built-in and custom roles that you can use to grant access to Azure resources.

To see the list of administrator roles for Azure Active Directory, see [Administrator role permissions in Azure Active Directory](#).

## Azure portal

### List all roles

Follow these steps to list all roles in the Azure portal.

1. In the Azure portal, click **All services** and then select any scope. For example, you can select **Management groups**, **Subscriptions**, **Resource groups**, or a resource.
2. Click the specific resource.
3. Click **Access control (IAM)**.
4. Click the **Roles** tab to see a list of all the built-in and custom roles.

You can see the number of users and groups that are assigned to each role at the current scope.

The screenshot shows the 'Roles' tab selected in the Azure portal. The table lists various built-in roles with their names, types, and user/group counts. A red box highlights the 'Roles' tab in the top navigation bar.

NAME	TYPE	USERS	GROUPS
Owner	BuiltInRole	0	1
Contributor	BuiltInRole	0	0
Reader	BuiltInRole	1	0
AcrlImagePuller	BuiltInRole	0	0
AcrlImagePusher	BuiltInRole	0	0
AcrlImageSigner	BuiltInRole	0	0
AcrQuarantineReader	BuiltInRole	0	0
AcrQuarantineWriter	BuiltInRole	0	0
API Management Service Contributor	BuiltInRole	0	0
API Management Service Operator Role	BuiltInRole	0	0
API Management Service Reader Role	BuiltInRole	0	0

# Azure PowerShell

## List all roles

To list all roles in Azure PowerShell, use [Get-AzRoleDefinition](#).

```
Get-AzRoleDefinition | FT Name, Description
```

AcrImageSigner	acr image signer
AcrQuarantineReader	acr quarantine data reader
AcrQuarantineWriter	acr quarantine data writer
API Management Service Contributor	Can manage service and the APIs
API Management Service Operator Role	Can manage service but not the APIs
API Management Service Reader Role	Read-only access to service and APIs
Application Insights Component Contributor	Can manage Application Insights components
Application Insights Snapshot Debugger	Gives user permission to use Application Insights Snapshot
Debugge...	
Automation Job Operator	Create and Manage Jobs using Automation Runbooks.
Automation Operator	Automation Operators are able to start, stop, suspend, and
resume ...	
...	

## List a role definition

To list the details of a specific role, use [Get-AzRoleDefinition](#).

```
Get-AzRoleDefinition <role_name>
```

```
PS C:\> Get-AzRoleDefinition "Contributor"

Name      : Contributor
Id        : b24988ac-6180-42a0-ab88-20f7382dd24c
IsCustom   : False
Description: Lets you manage everything except access to resources.
Actions    : {*}
NotActions : {Microsoft.Authorization/*/Delete, Microsoft.Authorization/*/Write,
             Microsoft.Authorization/elevateAccess/Action}
DataActions: {}
NotDataActions: {}
AssignableScopes: {/}
```

## List a role definition in JSON format

To list a role in JSON format, use [Get-AzRoleDefinition](#).

```
Get-AzRoleDefinition <role_name> | ConvertTo-Json
```

```
PS C:\> Get-AzRoleDefinition "Contributor" | ConvertTo-Json

{
  "Name": "Contributor",
  "Id": "b24988ac-6180-42a0-ab88-20f7382dd24c",
  "IsCustom": false,
  "Description": "Lets you manage everything except access to resources.",
  "Actions": [
    "*"
  ],
  "NotActions": [
    "Microsoft.Authorization/*/Delete",
    "Microsoft.Authorization/*/Write",
    "Microsoft.Authorization/elevateAccess/Action",
    "Microsoft.Blueprint/blueprintAssignments/write",
    "Microsoft.Blueprint/blueprintAssignments/delete"
  ],
  "DataActions": [],
  "NotDataActions": [],
  "AssignableScopes": [
    "/"
  ]
}
```

## List permissions of a role definition

To list the permissions for a specific role, use [Get-AzRoleDefinition](#).

```
Get-AzRoleDefinition <role_name> | FL Actions, NotActions
```

```
PS C:\> Get-AzRoleDefinition "Contributor" | FL Actions, NotActions

Actions      : {*}
NotActions   : {Microsoft.Authorization/*/Delete, Microsoft.Authorization/*/Write,
               Microsoft.Authorization/elevateAccess/Action,
               Microsoft.Blueprint/blueprintAssignments/write...}
```

```
(Get-AzRoleDefinition <role_name>).Actions
```

```
PS C:\> (Get-AzRoleDefinition "Virtual Machine Contributor").Actions

Microsoft.Authorization/*/read
Microsoft.Compute/availabilitySets/*
Microsoft.Compute/locations/*
Microsoft.Compute/virtualMachines/*
Microsoft.Compute/virtualMachineScaleSets/*
Microsoft.DevTestLab/schedules/*
Microsoft.Insights/alertRules/*
Microsoft.Network/applicationGateways/backendAddressPools/join/action
Microsoft.Network/loadBalancers/backendAddressPools/join/action
...
```

# Azure CLI

## List all roles

To list all roles in Azure CLI, use [az role definition list](#).

```
az role definition list
```

The following example lists the name and description of all available role definitions:

```
az role definition list --output json --query '[].{roleName:roleName, description:description}'
```

```
[  
 {  
   "description": "Can manage service and the APIs",  
   "roleName": "API Management Service Contributor"  
 },  
 {  
   "description": "Can manage service but not the APIs",  
   "roleName": "API Management Service Operator Role"  
 },  
 {  
   "description": "Read-only access to service and APIs",  
   "roleName": "API Management Service Reader Role"  
 },  
 ...  
 ]
```

The following example lists all of the built-in roles.

```
az role definition list --custom-role-only false --output json --query '[].{roleName:roleName, description:description, roleType:roleType}'
```

```
[  
 {  
   "description": "Can manage service and the APIs",  
   "roleName": "API Management Service Contributor",  
   "roleType": "BuiltInRole"  
 },  
 {  
   "description": "Can manage service but not the APIs",  
   "roleName": "API Management Service Operator Role",  
   "roleType": "BuiltInRole"  
 },  
 {  
   "description": "Read-only access to service and APIs",  
   "roleName": "API Management Service Reader Role",  
   "roleType": "BuiltInRole"  
 },  
 ...  
 ]
```

## List a role definition

To list details of a role, use [az role definition list](#).

```
az role definition list --name {roleName}
```

The following example lists the *Contributor* role definition:

```
az role definition list --name "Contributor"
```

```
[  
  {  
    "assignableScopes": [  
      "/"  
    ],  
    "description": "Lets you manage everything except access to resources.",  
    "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/b24988ac-6180-  
42a0-ab88-20f7382dd24c",  
    "name": "b24988ac-6180-42a0-ab88-20f7382dd24c",  
    "permissions": [  
      {  
        "actions": [  
          "*"  
        ],  
        "dataActions": [],  
        "notActions": [  
          "Microsoft.Authorization/*/Delete",  
          "Microsoft.Authorization/*/Write",  
          "Microsoft.Authorization/elevateAccess/Action",  
          "Microsoft.Blueprint/blueprintAssignments/write",  
          "Microsoft.Blueprint/blueprintAssignments/delete"  
        ],  
        "notDataActions": []  
      }  
    ],  
    "roleName": "Contributor",  
    "roleType": "BuiltInRole",  
    "type": "Microsoft.Authorization/roleDefinitions"  
  }  
]
```

## List permissions of a role definition

The following example lists just the *actions* and *notActions* of the *Contributor* role.

```
az role definition list --name "Contributor" --output json --query '[].{actions:permissions[0].actions,  
notActions:permissions[0].notActions}'
```

```
[  
  {  
    "actions": [  
      "*"  
    ],  
    "notActions": [  
      "Microsoft.Authorization/*/Delete",  
      "Microsoft.Authorization/*/Write",  
      "Microsoft.Authorization/elevateAccess/Action",  
      "Microsoft.Blueprint/blueprintAssignments/write",  
      "Microsoft.Blueprint/blueprintAssignments/delete"  
    ]  
  }  
]
```

The following example lists just the actions of the *Virtual Machine Contributor* role.

```
az role definition list --name "Virtual Machine Contributor" --output json --query '[].permissions[0].actions'
```

```

[
  [
    "Microsoft.Authorization/*/read",
    "Microsoft.Compute/availabilitySets/*",
    "Microsoft.Compute/locations/*",
    "Microsoft.Compute/virtualMachines/*",
    "Microsoft.Compute/virtualMachineScaleSets/*",
    "Microsoft.Compute/disks/write",
    "Microsoft.Compute/disks/read",
    "Microsoft.Compute/disks/delete",
    "Microsoft.DevTestLab/schedules/*",
    "Microsoft.Insights/alertRules/*",
    "Microsoft.Network/applicationGateways/backendAddressPools/join/action",
    "Microsoft.Network/loadBalancers/backendAddressPools/join/action",

    ...
    "Microsoft.Storage/storageAccounts/listKeys/action",
    "Microsoft.Storage/storageAccounts/read",
    "Microsoft.Support/*"
  ]
]

```

## REST API

### List role definitions

To list role definitions, use the [Role Definitions - List](#) REST API. To refine your results, you specify a scope and an optional filter.

1. Start with the following request:

```
GET https://management.azure.com/{scope}/providers/Microsoft.Authorization/roleDefinitions?$filter={$filter}&api-version=2015-07-01
```

2. Within the URI, replace *{scope}* with the scope for which you want to list the role definitions.

SCOPE	TYPE
providers/Microsoft.Management/managementGroups/{group1}	Management group
subscriptions/{subscriptionId1}	Subscription
subscriptions/{subscriptionId1}/resourceGroups/myresourcegroup1	Resource group
subscriptions/{subscriptionId1}/resourceGroups/myresourcegroup1/providers/Microsoft.Web/sites/mysite1	Resource provider

In the previous example, `microsoft.web` is a resource provider that refers to an App Service instance. Similarly, you can use any other resource providers and specify the scope. For more information, see [Azure Resource providers and types](#) and supported [Azure Resource Manager resource provider operations](#).

3. Replace *{filter}* with the condition that you want to apply to filter the role definition list.

FILTER	DESCRIPTION
<code>\$filter=atScopeAndBelow()</code>	Lists role definitions for the specified scope and any subscopes.

FILTER	DESCRIPTION
<code>\$filter=type+eq+'{type}'</code>	Lists role definitions of the specified type. Type of role can be <code>CustomRole</code> or <code>BuiltInRole</code> .

The following request lists custom role definitions at subscription scope:

```
GET
https://management.azure.com/subscriptions/{subscriptionId1}/providers/Microsoft.Authorization/roleDefinitions?
api-version=2015-07-01&$filter=type+eq+'CustomRole'
```

The following shows an example of the output:

```
{
  "value": [
    {
      "properties": {
        "roleName": "Billing Reader Plus",
        "type": "CustomRole",
        "description": "Read billing data and download invoices",
        "assignableScopes": [
          "/subscriptions/{subscriptionId1}"
        ],
        "permissions": [
          {
            "actions": [
              "Microsoft.Authorization/*/read",
              "Microsoft.Billing/*/read",
              "Microsoft.Commerce/*/read",
              "Microsoft.Consumption/*/read",
              "Microsoft.Management/managementGroups/read",
              "Microsoft.CostManagement/*/read",
              "Microsoft.Billing/invoices/download/action",
              "Microsoft.CostManagement/exports/*"
            ],
            "notActions": [
              "Microsoft.CostManagement/exports/delete"
            ]
          }
        ],
        "createdOn": "2020-02-21T04:49:13.767945Z",
        "updatedOn": "2020-02-21T04:49:13.767945Z",
        "createdBy": "{ createdByObjectId1 }",
        "updatedBy": "{ updatedByObjectId1 }"
      },
      "id": "/subscriptions/{subscriptionId1}/providers/Microsoft.Authorization/roleDefinitions/{roleDefinitionId1}",
      "type": "Microsoft.Authorization/roleDefinitions",
      "name": "{roleDefinitionId1}"
    }
  ]
}
```

## List a role definition

To list the details of a specific role, use the [Role Definitions - Get](#) or [Role Definitions - Get By Id](#) REST API.

1. Start with the following request:

```
GET  
https://management.azure.com/{scope}/providers/Microsoft.Authorization/roleDefinitions/{roleDefinitionId}  
?api-version=2015-07-01
```

For a directory-level role definition, you can use this request:

```
GET https://management.azure.com/providers/Microsoft.Authorization/roleDefinitions/{roleDefinitionId}?  
api-version=2015-07-01
```

2. Within the URI, replace *{scope}* with the scope for which you want to list the role definition.

SCOPE	TYPE
providers/Microsoft.Management/managementGroups/{group1}	Management group
subscriptions/{subscriptionId1}	Subscription
subscriptions/{subscriptionId1}/resourceGroups/myresourcegroup1	Resource group
subscriptions/{subscriptionId1}/resourceGroups/myresourcegroup1/providers/Microsoft.Web/sites/mysite1	Resource

3. Replace *{roleDefinitionId}* with the role definition identifier.

The following request lists the [Reader](#) role definition:

```
GET https://management.azure.com/providers/Microsoft.Authorization/roleDefinitions/acdd72a7-3385-48ef-bd42-f606fba81ae7?api-version=2015-07-01
```

The following shows an example of the output:

```
{  
  "properties": {  
    "roleName": "Reader",  
    "type": "BuiltInRole",  
    "description": "Lets you view everything, but not make any changes.",  
    "assignableScopes": [  
      "/"  
    ],  
    "permissions": [  
      {  
        "actions": [  
          "*/*  
        ],  
        "notActions": []  
      }  
    ],  
    "createdOn": "2015-02-02T21:55:09.8806423Z",  
    "updatedOn": "2019-02-05T21:24:35.7424745Z",  
    "createdBy": null,  
    "updatedBy": null  
  },  
  "id": "/providers/Microsoft.Authorization/roleDefinitions/acdd72a7-3385-48ef-bd42-f606fba81ae7",  
  "type": "Microsoft.Authorization/roleDefinitions",  
  "name": "acdd72a7-3385-48ef-bd42-f606fba81ae7"  
}
```

## Next steps

- [Azure built-in roles](#)
- [Azure custom roles](#)
- [List Azure role assignments using the Azure portal](#)
- [Add or remove Azure role assignments using the Azure portal](#)

# List Azure role assignments using the Azure portal

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Azure role-based access control (RBAC) is the authorization system you use to manage access to Azure resources.

To determine what resources users, groups, service principals, or managed identities have access to, you list their role assignments. This article describes how to list role assignments using the Azure portal.

## NOTE

If your organization has outsourced management functions to a service provider who uses [Azure delegated resource management](#), role assignments authorized by that service provider won't be shown here.

## List role assignments for a user or group

The easiest way to see the roles assigned to a user or group in a subscription is to use the **Azure role assignments** pane.

1. In the Azure portal, select **All services** from the Azure portal menu.
2. Select **Azure Active Directory** and then select **Users or Groups**.
3. Click the user or group you want list the role assignments for.
4. Click **Azure role assignments**.

You see a list of roles assigned to the selected user or group at various scopes such as management group, subscription, resource group, or resource. This list includes all role assignments you have permission to read.

The screenshot shows the Azure portal interface. The left sidebar is the navigation menu with options like 'Create a resource', 'Home', 'Dashboard', 'All services', 'FAVORITES' (which is expanded to show 'All resources', 'Resource groups', 'App Services', etc.), and 'Azure Active Directory'. The main content area is titled 'Alain Charon | Azure role assignments' and shows a list of roles assigned to this user. The list includes:

Role	Resource Name	Resource Type	Assigned To
Storage Blob Data Reader	Pay-As-You-Go	Subscription	Alain Charon
Backup Operator	sales-projectforecast	Resource Group	Alain Charon
Virtual Machine Contributor	pharma-sales	Resource Group	Alain Charon
Storage Account Contributor	storagetest0122	Storage Accounts	Alain Charon
Virtual Machine Contributor	rbac-resource-group	Resource Group	Alain Charon
Contributor	pharma-sales	Resource Group	Marketing

5. To change the subscription, click the **Subscriptions** list.

## List owners of a subscription

Users that have been assigned the **Owner** role for a subscription can manage everything in the subscription. Follow these steps to list the owners of a subscription.

1. In the Azure portal, click **All services** and then **Subscriptions**.
2. Click the subscription you want to list the owners of.
3. Click **Access control (IAM)**.
4. Click the **Role assignments** tab to view all the role assignments for this subscription.
5. Scroll to the **Owners** section to see all the users that have been assigned the Owner role for this subscription.

The screenshot shows the Azure portal's Access control (IAM) interface for a specific subscription. The left sidebar includes links for Overview, Activity log, Access control (IAM), Cost Management, Billing, Settings, and Policies. The main area has tabs for Check access, Role assignments (which is selected), Deny assignments, Classic administrators, and Roles. A search bar and filter options (Type: All, Role: 5 selected, Scope: All scopes) are at the top. Below, it says "Manage access to Azure resources for users, groups, service principals and managed identities at this scope by creating role assignments." Under "Role assignments", there are sections for "Billing Reader" and "Owner". The "Owner" section is highlighted with a red box and lists four entries:

Name	Type	Role	Scope
A2	User	Owner	This resource
AD	User	Owner	This resource
adminapp1	App	Owner	This resource
SA	Group	Owner	This resource

## List role assignments at a scope

1. In the Azure portal, click **All services** and then select the scope. For example, you can select **Management groups**, **Subscriptions**, **Resource groups**, or a resource.
2. Click the specific resource.
3. Click **Access control (IAM)**.
4. Click the **Role assignments** tab to view all the role assignments at this scope.

The screenshot shows the Azure portal interface for managing access control (IAM). The left sidebar includes links for Overview, Activity log, Access control (IAM), Diagnose and solve problems, Security, Events, Cost Management, Cost analysis, Budgets, Advisor recommendations, Billing, External services, Payment methods, Partner information, Settings, Programmatic deployment, Resource groups, Resources, and Usage + quotas. The main content area is titled "Free Trial - Access control (IAM)" and shows the "Role assignments" tab selected. A summary bar indicates 70 role assignments out of a limit of 2000. Below this are search and filter controls for Name, Type (All selected), Scope (All scopes selected), and Role (9 selected). A table lists 23 items (20 Users, 1 Groups, 2 Service Principals) with columns for NAME, TYPE, ROLE, and SCOPE. The table entries are:

	NAME	TYPE	ROLE	SCOPE
	Ashish	User	Billing Contributor	This resource
	admin	User	CheckAccess Test Role	Root (Inherited)
	Kan	User	Contributor	This resource

On the Role assignments tab, you can see who has access at this scope. Notice that some roles are scoped to **This resource** while others are (**Inherited**) from another scope. Access is either assigned specifically to this resource or inherited from an assignment to the parent scope.

## List role assignments for a user at a scope

To list access for a user, group, service principal, or managed identity, you list their role assignments. Follow these steps to list the role assignments for a single user, group, service principal, or managed identity at a particular scope.

1. In the Azure portal, click **All services** and then select the scope. For example, you can select **Management groups**, **Subscriptions**, **Resource groups**, or a resource.
2. Click the specific resource.
3. Click **Access control (IAM)**.
4. Click the **Check access** tab.

Dashboard > Subscriptions > Free Trial - Access control (IAM)

### Free Trial - Access control (IAM)

Subscription

Search (Ctrl+ /) Add Edit columns Refresh Remove

Check access Role assignments Deny assignments Classic administrators Roles

**Check access**

Review the level of access a user, group, service principal, or managed identity has to this resource. [Learn more](#)

Find [?](#) Azure AD user, group, or service principal

Search by name or email address

**Add a role assignment**

Grant access to resources at this scope by assigning a role to a user, group, service principal, or managed identity.

Add Learn more

**View role assignments**

View the users, groups, service principals and managed identities that have role assignments granting them access at this

View Learn more

**View deny assignments**

View the users, groups, service principals and managed identities that have been denied access to specific actions at this

View Learn more

5. In the **Find** list, select the type of security principal you want to check access for.
6. In the search box, enter a string to search the directory for display names, email addresses, or object identifiers.

Add Edit columns Refresh Remove

Check access **Role assignments** Deny assignments C

**Check access**

Review the level of access a user, group, service principal, or managed identity has to this resource. [Learn more](#)

Find [?](#) Azure AD user, group, or service principal

admin

AD admin

7. Click the security principal to open the **assignments** pane.

The screenshot shows the Azure portal interface for managing role assignments. On the left, there's a navigation menu with items like Overview, Access control (IAM), Diagnose and solve problems, Security, Events, Cost Management, Cost analysis, Billing, and External services. The 'Access control (IAM)' item is currently selected. The main pane is titled 'admin - assignments' and shows a search bar at the top. Below it, there's a table titled 'Role assignments (2)'. The table has columns for ROLE, DESCRIPTION, SCOPE, and GROUP ASSIGNMENT. It lists two entries: 'Owner' (description: 'Lets you manage everything, incl...'), which is assigned to 'Management group (Inherited)' and has a scope of '--'; and 'Reader' (description: 'Lets you view everything, but not ...'), also assigned to 'Management group (Inherited)' and with a scope of '--'. There are also sections for 'Deny assignments (0)' and 'Classic administrators (0)'.

On this pane, you can see the roles assigned to the selected security principal and the scope. If there are any deny assignments at this scope or inherited to this scope, they will be listed.

## List role assignments for a managed identity

You can list role assignments for system-assigned and user-assigned managed identities at a particular scope by using the **Access control (IAM)** blade as described earlier. This section describes how to list role assignments for just the managed identity.

### System-assigned managed identity

1. In the Azure portal, open a system-assigned managed identity.
2. In the left menu, click **Identity**.

The screenshot shows the Azure portal interface for managing a system-assigned managed identity named 'managedidentityvm'. The left sidebar has a 'Virtual machines' category with 'Identity' selected. The main pane is titled 'managedidentityvm | Identity'. It shows a 'System assigned' tab (which is selected) and a 'User assigned' tab. A descriptive text explains that a system assigned managed identity enables Azure resources to authenticate to cloud services without storing credentials in code. It mentions that once enabled, all necessary permissions can be granted via Azure role-based-access-control. The lifecycle of this type of managed identity is tied to the lifecycle of this resource. Additionally, each resource (e.g. Virtual Machine) can only have one system assigned managed identity. There are buttons for 'Save', 'Discard', 'Refresh', and 'Got feedback?'. Below these are sections for 'Status' (set to 'On') and 'Object ID'. A 'Permissions' section contains a button labeled 'Azure role assignments'. A note at the bottom states: 'This resource is registered with Azure Active Directory. You can control its access to services like Azure Resource Manager, Azure Key Vault, etc. Learn more'.

3. Under **Permissions**, click **Azure role assignments**.

You see a list of roles assigned to the selected system-assigned managed identity at various scopes such as management group, subscription, resource group, or resource. This list includes all role assignments you have permission to read.

If this identity has role assignments that you don't have permission to read, they won't be shown in the list. [Learn more](#)

Role	Resource Name	Resource Type	Assigned To
Reader	managedidentityvm	Virtual Machines	managedidentityvm
Monitoring Reader	storagetest0122	Storage Accounts	managedidentityvm

4. To change the subscription, click the **Subscription** list.

### User-assigned managed identity

1. In the Azure portal, open a user-assigned managed identity.
2. Click **Azure role assignments**.

You see a list of roles assigned to the selected user-assigned managed identity at various scopes such as management group, subscription, resource group, or resource. This list includes all role assignments you have permission to read.

If this identity has role assignments that you don't have permission to read, they won't be shown in the list. [Learn more](#)

Role	Resource Name	Resource Type	Assigned To
Billing Reader	Pay-As-You-Go	Subscription	user-assigned-identity

3. To change the subscription, click the **Subscription** list.

## List number of role assignments

You can have up to 2000 role assignments in each subscription. This limit includes role assignments at the subscription, resource group, and resource scopes. To help you keep track of this limit, the **Role assignments** tab includes a chart that lists the number of role assignments for the current subscription.

Add Edit columns Refresh Remove Got feedback?

Check access Role assignments Deny assignments Classic administrators Roles

Manage access to Azure resources for users, groups, service principals and managed identities at this scope by creating role assignments. [Learn more](#)

**Number of role assignments for this subscription** 70 / 2000

Name  Type  Role   
Search by name or email All 9 selected  
Scope  Group by   
All scopes Role

If you are getting close to the maximum number and you try to add more role assignments, you'll see a warning in the **Add role assignment** pane. For ways that you can reduce the number of role assignments, see [Troubleshoot Azure RBAC](#).

**Add role assignment**

**⚠️ 2 role assignments remaining for this subscription.**

Role  Assign access to   
Select a role Azure AD user, group, or service principal

## Download role assignments (Preview)

You can download role assignments at a scope in CSV or JSON formats. This can be helpful if you need to inspect the list in a spreadsheet or take an inventory when migrating a subscription.

### IMPORTANT

Download role assignments is currently in public preview. This preview version is provided without a service level agreement, and it's not recommended for production workloads. Certain features might not be supported or might have constrained capabilities. For more information, see [Supplemental Terms of Use for Microsoft Azure Previews](#).

When you download role assignments, you should keep in mind the following criteria:

- If you don't have permissions to read the directory, such as the Directory Readers role, the DisplayName, SignInName, and ObjectType columns will be blank.
- Role assignments whose security principal has been deleted are not included.
- Access granted to classic administrators are not included.

Follow these steps to download role assignments at a scope.

1. In the Azure portal, click **All services** and then select the scope where you want to download the role assignments. For example, you can select **Management groups**, **Subscriptions**, **Resource groups**, or a resource.
2. Click the specific resource.
3. Click **Access control (IAM)**.
4. Click **Download role assignments (preview)** to open the Download role assignments pane.

The screenshot shows the Azure Pay-As-You-Go | Access control (IAM) blade. On the left, there's a navigation menu with items like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Security, Events, Cost Management (Cost analysis, Budgets, Advisor recommendations), and Billing (Invoices). The main area is titled 'Check access' and includes a 'Find' dropdown set to 'Azure AD user, group, or service principal' and a search bar. At the top right, there's a 'Download role assignments (preview)' button, which is highlighted with a red box.

5. Use the check boxes to select the role assignments you want to include in the downloaded file.
  - **Inherited** - Include inherited role assignments for the current scope.
  - **At current scope** - Include role assignments for the current scope.
  - **Children** - Include role assignments at levels below the current scope. This check box is disabled for management group scope.
6. Select the file format, which can be comma-separated values (CSV) or JavaScript Object Notation (JSON).
7. Specify the file name.
8. Click **Start** to start the download.

The following show examples of the output for each file format.

The screenshot shows a Microsoft Excel spreadsheet titled 'role-assignments-2020-02-26.csv'. The data is presented in a table with columns labeled A through H. The columns represent the following fields:

	RoleAssignmentScope	DisplayName	SignInName	RoleDefinitionName	RoleDefinitionId	ObjectId	ObjectType
1	aaaaaaaa-aaaa-/subscriptions/111	Admin 2	admin2@contoso.com	Owner	/subscriptions/111 22222222-User		User
2	aaaaaaaa-aaa-/subscriptions/111	Admin	admin@contoso.com	Owner	/subscriptions/111 22222222-User		User
3	aaaaaaaa-aaa-/subscriptions/111	adminapp1		Owner	/subscriptions/111 22222222-ServicePrincipal		ServicePrincipal
4	aaaaaaaa-aaa-/subscriptions/111	Alain Charon	alain@contoso.com	Storage Blob Data Reader	/subscriptions/111 22222222-User		User
5	aaaaaaaa-aaa-/subscriptions/111	Ann Mack	annm@contoso.com	Reader	/subscriptions/111 22222222-User		User
6	aaaaaaaa-aaa-/subscriptions/111	App2		Reader	/subscriptions/111 22222222-ServicePrincipal		ServicePrincipal
7	aaaaaaaa-aaa-/subscriptions/111	azure-user	azure-user@contoso.com	Reader	/subscriptions/111 22222222-User		User
8	aaaaaaaa-aaa-/subscriptions/111	MS-PIM		User Access Administrator	/subscriptions/111 22222222-ServicePrincipal		ServicePrincipal
9	aaaaaaaa-aaa-/subscriptions/111	Sales Admins		Billing Reader	/subscriptions/111 22222222-Group		Group
10	aaaaaaaa-aaa-/subscriptions/111	Subscription Admins		Owner	/subscriptions/111 22222222-Group		Group
11	aaaaaaaa-aaa-/subscriptions/111	user-assigned-ide		Billing Reader	/subscriptions/111 22222222-ServicePrincipal		ServicePrincipal
12							
13							

```
1  {
2      "RoleAssignmentId": "aaaaaaaa-aaaa-aaaa-aaa-aaaaaaaaaa",
3      "Scope": "/subscriptions/11111111-1111-1111-1111-111111111111",
4      "DisplayName": "Admin 2",
5      "SignInName": "admin2@contoso.com",
6      "RoleDefinitionName": "Owner",
7      "RoleDefinitionId": "/subscriptions/11111111-1111-1111-1111-111111111111",
8      "ObjectId": "aaaaaaaa-1111-1111-111111111111",
9      "ObjectType": "User"
10 },
11 },
12 {
13     "RoleAssignmentId": "bbbbbbbb-bbbb-bbbb-bbbb-bbbbbbbbbb",
14     "Scope": "/subscriptions/11111111-1111-1111-1111-111111111111",
15     "DisplayName": "Admin",
16     "SignInName": "admin@contoso.com",
17     "RoleDefinitionName": "Owner",
18     "RoleDefinitionId": "/subscriptions/11111111-1111-1111-1111-111111111111",
19     "ObjectId": "bbbbbbbb-2222-2222-2222-222222222222",
20     "ObjectType": "User"
21 },
```

## Next steps

- Add or remove Azure role assignments using the Azure portal
- Troubleshoot Azure RBAC

# List Azure role assignments using Azure PowerShell

7/21/2020 • 2 minutes to read • [Edit Online](#)

Azure role-based access control (RBAC) is the authorization system you use to manage access to Azure resources.

To determine what resources users, groups, service principals, or managed identities have access to, you list their role assignments. This article describes how to list role assignments using Azure PowerShell.

## NOTE

This article has been updated to use the new Azure PowerShell Az module. You can still use the AzureRM module, which will continue to receive bug fixes until at least December 2020. To learn more about the new Az module and AzureRM compatibility, see [Introducing the new Azure PowerShell Az module](#). For Az module installation instructions, see [Install Azure PowerShell](#).

## NOTE

If your organization has outsourced management functions to a service provider who uses [Azure delegated resource management](#), role assignments authorized by that service provider won't be shown here.

## Prerequisites

- [PowerShell in Azure Cloud Shell](#) or [Azure PowerShell](#)

## List role assignments for the current subscription

The easiest way to get a list of all the role assignments in the current subscription (including inherited role assignments from root and management groups) is to use [Get-AzRoleAssignment](#) without any parameters.

```
Get-AzRoleAssignment
```

```
PS C:\> Get-AzRoleAssignment

RoleAssignmentId    : /subscriptions/00000000-0000-0000-0000-
000000000000/providers/Microsoft.Authorization/roleAssignments/11111111-1111-1111-1111-111111111111
Scope              : /subscriptions/00000000-0000-0000-0000-000000000000
DisplayName        : Alain
SignInName         : alain@example.com
RoleDefinitionName : Storage Blob Data Reader
RoleDefinitionId   : 2a2b9908-6ea1-4ae2-8e65-a410df84e7d1
ObjectId           : 44444444-4444-4444-4444-444444444444
ObjectType         : User
CanDelegate        : False

RoleAssignmentId    : /subscriptions/00000000-0000-0000-0000-000000000000/resourceGroups/pharma-
sales/providers/Microsoft.Authorization/roleAssignments/33333333-3333-3333-3333-333333333333
Scope              : /subscriptions/00000000-0000-0000-0000-000000000000/resourceGroups/pharma-sales
DisplayName        : Marketing
SignInName         :
RoleDefinitionName : Contributor
RoleDefinitionId   : b24988ac-6180-42a0-ab88-20f7382dd24c
ObjectId           : 22222222-2222-2222-2222-222222222222
ObjectType         : Group
CanDelegate        : False

...
```

## List role assignments for a subscription

To list all role assignments at a subscription scope, use [Get-AzRoleAssignment](#). To get the subscription ID, you can find it on the **Subscriptions** blade in the Azure portal or you can use [Get-AzSubscription](#).

```
Get-AzRoleAssignment -Scope /subscriptions/<subscription_id>
```

```
PS C:\> Get-AzRoleAssignment -Scope /subscriptions/00000000-0000-0000-0000-000000000000
```

## List role assignments for a user

To list all the roles that are assigned to a specified user, use [Get-AzRoleAssignment](#).

```
Get-AzRoleAssignment -SignInName <email_or_userprincipalname>
```

```
PS C:\> Get-AzRoleAssignment -SignInName isabella@example.com | FL DisplayName, RoleDefinitionName, Scope
```

```
DisplayName        : Isabella Simonsen
RoleDefinitionName : BizTalk Contributor
Scope              : /subscriptions/00000000-0000-0000-0000-000000000000/resourceGroups/pharma-sales
```

To list all the roles that are assigned to a specified user and the roles that are assigned to the groups to which the user belongs, use [Get-AzRoleAssignment](#).

```
Get-AzRoleAssignment -SignInName <email_or_userprincipalname> -ExpandPrincipalGroups
```

```
Get-AzRoleAssignment -SignInName isabella@example.com -ExpandPrincipalGroups | FL DisplayName, RoleDefinitionName, Scope
```

## List role assignments for a resource group

To list all role assignments at a resource group scope, use [Get-AzRoleAssignment](#).

```
Get-AzRoleAssignment -ResourceGroupName <resource_group_name>
```

```
PS C:\> Get-AzRoleAssignment -ResourceGroupName pharma-sales | FL DisplayName, RoleDefinitionName, Scope
```

```
DisplayName      : Alain Charon
RoleDefinitionName : Backup Operator
Scope           : /subscriptions/00000000-0000-0000-0000-000000000000/resourceGroups/pharma-sales
```

```
DisplayName      : Isabella Simonsen
RoleDefinitionName : BizTalk Contributor
Scope           : /subscriptions/00000000-0000-0000-0000-000000000000/resourceGroups/pharma-sales
```

```
DisplayName      : Alain Charon
RoleDefinitionName : Virtual Machine Contributor
Scope           : /subscriptions/00000000-0000-0000-0000-000000000000/resourceGroups/pharma-sales
```

## List role assignments for a management group

To list all role assignments at a management group scope, use [Get-AzRoleAssignment](#). To get the management group ID, you can find it on the **Management groups** blade in the Azure portal or you can use [Get-AzManagementGroup](#).

```
Get-AzRoleAssignment -Scope /providers/Microsoft.Management/managementGroups/<group_id>
```

```
PS C:\> Get-AzRoleAssignment -Scope /providers/Microsoft.Management/managementGroups/marketing-group
```

## List role assignments for classic service administrator and co-administrators

To list role assignments for the classic subscription administrator and co-administrators, use [Get-AzRoleAssignment](#).

```
Get-AzRoleAssignment -IncludeClassicAdministrators
```

## List role assignments for a managed identity

1. Get the object ID of the system-assigned or user-assigned managed identity.

To get the object ID of a user-assigned managed identity, you can use [Get-AzADServicePrincipal](#).

```
Get-AzADServicePrincipal -DisplayNameBeginsWith "<name> or <vmname>"
```

2. To list the role assignments, use [Get-AzRoleAssignment](#).

```
Get-AzRoleAssignment -ObjectId <objectid>
```

## Next steps

- [Add or remove Azure role assignments using Azure PowerShell](#)

# List Azure role assignments using Azure CLI

7/21/2020 • 2 minutes to read • [Edit Online](#)

Azure role-based access control (RBAC) is the authorization system you use to manage access to Azure resources.

To determine what resources users, groups, service principals, or managed identities have access to, you list their role assignments. This article describes how to list role assignments using Azure CLI.

## NOTE

If your organization has outsourced management functions to a service provider who uses [Azure delegated resource management](#), role assignments authorized by that service provider won't be shown here.

## Prerequisites

- [Bash in Azure Cloud Shell](#) or [Azure CLI](#)

## List role assignments for a user

To list the role assignments for a specific user, use [az role assignment list](#):

```
az role assignment list --assignee {assignee}
```

By default, only role assignments for the current subscription will be displayed. To view role assignments for the current subscription and below, add the `--all` parameter. To view inherited role assignments, add the `--include-inherited` parameter.

The following example lists the role assignments that are assigned directly to the `patlong@contoso.com` user:

```
az role assignment list --all --assignee patlong@contoso.com --output json --query '[].{principalName:principalName, roleDefinitionName:roleDefinitionName, scope:scope}'
```

```
[  
 {  
   "principalName": "patlong@contoso.com",  
   "roleDefinitionName": "Backup Operator",  
   "scope": "/subscriptions/00000000-0000-0000-0000-000000000000/resourceGroups/pharma-sales"  
,  
 {  
   "principalName": "patlong@contoso.com",  
   "roleDefinitionName": "Virtual Machine Contributor",  
   "scope": "/subscriptions/00000000-0000-0000-000000000000/resourceGroups/pharma-sales"  
 }  
]
```

## List role assignments for a resource group

To list the role assignments that exist at a resource group scope, use [az role assignment list](#):

```
az role assignment list --resource-group {resourceGroup}
```

The following example lists the role assignments for the *pharma-sales* resource group:

```
az role assignment list --resource-group pharma-sales --output json --query '[].{principalName:principalName, roleDefinitionName:roleDefinitionName, scope:scope}'
```

```
[  
 {  
   "principalName": "patlong@contoso.com",  
   "roleDefinitionName": "Backup Operator",  
   "scope": "/subscriptions/00000000-0000-0000-0000-000000000000/resourceGroups/pharma-sales"  
 },  
 {  
   "principalName": "patlong@contoso.com",  
   "roleDefinitionName": "Virtual Machine Contributor",  
   "scope": "/subscriptions/00000000-0000-0000-0000-000000000000/resourceGroups/pharma-sales"  
 },  
 ...  
 ]
```

## List role assignments for a subscription

To list all role assignments at a subscription scope, use [az role assignment list](#). To get the subscription ID, you can find it on the **Subscriptions** blade in the Azure portal or you can use [az account list](#).

```
az role assignment list --subscription {subscriptionNameOrId}
```

Example:

```
az role assignment list --subscription 00000000-0000-0000-000000000000 --output json --query '[].{principalName:principalName, roleDefinitionName:roleDefinitionName, scope:scope}'
```

```
[  
 {  
   "principalName": "admin@contoso.com",  
   "roleDefinitionName": "Owner",  
   "scope": "/subscriptions/00000000-0000-0000-0000-000000000000"  
 },  
 {  
   "principalName": "Subscription Admins",  
   "roleDefinitionName": "Owner",  
   "scope": "/subscriptions/00000000-0000-0000-0000-000000000000"  
 },  
 {  
   "principalName": "alain@contoso.com",  
   "roleDefinitionName": "Reader",  
   "scope": "/subscriptions/00000000-0000-0000-0000-000000000000"  
 },  
 ...  
 ]
```

## List role assignments for a management group

To list all role assignments at a management group scope, use [az role assignment list](#). To get the management

group ID, you can find it on the **Management groups** blade in the Azure portal or you can use [az account management-group list](#).

```
az role assignment list --scope /providers/Microsoft.Management/managementGroups/{groupId}
```

Example:

```
az role assignment list --scope /providers/Microsoft.Management/managementGroups/sales-group --output json --query '[].{principalName:principalName, roleDefinitionName:roleDefinitionName, scope:scope}'
```

```
[  
 {  
   "principalName": "admin@contoso.com",  
   "roleDefinitionName": "Owner",  
   "scope": "/providers/Microsoft.Management/managementGroups/sales-group"  
,  
 {  
   "principalName": "alain@contoso.com",  
   "roleDefinitionName": "Reader",  
   "scope": "/providers/Microsoft.Management/managementGroups/sales-group"  
 }  
]
```

## List role assignments for a managed identity

1. Get the object ID of the system-assigned or user-assigned managed identity.

To get the object ID of a user-assigned managed identity, you can use [az ad sp list](#) or [az identity list](#).

```
az ad sp list --display-name "{name}" --query [].objectId --output tsv
```

To get the object ID of a system-assigned managed identity, you can use [az ad sp list](#).

```
az ad sp list --display-name "{vmname}" --query [].objectId --output tsv
```

2. To list the role assignments, use [az role assignment list](#).

By default, only role assignments for the current subscription will be displayed. To view role assignments for the current subscription and below, add the `--all` parameter. To view inherited role assignments, add the `--include-inherited` parameter.

```
az role assignment list --assignee {objectId}
```

## Next steps

- [Add or remove Azure role assignments using Azure CLI](#)

# List Azure role assignments using the REST API

7/21/2020 • 2 minutes to read • [Edit Online](#)

Azure role-based access control (RBAC) is the authorization system you use to manage access to Azure resources.

To determine what resources users, groups, service principals, or managed identities have access to, you list their role assignments. This article describes how to list role assignments using the REST API.

## NOTE

If your organization has outsourced management functions to a service provider who uses [Azure delegated resource management](#), role assignments authorized by that service provider won't be shown here.

## List role assignments

In Azure RBAC, to list access, you list the role assignments. To list role assignments, use one of the [Role Assignments - List](#) REST APIs. To refine your results, you specify a scope and an optional filter.

1. Start with the following request:

```
GET https://management.azure.com/{scope}/providers/Microsoft.Authorization/roleAssignments?api-version=2015-07-01&$filter={filter}
```

2. Within the URI, replace *{scope}* with the scope for which you want to list the role assignments.

SCOPE	TYPE
providers/Microsoft.Management/managementGroups/{groupID}	Management group
subscriptions/{subscriptionId1}	Subscription
subscriptions/{subscriptionId1}/resourceGroups/myresourcegroup1	Resource group
subscriptions/{subscriptionId1}/resourceGroups/myresourcegroup1/providers/Microsoft.Web/sites/mysite1	Resource

In the previous example, `microsoft.web` is a resource provider that refers to an App Service instance. Similarly, you can use any other resource providers and specify the scope. For more information, see [Azure Resource providers and types](#) and supported [Azure Resource Manager resource provider operations](#).

3. Replace *{filter}* with the condition that you want to apply to filter the role assignment list.

FILTER	DESCRIPTION
<code>\$filter=atScope()</code>	Lists role assignments for only the specified scope, not including the role assignments at subsopes.

FILTER	DESCRIPTION
<code>\$filter=assignedTo('{objectId}')</code>	<p>Lists role assignments for a specified user or service principal.</p> <p>If the user is a member of a group that has a role assignment, that role assignment is also listed. This filter is transitive for groups which means that if the user is a member of a group and that group is a member of another group that has a role assignment, that role assignment is also listed.</p> <p>This filter only accepts an object ID for a user or a service principal. You cannot pass an object ID for a group.</p>
<code>\$filter=atScope()&amp;+and+assignedTo('{objectId}')</code>	<p>Lists role assignments for the specified user or service principal and at the specified scope.</p>
<code>\$filter=principalId+eq+'{objectId}'</code>	<p>Lists role assignments for a specified user, group, or service principal.</p>

The following request lists all role assignments for the specified user at subscription scope:

```
GET
https://management.azure.com/subscriptions/{subscriptionId1}/providers/Microsoft.Authorization/roleAssignments?
api-version=2015-07-01&$filter=atScope()&+and+assignedTo('{objectId1}')
```

The following shows an example of the output:

```
{
  "value": [
    {
      "properties": {
        "roleDefinitionId": "/subscriptions/{subscriptionId1}/providers/Microsoft.Authorization/roleDefinitions/2a2b9908-6ea1-4ae2-8e65-a410df84e7d1",
        "principalId": "{objectId1}",
        "scope": "/subscriptions/{subscriptionId1}",
        "createdOn": "2019-01-15T21:08:45.4904312Z",
        "updatedOn": "2019-01-15T21:08:45.4904312Z",
        "createdBy": "{createdByObjectId1}",
        "updatedBy": "{updatedByObjectId1}"
      },
      "id": "/subscriptions/{subscriptionId1}/providers/Microsoft.Authorization/roleAssignments/{roleAssignmentId1}",
      "type": "Microsoft.Authorization/roleAssignments",
      "name": "{roleAssignmentId1}"
    }
  ]
}
```

## Next steps

- [Add or remove Azure role assignments using the REST API](#)
- [Azure REST API Reference](#)

# Add or remove Azure role assignments using the Azure portal

7/21/2020 • 6 minutes to read • [Edit Online](#)

Azure role-based access control (RBAC) is the authorization system you use to manage access to Azure resources. To grant access, you assign roles to users, groups, service principals, or managed identities at a particular scope. This article describes how to assign roles using the Azure portal.

If you need to assign administrator roles in Azure Active Directory, see [View and assign administrator roles in Azure Active Directory](#).

## Prerequisites

To add or remove role assignments, you must have:

- `Microsoft.Authorization/roleAssignments/write` and `Microsoft.Authorization/roleAssignments/delete` permissions, such as [User Access Administrator](#) or [Owner](#)

## Access control (IAM)

**Access control (IAM)** is the page that you typically use to assign roles to grant access to Azure resources. It's also known as identity and access management and appears in several locations in the Azure portal. The following shows an example of the Access control (IAM) page for a subscription.

To be the most effective with the Access control (IAM) page, it helps if you can answer the following three questions when you are trying to assign a role:

### 1. Who needs access?

Who refers to a user, group, service principal, or managed identity. This is also called a *security principal*.

### 2. What role do they need?

Permissions are grouped together into roles. You can select from a list of several [built-in roles](#) or you can use your own custom roles.

### 3. Where do they need access?

Where refers to the set of resources that the access applies to. Where can be a management group, subscription, resource group, or a single resource such as a storage account. This is called the *scope*.

## Add a role assignment

In Azure RBAC, to grant access to an Azure resource, you add a role assignment. Follow these steps to assign a role.

1. In the Azure portal, click **All services** and then select the scope that you want to grant access to. For example, you can select **Management groups**, **Subscriptions**, **Resource groups**, or a resource.
2. Click the specific resource for that scope.
3. Click **Access control (IAM)**.
4. Click the **Role assignments** tab to view the role assignments at this scope.

The screenshot shows the Azure portal's Access control (IAM) blade for a 'Pay-As-You-Go' subscription. The 'Role assignments' tab is selected and highlighted with a red box. The blade displays the following information:

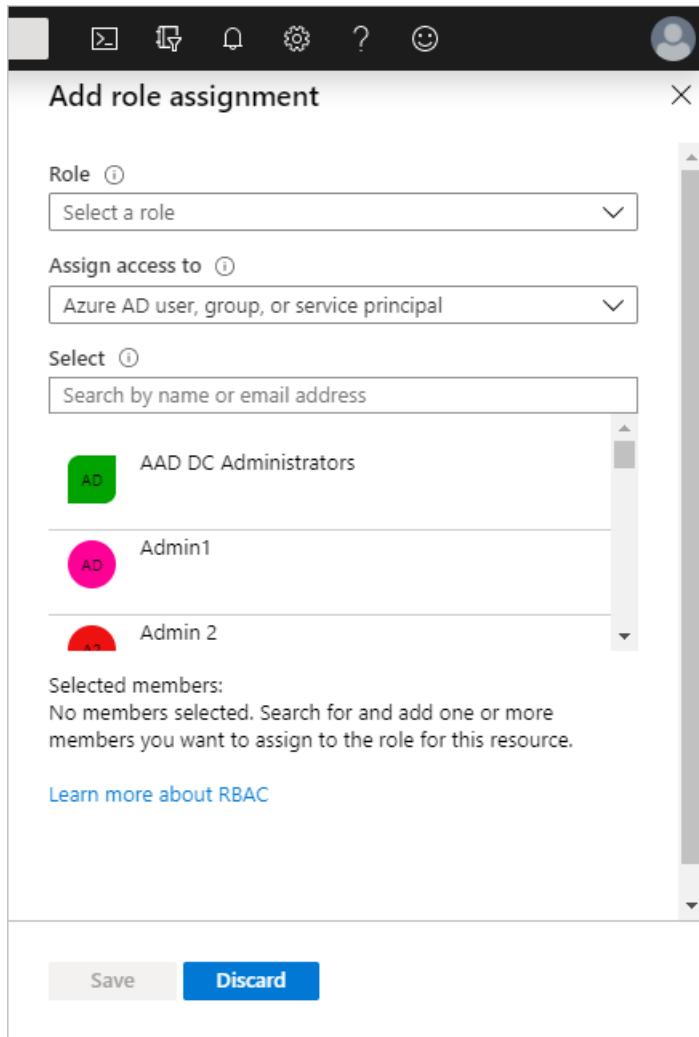
- Number of role assignments for this subscription:** 20 / 2000
- Filtering:** Name, Type (All), Group by (Role), Role (5 selected)
- Table Headers:** Name, Type, Role
- Table Data:** 11 items (5 Users, 2 Groups, 4 Service Principals)
  - Billing Reader:**
    - SA:** Sales Admins (Group, Billing Reader)
    - user-assigned-identity:** user-assigned-identity (App, Billing Reader)

5. Click **Add > Add role assignment**.

If you don't have permissions to assign roles, the Add role assignment option will be disabled.

The screenshot shows the Azure portal interface with the 'Add role assignment' pane open. At the top, there are buttons for 'Add', 'Edit columns', 'Refresh', and 'Remove'. Below these are three options: 'Add role assignment', 'Add co-administrator', and 'Add custom role'. A progress bar indicates 'Number of role assignments for this subscription' at 24 out of 2000. The main area of the pane is titled 'Add role assignment' and contains fields for 'Role' (a dropdown menu), 'Assign access to' (a dropdown menu set to 'Azure AD user, group, or service principal'), and 'Select' (a search box). A list of users is shown below, with 'AAD DC Administrators' selected. A note says 'Selected members: No members selected. Search for and add one or more members you want to assign to the role for this resource.' At the bottom are 'Save' and 'Discard' buttons.

The Add role assignment pane opens.



6. In the **Role** drop-down list, select a role such as **Virtual Machine Contributor**.
7. In the **Select** list, select a user, group, service principal, or managed identity. If you don't see the security principal in the list, you can type in the **Select** box to search the directory for display names, email addresses, and object identifiers.
8. Click **Save** to assign the role.

After a few moments, the security principal is assigned the role at the selected scope.

The screenshot shows the 'Virtual Machine Contributor' role assignment details page. It lists the assigned user, 'Alain Charon', with a checkbox next to it. The user is identified as a 'User' with the object identifier 'Virtual Machine Contributor'. The scope is listed as 'This resource'.

# Assign a user as an administrator of a subscription

To make a user an administrator of an Azure subscription, assign them the [Owner](#) role at the subscription scope. The Owner role gives the user full access to all resources in the subscription, including the permission to grant access to others. These steps are the same as any other role assignment.

1. In the Azure portal, click **All services** and then **Subscriptions**.
2. Click the subscription where you want to grant access.
3. Click **Access control (IAM)**.
4. Click the **Role assignments** tab to view the role assignments for this subscription.

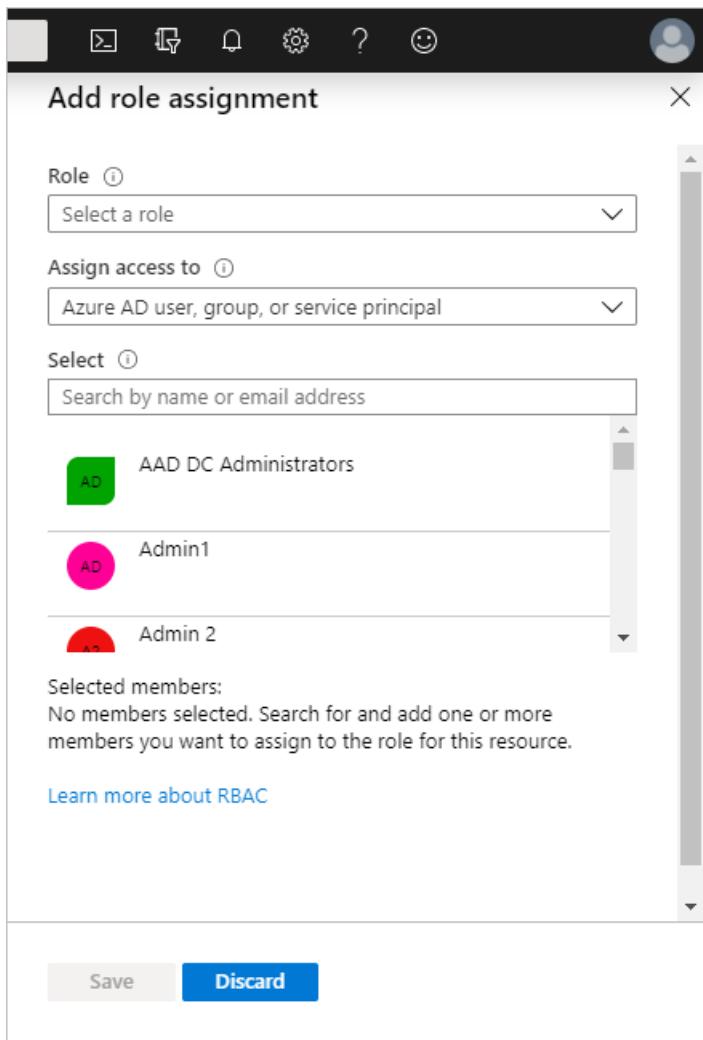
The screenshot shows the Azure portal interface for managing access control. The left sidebar lists various service categories like Overview, Activity log, and Access control (IAM). The main area is titled "Pay-As-You-Go - Access control (IAM)" and shows the "Role assignments" tab selected. A summary bar indicates 20 role assignments out of a maximum of 2000. Below this, there are filters for Name, Type (set to All), and Role (set to 5 selected). A table lists 11 items, including two groups: "Sales Admins" (Type: Group, Role: Billing Reader) and "user-assigned-identity" (Type: App, Role: Billing Reader).

5. Click **Add > Add role assignment**.

If you don't have permissions to assign roles, the Add role assignment option will be disabled.

This screenshot shows the "Add" menu open, with the "Add role assignment" option highlighted. Other options visible include "Add co-administrator" and "Add custom role". The main area below the menu shows a summary of 24 role assignments and a link to "for users, groups, service principals".

The Add role assignment pane opens.



6. In the **Role** drop-down list, select the **Owner** role.
7. In the **Select** list, select a user. If you don't see the user in the list, you can type in the **Select** box to search the directory for display names and email addresses.
8. Click **Save** to assign the role.

After a few moments, the user is assigned the Owner role at the subscription scope.

## Add a role assignment for a managed identity (Preview)

You can add role assignments for a managed identity by using the **Access control (IAM)** page as described earlier in this article. When you use the Access control (IAM) page, you start with the scope and then select the managed identity and role. This section describes an alternate way to add role assignments for a managed identity. Using these steps, you start with the managed identity and then select the scope and role.

### IMPORTANT

Adding a role assignment for a managed identity using these alternate steps is currently in preview. This preview version is provided without a service level agreement, and it's not recommended for production workloads. Certain features might not be supported or might have constrained capabilities. For more information, see [Supplemental Terms of Use for Microsoft Azure Previews](#).

### System-assigned managed identity

Follow these steps to assign a role to a system-assigned managed identity by starting with the managed identity.

1. In the Azure portal, open a system-assigned managed identity.

2. In the left menu, click **Identity**.

The screenshot shows the Azure portal interface for a virtual machine named 'managedidentityvm'. The left sidebar has a 'Identity' option under 'Settings'. The main content area is titled 'managedidentityvm | Identity'. It shows a 'System assigned' managed identity. The 'Status' is set to 'On'. A note indicates the resource is registered with Azure Active Directory. Under 'Permissions', there is a link to 'Azure role assignments'.

3. Under **Permissions**, click **Azure role assignments**.

If roles are already assigned to the selected system-assigned managed identity, you see the list of role assignments. This list includes all role assignments you have permission to read.

The screenshot shows the 'Azure role assignments' blade for the 'managedidentityvm' virtual machine. It lists two role assignments:

Role	Resource Name	Resource Type	Assigned To
Reader	managedidentityvm	Virtual Machines	managedidentityvm
Monitoring Reader	storagetest0122	Storage Accounts	managedidentityvm

4. To change the subscription, click the **Subscription** list.

5. Click **Add role assignment (Preview)**.

6. Use the drop-down lists to select the set of resources that the role assignment applies to such as **Subscription**, **Resource group**, or **resource**.

If you don't have role assignment write permissions for the selected scope, an inline message will be displayed.

7. In the **Role** drop-down list, select a role such as **Virtual Machine Contributor**.

## Add role assignment (Preview)

X

### Scope ⓘ

Resource group

### Subscription

Pay-As-You-Go

### Resource group ⓘ

ExampleGroup

### Role ⓘ

Virtual Machine Contributor ⓘ

**Save**

Discard

- Click **Save** to assign the role.

After a few moments, the managed identity is assigned the role at the selected scope.

## User-assigned managed identity

Follow these steps to assign a role to a user-assigned managed identity by starting with the managed identity.

- In the Azure portal, open a user-assigned managed identity.
- In the left menu, click **Azure role assignments**.

If roles are already assigned to the selected user-assigned managed identity, you see the list of role assignments. This list includes all role assignments you have permission to read.

Role	Resource Name	Resource Type	Assigned To
Billing Reader	Pay-As-You-Go	Subscription	user-assigned-identity

- To change the subscription, click the **Subscription** list.
- Click **Add role assignment (Preview)**.
- Use the drop-down lists to select the set of resources that the role assignment applies to such as **Subscription**, **Resource group**, or resource.  
If you don't have role assignment write permissions for the selected scope, an inline message will be displayed.
- In the **Role** drop-down list, select a role such as **Virtual Machine Contributor**.

## Add role assignment (Preview)

X

### Scope ⓘ

Resource group

### Subscription

Pay-As-You-Go

### Resource group ⓘ

ExampleGroup

### Role ⓘ

Virtual Machine Contributor ⓘ

**Save**

Discard

7. Click **Save** to assign the role.

After a few moments, the managed identity is assigned the role at the selected scope.

## Remove a role assignment

In Azure RBAC, to remove access from an Azure resource, you remove a role assignment. Follow these steps to remove a role assignment.

1. Open **Access control (IAM)** at a scope, such as management group, subscription, resource group, or resource, where you want to remove access.
2. Click the **Role assignments** tab to view all the role assignments for this subscription.
3. In the list of role assignments, add a checkmark next to the security principal with the role assignment you want to remove.

The screenshot shows a list of role assignments. At the top, there's a header row with columns: Role, Principal, Type, and Scope. Below the header, there's a single item listed: 'Virtual Machine Contributor' for 'Alain Charon' (User type) under 'This resource'. A blue checkmark is present in the 'Principal' column next to 'Alain Charon'.

4. Click **Remove**.

**control (IAM)**

The screenshot shows a confirmation dialog box. At the top, it says 'Remove role assignments' and asks 'Are you sure you want to remove the selected role assignments?'. Below that, there are two buttons: 'Yes' (highlighted with a blue box) and 'No'. Further down, there's a summary bar showing '21' items and '2000' bytes. At the bottom, there are three filter dropdowns: 'Name ⓘ', 'Type ⓘ', and 'Role ⓘ', each with a dropdown menu open.

5. In the remove role assignment message that appears, click **Yes**.

If you see a message that inherited role assignments cannot be removed, you are trying to remove a role assignment at a child scope. You should open Access control (IAM) at the scope where the role was assigned and try again. A quick way to open Access control (IAM) at the correct scope is to look at the **Scope** column and click the link next to **(Inherited)**.

The screenshot shows the 'control (IAM)' blade in the Azure portal. At the top, there are buttons for 'Add', 'Edit columns', 'Refresh', 'Remove', and 'Got feedback?'. Below these, a message says 'Remove role assignments' and 'Inherited role assignments cannot be removed. Open the scope where the role was assigned and remove it from there.' An 'OK' button is present. The main table lists role assignments:

<input type="checkbox"/>	Name	Type	Role	Scope
<input checked="" type="checkbox"/>	SA Sales Admins	Group	Billing Reader ⓘ	<a href="#">Subscription (Inherited)</a>
<input type="checkbox"/>	user-assigned-identity	App	Billing Reader ⓘ	<a href="#">Subscription (Inherited)</a>

## Next steps

- [List Azure role assignments using the Azure portal](#)
- [Tutorial: Grant a user access to Azure resources using the Azure portal](#)
- [Troubleshoot Azure RBAC](#)
- [Organize your resources with Azure management groups](#)

# Add or remove Azure role assignments for external guest users using the Azure portal

7/21/2020 • 7 minutes to read • [Edit Online](#)

Azure role-based access control (Azure RBAC) allows better security management for large organizations and for small and medium-sized businesses working with external collaborators, vendors, or freelancers that need access to specific resources in your environment, but not necessarily to the entire infrastructure or any billing-related scopes. You can use the capabilities in [Azure Active Directory B2B](#) to collaborate with external guest users and you can use Azure RBAC to grant just the permissions that guest users need in your environment.

## Prerequisites

To add or remove role assignments, you must have:

- `Microsoft.Authorization/roleAssignments/write` and `Microsoft.Authorization/roleAssignments/delete` permissions, such as [User Access Administrator](#) or [Owner](#)

## When would you invite guest users?

Here are a couple example scenarios when you might invite guest users to your organization and grant permissions:

- Allow an external self-employed vendor that only has an email account to access your Azure resources for a project.
- Allow an external partner to manage certain resources or an entire subscription.
- Allow support engineers not in your organization (such as Microsoft support) to temporarily access your Azure resource to troubleshoot issues.

## Permission differences between member users and guest users

Native members of a directory (member users) have different permissions than users invited from another directory as a B2B collaboration guest (guest users). For example, members user can read almost all directory information while guest users have restricted directory permissions. For more information about member users and guest users, see [What are the default user permissions in Azure Active Directory?](#).

## Add a guest user to your directory

Follow these steps to add a guest user to your directory using the Azure Active Directory page.

1. Make sure your organization's external collaboration settings are configured such that you're allowed to invite guests. For more information, see [Enable B2B external collaboration and manage who can invite guests](#).
2. In the Azure portal, click **Azure Active Directory > Users > New guest user**.

The screenshot shows the Microsoft Azure portal interface. On the left, there's a sidebar with various service icons and links like Home, Dashboard, All services, Favorites, and Help + support. The main area is titled 'New user' under 'Default Directory'. A blue bar at the top says 'Got a second? We would love your feedback on user creation →'. Below it, two options are shown: 'Create user' (unselected) and 'Invite user' (selected). The 'Invite user' section explains that it invites a guest user to collaborate. The 'Identity' section contains fields for Name (with placeholder 'Example: Chris Green'), Email address (placeholder 'Example: chris@contoso.com'), First name, and Last name. At the bottom is a grey 'Invite' button.

- Follow the steps to add a new guest user. For more information, see [Add Azure Active Directory B2B collaboration users in the Azure portal](#).

After you add a guest user to the directory, you can either send the guest user a direct link to a shared app, or the guest user can click the redemption URL in the invitation email.

Reply all |  Delete  Junk Block ...

## You're invited to the Default Directory organization



Microsoft Invitations

Mon 9/9/2019 5:41 PM

You 



### Azure Active Directory

You've been invited to access applications in the

## Default Directory organization

by



Hi Alain,

This will grant you access to the marketing project.

**Get Started**

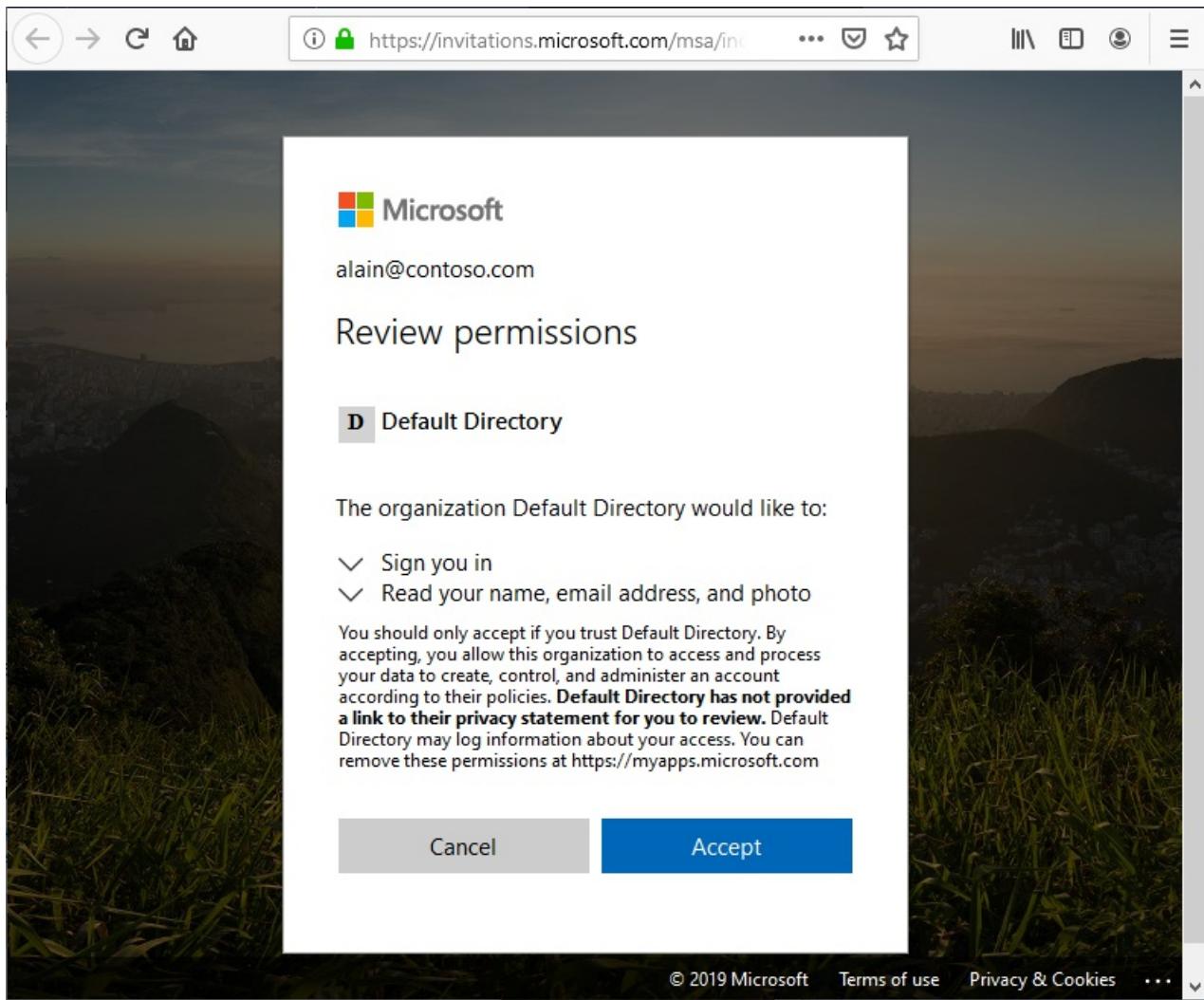
Return to the above link at any time for access.

This email has been sent on behalf of the Default Directory organization. Please act on this email only if you trust the Default Directory organization. This email may have advertising content. You can unsubscribe from future invitations from the Default Directory organization at any time. See [Microsoft organization privacy statement](#) to learn more about how Microsoft handles your data.

Facilitated by : Microsoft Corporation, One Microsoft Way, Redmond, WA 98052



For the guest user to be able to access your directory, they must complete the invitation process.



For more information about the invitation process, see [Azure Active Directory B2B collaboration invitation redemption](#).

## Add a role assignment for a guest user

In Azure RBAC, to grant access, you assign a role. To add a role assignment for a guest user, you follow [same steps](#) as you would for a member user, group, service principal, or managed identity. Follow these steps add a role assignment for a guest user at different scopes.

1. In the Azure portal, click All services.
2. Select the set of resources that the access applies to, also known as the scope. For example, you can select **Management groups**, **Subscriptions**, **Resource groups**, or a resource.
3. Click the specific resource.
4. Click **Access control (IAM)**.

The following screenshot shows an example of the Access control (IAM) blade for a resource group. If you make any access control changes here, they would apply to just to the resource group.

The screenshot shows the Microsoft Azure portal's Access control (IAM) blade for a resource group named 'ExampleGroup'. The 'Role assignments' tab is selected. On the left, there's a sidebar with various service links like Home, Dashboard, and App Services. The main area has a search bar at the top. Below it, there are sections for 'Check access', 'Add a role assignment', 'View role assignments', and 'View deny assignments'. Each section includes a brief description and a 'View' or 'Learn more' button.

5. Click the **Role assignments** tab to view all the role assignments at this scope.

6. Click **Add > Add role assignment** to open the Add role assignment pane.

If you don't have permissions to assign roles, the Add role assignment option will be disabled.

This screenshot shows the 'Add role assignment' pane. It contains three main options: 'Add role assignment', 'Add co-administrator', and 'Add custom role'. Below these options, there's a progress bar titled 'Number of role assignments for this subscription' with a value of 24. The progress bar has a scale from 24 to 2000.

The Add role assignment pane opens.

7. In the **Role** drop-down list, select a role such as **Virtual Machine Contributor**.

8. In the **Select** list, select the guest user. If you don't see the user in the list, you can type in the **Select** box to search the directory for display names, email addresses, and object identifiers.

**Add role assignment**

Role [?](#)  
Virtual Machine Contributor

Assign access to [?](#)  
Azure AD user, group, or service principal

Select [?](#)  
Search by name or email address

 AD	Admin admin
 A2	Admin 2 admin2

Selected members:

 AL	Alain (Guest) alain@contoso.com	<a href="#">Remove</a>
--	------------------------------------	------------------------

[Save](#) [Discard](#)

- Click **Save** to assign the role at the selected scope.

Home > Resource groups > ExampleGroup - Access control (IAM)

**ExampleGroup - Access control (IAM)**  
Resource group

Search (Ctrl+)

+ Add Edit columns Refresh Remove Got feedback?

Overview Activity log Access control (IAM) Tags Events Settings Quickstart

USER ACCESS ADMINISTRATOR

 MS-PIM	App	User Access Administrat... Subscription (Inherited)
VIRTUAL MACHINE CONTRIBUTOR		
 AL	Alain (Guest) alain@contoso.com	User Virtual Machine Contr... This resource

## Add a role assignment for a guest user not yet in your directory

To add a role assignment for a guest user, you follow [same steps](#) as you would for a member user, group, service principal, or managed identity.

If the guest user is not yet in your directory, you can invite the user directly from the Add role assignment pane.

- In the Azure portal, click **All services**.
- Select the set of resources that the access applies to, also known as the scope. For example, you can select **Management groups**, **Subscriptions**, **Resource groups**, or a resource.
- Click the specific resource.
- Click **Access control (IAM)**.

5. Click the **Role assignments** tab to view all the role assignments at this scope.

6. Click **Add > Add role assignment** to open the Add role assignment pane.

The screenshot shows the 'Add role assignment' pane. At the top, there are buttons for 'Add', 'Edit columns', 'Refresh', and 'Remove'. Below these are three options: 'Add role assignment' (highlighted with a red box), 'Add co-administrator', and 'Add custom role'. A sub-section titled 'Deny assignments' is visible, along with a note: 'for users, groups, service principals'. Below this is a progress bar labeled 'Number of role assignments for this subscription' with values '24' and '2000'.

The Add role assignment pane opens.

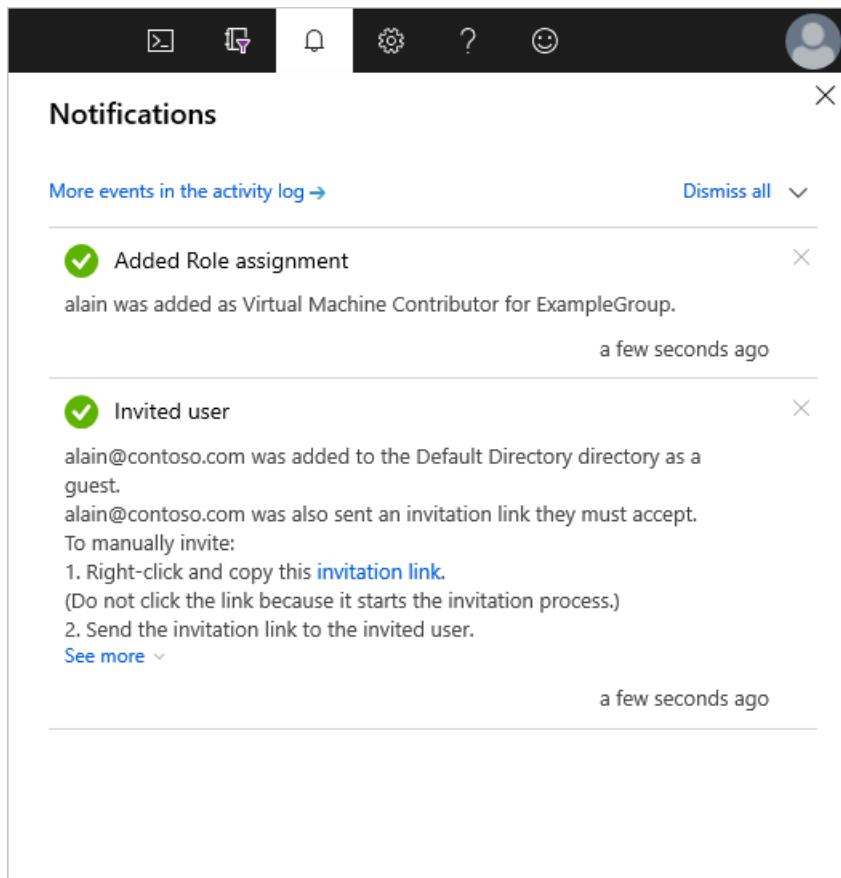
7. In the **Role** drop-down list, select a role such as **Virtual Machine Contributor**.

8. In the **Select** list, type the email address of the person you want to invite and select that person.

The screenshot shows the 'Add role assignment' dialog box. It has fields for 'Role' (set to 'Virtual Machine Contributor'), 'Assign access to' (set to 'Azure AD user, group, or service principal'), and 'Select' (containing 'alain@contoso.com'). A note below says: 'This user will be sent an email that enables them to collaborate with Default Directory.' Below this is a list of selected members, which is currently empty. At the bottom are 'Save' and 'Discard' buttons.

9. Click **Save** to add the guest user to your directory, assign the role, and send an invite.

After a few moments, you'll see a notification of the role assignment and information about the invite.



10. To manually invite the guest user, right-click and copy the invitation link in the notification. Don't click the invitation link because it starts the invitation process.

The invitation link will have the following format:

`https://invitations.microsoft.com/redeem/...`

11. Send the invitation link to the guest user to complete the invitation process.

For more information about the invitation process, see [Azure Active Directory B2B collaboration invitation redemption](#).

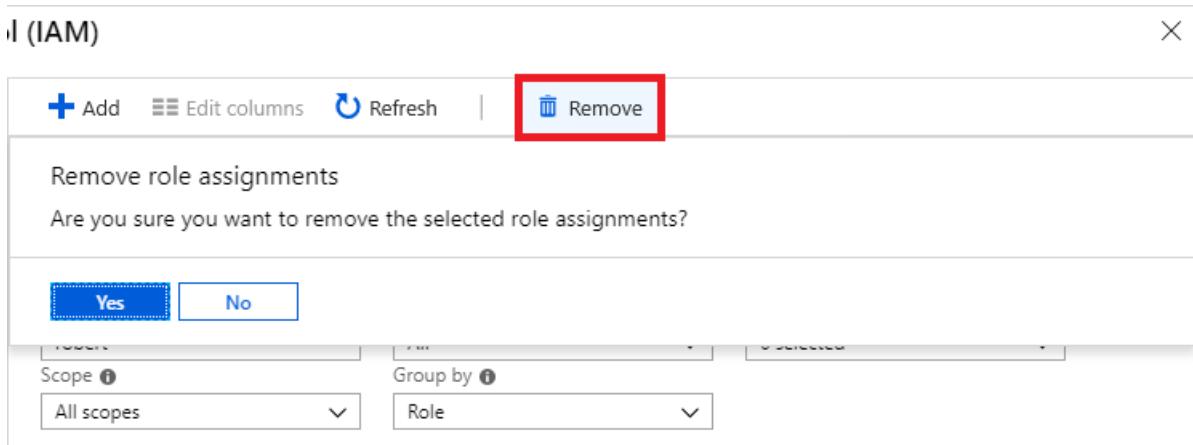
## Remove a guest user from your directory

Before you remove a guest user from a directory, you should first remove any role assignments for that guest user. Follow these steps to remove a guest user from a directory.

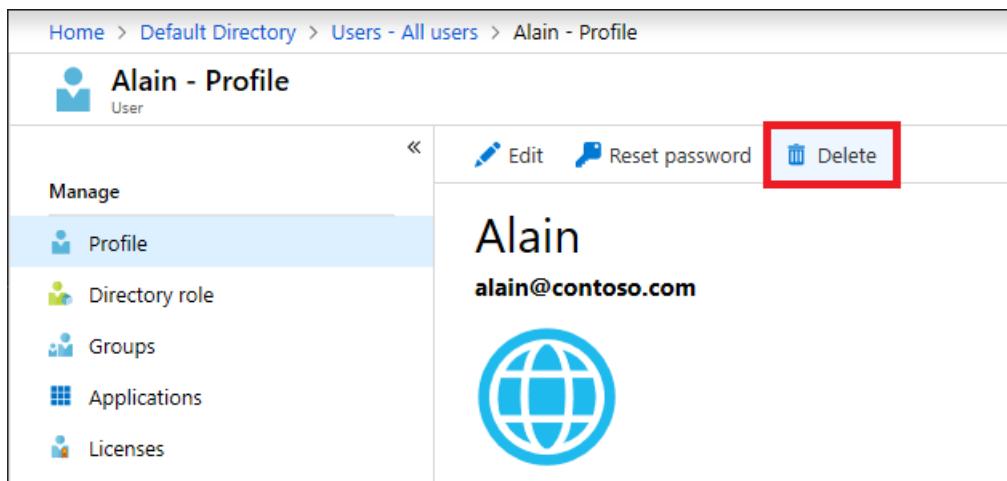
1. Open **Access control (IAM)** at a scope, such as management group, subscription, resource group, or resource, where the guest user has a role assignment.
2. Click the **Role assignments** tab to view all the role assignments.
3. In the list of role assignments, add a checkmark next to the guest user with the role assignment you want to remove.

A screenshot of the 'Role assignments' table in the Azure portal. The table has a header row: 'VIRTUAL MACHINE CONTRIBUTOR'. Below the header, there is one data row. The row contains: a checkbox checked, a red circular badge with 'AL', the name 'Alain (Guest)', the email 'alain@contoso.com', the role 'User', the resource 'Virtual Machine Contr...', and the context 'This resource'. There are navigation arrows at the bottom right of the table.

4. Click **Remove**.



5. In the remove role assignment message that appears, click **Yes**.
6. In the left navigation bar, click **Azure Active Directory > Users**.
7. Click the guest user you want to remove.
8. Click **Delete**.



9. In the delete message that appears, click **Yes**.

## Troubleshoot

### Guest user cannot browse the directory

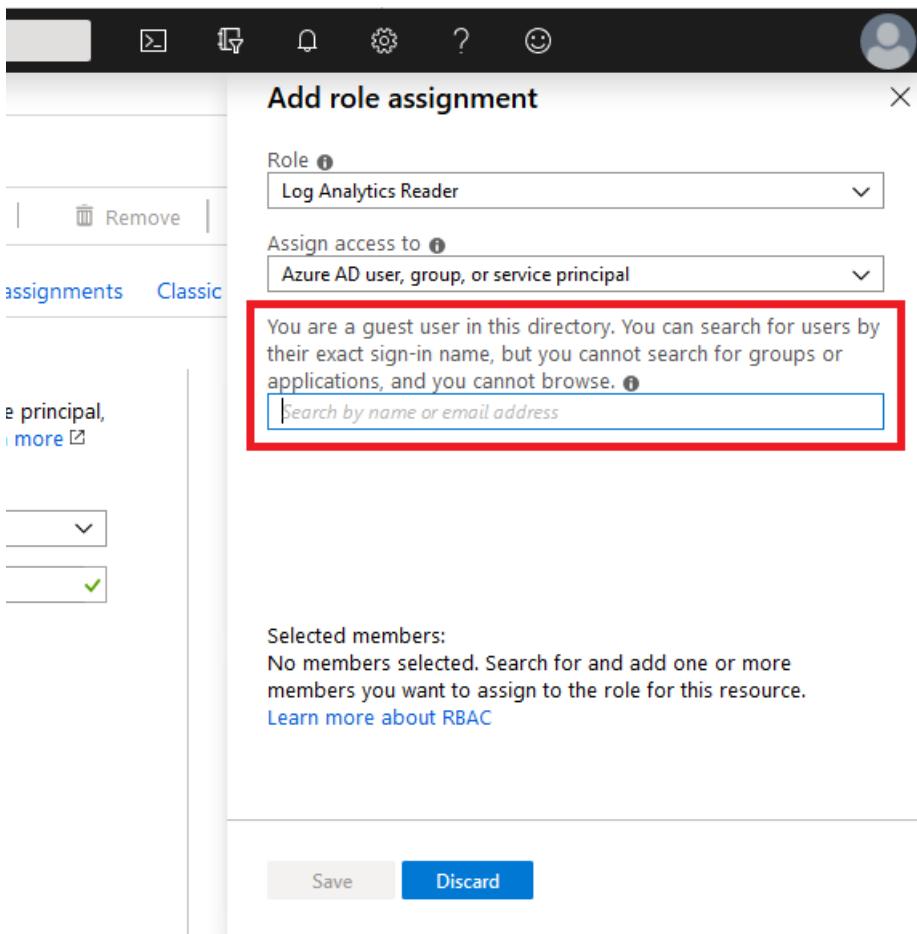
Guest users have restricted directory permissions. For example, guest users cannot browse the directory and cannot search for groups or applications. For more information, see [What are the default user permissions in Azure Active Directory?](#)

If a guest user needs additional privileges in the directory, you can assign a directory role to the guest user. If you really want a guest user to have full read access to your directory, you can add the guest user to the [Directory Readers](#) role in Azure AD. For more information, see [Grant permissions to users from partner organizations in your Azure Active Directory tenant](#).

Role	Description
Cloud application administrator	Can create and manage all aspects of app registrations and enterprise apps exc...
Cloud device administrator	Full access to manage devices in Azure AD.
Compliance administrator	Can read and manage compliance configuration and reports in Azure AD and ...
Compliance data administrator	Can create and manage compliance content.
Conditional Access administr...	Can manage conditional access capabilities.
Customer LockBox access app...	Can approve Microsoft support requests to access customer organizational data.
Desktop Analytics administrator	Can access and manage Desktop management tools and services.
<b>Directory readers</b>	Can read basic directory information. Commonly used to grant directory read a...
Dynamics 365 administrator	Can manage all aspects of the Dynamics 365 product.
Exchange administrator	Can manage all aspects of the Exchange product.
External Identity Provider adm...	Can configure identity providers for use in direct federation.

### Guest user cannot browse users, groups, or service principals to assign roles

Guest users have restricted directory permissions. Even if a guest user is an [Owner](#) at a scope, if they try to add a role assignment to grant someone else access, they cannot browse the list of users, groups, or service principals.



If the guest user knows someone's exact sign-in name in the directory, they can grant access. If you really want a guest user to have full read access to your directory, you can add the guest user to the [Directory Readers](#) role in Azure AD. For more information, see [Grant permissions to users from partner organizations in your Azure Active Directory tenant](#).

#### Guest user cannot register applications or create service principals

Guest users have restricted directory permissions. If a guest user needs to be able to register applications or create service principals, you can add the guest user to the [Application Developer](#) role in Azure AD. For more information, see [Grant permissions to users from partner organizations in your Azure Active Directory tenant](#).

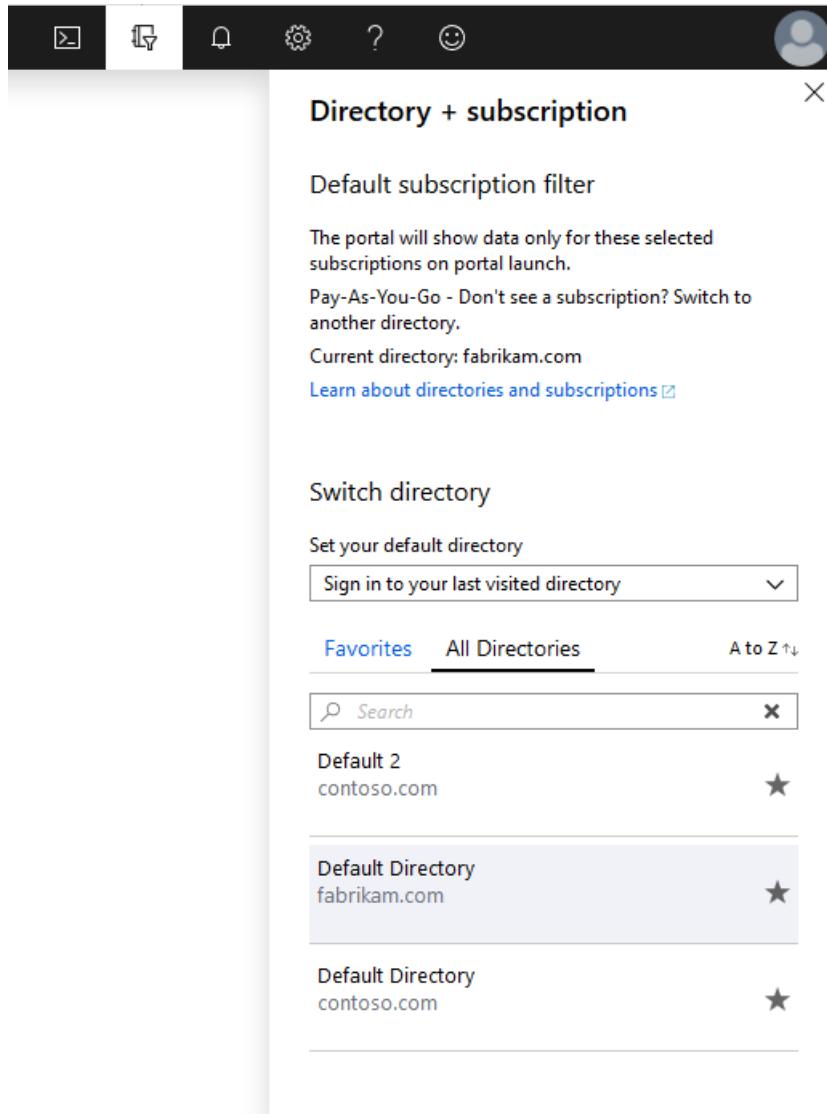
The screenshot shows the Microsoft Azure portal interface. On the left is a dark sidebar with various service icons and links like 'Create a resource', 'Home', 'Dashboard', 'All services', 'FAVORITES', 'All resources', 'Resource groups', 'App Services', 'Function App', 'SQL databases', 'Azure Cosmos DB', and 'Virtual machines'. The main content area has a breadcrumb trail: 'Home > Default Directory - App registrations > You do not have access'. The main title is 'You do not have access'. Below it is a large 'Access denied' icon (a cloud with a slash). The text 'You do not have access' is repeated. At the bottom, it says 'You don't have permission to register applications in the Default Directory directory. To request access, contact your administrator.'

#### Guest user does not see the new directory

If a guest user has been granted access to a directory, but they do not see the new directory listed in the Azure portal when they try to switch in their **Directory + subscription** pane, make sure the guest user has completed the invitation process. For more information about the invitation process, see [Azure Active Directory B2B collaboration invitation redemption](#).

#### Guest user does not see resources

If a guest user has been granted access to a directory, but they do not see the resources they have been granted access to in the Azure portal, make sure the guest user has selected the correct directory. A guest user might have access to multiple directories. To switch directories, in the upper left, click **Directory + subscription**, and then click the appropriate directory.



## Next steps

- [Add Azure Active Directory B2B collaboration users in the Azure portal](#)
- [Properties of an Azure Active Directory B2B collaboration user](#)
- [The elements of the B2B collaboration invitation email - Azure Active Directory](#)
- [Add a guest user as a Co-Administrator](#)

# Add or remove Azure role assignments using Azure PowerShell

7/21/2020 • 4 minutes to read • [Edit Online](#)

Azure role-based access control (RBAC) is the authorization system you use to manage access to Azure resources. To grant access, you assign roles to users, groups, service principals, or managed identities at a particular scope. This article describes how to assign roles using Azure PowerShell.

## NOTE

This article has been updated to use the new Azure PowerShell Az module. You can still use the AzureRM module, which will continue to receive bug fixes until at least December 2020. To learn more about the new Az module and AzureRM compatibility, see [Introducing the new Azure PowerShell Az module](#). For Az module installation instructions, see [Install Azure PowerShell](#).

## Prerequisites

To add or remove role assignments, you must have:

- `Microsoft.Authorization/roleAssignments/write` and `Microsoft.Authorization/roleAssignments/delete` permissions, such as [User Access Administrator](#) or [Owner](#)
- [PowerShell in Azure Cloud Shell](#) or [Azure PowerShell](#)

## Get object IDs

To add or remove role assignments, you might need to specify the unique ID of an object. The ID has the format: `11111111-1111-1111-1111-111111111111`. You can get the ID using the Azure portal or Azure PowerShell.

### User

To get the object ID for an Azure AD user, you can use [Get-AzADUser](#).

```
Get-AzADUser -StartsWith <string_in_quotes>
(Get-AzADUser -DisplayName <name_in_quotes>).id
```

### Group

To get the object ID for an Azure AD group, you can use [Get-AzADGroup](#).

```
Get-AzADGroup -SearchString <group_name_in_quotes>
(Get-AzADGroup -DisplayName <group_name_in_quotes>).id
```

### Application

To get the object ID for an Azure AD service principal (identity used by an application), you can use [Get-AzADServicePrincipal](#). For a service principal, use the object ID and **not** the application ID.

```
Get-AzADServicePrincipal -SearchString <service_name_in_quotes>
(Get-AzADServicePrincipal -DisplayName <service_name_in_quotes>).id
```

# Add a role assignment

In Azure RBAC, to grant access, you add a role assignment.

## User at a resource group scope

To add a role assignment for a user at a resource group scope, use [New-AzRoleAssignment](#).

```
New-AzRoleAssignment -SignInName <email_or_userprincipalname> -RoleDefinitionName <role_name> -  
ResourceGroupName <resource_group_name>
```

```
PS C:\> New-AzRoleAssignment -SignInName alain@example.com -RoleDefinitionName "Virtual Machine Contributor" -  
ResourceGroupName pharma-sales
```

```
RoleAssignmentId      : /subscriptions/00000000-0000-0000-0000-000000000000/resourceGroups/pharma-sales/pr  
oviders/Microsoft.Authorization/roleAssignments/55555555-5555-5555-5555-555555555555  
Scope                : /subscriptions/00000000-0000-0000-0000-000000000000/resourceGroups/pharma-sales  
DisplayName          : Alain Charon  
SignInName           : alain@example.com  
RoleDefinitionName   : Virtual Machine Contributor  
RoleDefinitionId    : 9980e02c-c2be-4d73-94e8-173b1dc7cf3c  
ObjectId             : 44444444-4444-4444-4444-444444444444  
ObjectType           : User  
CanDelegate          : False
```

## Using the unique role ID

There are a couple of times when a role name might change, for example:

- You are using your own custom role and you decide to change the name.
- You are using a preview role that has **(Preview)** in the name. When the role is released, the role is renamed.

### IMPORTANT

A preview version is provided without a service level agreement, and it's not recommended for production workloads. Certain features might not be supported or might have constrained capabilities. For more information, see [Supplemental Terms of Use for Microsoft Azure Previews](#).

Even if a role is renamed, the role ID does not change. If you are using scripts or automation to create your role assignments, it's a best practice to use the unique role ID instead of the role name. Therefore, if a role is renamed, your scripts are more likely to work.

To add a role assignment using the unique role ID instead of the role name, use [New-AzRoleAssignment](#).

```
New-AzRoleAssignment -ObjectId <object_id> -RoleDefinitionId <role_id> -Scope  
<resource_group_name/resource/management groups>
```

The following example assigns the [Virtual Machine Contributor](#) role to [alain@example.com](mailto:alain@example.com) user at the *pharma-sales* resource group scope. To get the unique role ID, you can use [Get-AzRoleDefinition](#) or see [Azure built-in roles](#).

```
PS C:\> New-AzRoleAssignment -ObjectId 44444444-4444-4444-4444-444444444444 -RoleDefinitionId 9980e02c-c2be-4d73-94e8-173b1dc7cf3c -Scope /subscriptions/00000000-0000-0000-0000-000000000000/resourceGroups/pharma-sales

RoleAssignmentId      : /subscriptions/00000000-0000-0000-0000-000000000000/resourceGroups/pharma-sales/providers/Microsoft.Authorization/roleAssignments/55555555-5555-5555-5555-555555555555
Scope                 : /subscriptions/00000000-0000-0000-0000-000000000000/resourceGroups/pharma-sales
DisplayName          : Alain Charon
SignInName           : alain@example.com
RoleDefinitionName   : Virtual Machine Contributor
RoleDefinitionId    : 9980e02c-c2be-4d73-94e8-173b1dc7cf3c
ObjectId             : 44444444-4444-4444-4444-444444444444
ObjectType           : User
CanDelegate          : False
```

## Group at a resource scope

To add a role assignment for a group at a resource scope, use [New-AzRoleAssignment](#). For information about how to get the object ID of the group, see [Get object IDs](#).

```
New-AzRoleAssignment -ObjectId <object_id> -RoleDefinitionName <role_name> -ResourceName <resource_name> -ResourceType <resource_type> -ParentResource <parent_resource> -ResourceGroupName <resource_group_name>
```

```
PS C:\> Get-AzADGroup -SearchString "Pharma"
```

SecurityEnabled	DisplayName	Id	Type
True	Pharma Sales Admins	aaaaaaaa-aaaa-aaaa-aaaa-aaaaaaaaaaaa	Group

```
PS C:\> New-AzRoleAssignment -ObjectId aaaaaaaaa-aaaa-aaaa-aaaa-aaaaaaaaaaaa -RoleDefinitionName "Virtual Machine Contributor" -ResourceName RobertVirtualNetwork -ResourceType Microsoft.Network/virtualNetworks -ResourceGroupName RobertVirtualNetworkResourceGroup
```

```
RoleAssignmentId      : /subscriptions/00000000-0000-0000-0000-000000000000/resourceGroups/MyVirtualNetworkResourceGroup

/providers/Microsoft.Network/virtualNetworks/RobertVirtualNetwork/providers/Microsoft.Authorization/roleAssignments/bbbbbbbb-bbbb-bbbb-bbbb-bbbbbbbbbb
Scope                 : /subscriptions/00000000-0000-0000-0000-000000000000/resourceGroups/MyVirtualNetworkResourceGroup
/providers/Microsoft.Network/virtualNetworks/RobertVirtualNetwork
DisplayName          : Pharma Sales Admins
SignInName           :
RoleDefinitionName   : Virtual Machine Contributor
RoleDefinitionId    : 9980e02c-c2be-4d73-94e8-173b1dc7cf3c
ObjectId             : aaaaaaaaa-aaaa-aaaa-aaaa-aaaaaaaaaaaa
ObjectType           : Group
CanDelegate          : False
```

## Application at a subscription scope

To add a role assignment for an application at a subscription scope, use [New-AzRoleAssignment](#). For information about how to get the object ID of the application, see [Get object IDs](#).

```
New-AzRoleAssignment -ObjectId <object_id> -RoleDefinitionName <role_name> -Scope /subscriptions/<subscription_id>
```

```
PS C:\> New-AzRoleAssignment -ObjectId 77777777-7777-7777-7777-777777777777 -RoleDefinitionName "Reader" -Scope /subscriptions/00000000-0000-0000-0000-000000000000

RoleAssignmentId : /subscriptions/00000000-0000-0000-0000-
000000000000/providers/Microsoft.Authorization/roleAssignments/66666666-6666-6666-6666-666666666666
Scope : /subscriptions/00000000-0000-0000-0000-000000000000
DisplayName : MyApp1
SignInName :
RoleDefinitionName : Reader
RoleDefinitionId : acdd72a7-3385-48ef-bd42-f606fba81ae7
ObjectId : 77777777-7777-7777-7777-777777777777
ObjectType : ServicePrincipal
CanDelegate : False
```

## User at a management group scope

To add a role assignment for a user at a management group scope, use [New-AzRoleAssignment](#). To get the management group ID, you can find it on the **Management groups** blade in the Azure portal or you can use [Get-AzManagementGroup](#).

```
New-AzRoleAssignment -SignInName <email_or_userprincipalname> -RoleDefinitionName <role_name> -Scope
/providers/Microsoft.Management/managementGroups/<group_id>
```

```
PS C:\> New-AzRoleAssignment -SignInName alain@example.com -RoleDefinitionName "Billing Reader" -Scope
/providers/Microsoft.Management/managementGroups/marketing-group

RoleAssignmentId : /providers/Microsoft.Management/managementGroups/marketing-
group/providers/Microsoft.Authorization/roleAssignments/22222222-2222-2222-2222-222222222222
Scope : /providers/Microsoft.Management/managementGroups/marketing-group
DisplayName : Alain Charon
SignInName : alain@example.com
RoleDefinitionName : Billing Reader
RoleDefinitionId : fa23ad8b-c56e-40d8-ac0c-ce449e1d2c64
ObjectId : 44444444-4444-4444-4444-444444444444
ObjectType : User
CanDelegate : False
```

## Remove a role assignment

In Azure RBAC, to remove access, you remove a role assignment by using [Remove-AzRoleAssignment](#).

The following example removes the *Virtual Machine Contributor* role assignment from the *alain@example.com* user on the *pharma-sales* resource group:

```
PS C:\> Remove-AzRoleAssignment -SignInName alain@example.com -RoleDefinitionName "Virtual Machine
Contributor" -ResourceGroupName pharma-sales
```

The following example removes the <role\_name> role from <object\_id> at a subscription scope.

```
Remove-AzRoleAssignment -ObjectId <object_id> -RoleDefinitionName <role_name> -Scope
/subscriptions/<subscription_id>
```

The following example removes the <role\_name> role from <object\_id> at the management group scope.

```
Remove-AzRoleAssignment -ObjectId <object_id> -RoleDefinitionName <role_name> -Scope
/providers/Microsoft.Management/managementGroups/<group_id>
```

If you get the error message: "The provided information does not map to a role assignment", make sure that you also specify the `-Scope` or `-ResourceGroupName` parameters. For more information, see [Troubleshoot Azure RBAC](#).

## Next steps

- [List Azure role assignments using Azure PowerShell](#)
- [Tutorial: Grant a group access to Azure resources using Azure PowerShell](#)
- [Tutorial: Create an Azure custom role using Azure PowerShell](#)
- [Manage resources with Azure PowerShell](#)

# Add or remove Azure role assignments using Azure CLI

7/21/2020 • 6 minutes to read • [Edit Online](#)

Azure role-based access control (RBAC) is the authorization system you use to manage access to Azure resources. To grant access, you assign roles to users, groups, service principals, or managed identities at a particular scope. This article describes how to assign roles using Azure CLI.

## Prerequisites

To add or remove role assignments, you must have:

- `Microsoft.Authorization/roleAssignments/write` and `Microsoft.Authorization/roleAssignments/delete` permissions, such as [User Access Administrator](#) or [Owner](#)
- [Bash in Azure Cloud Shell](#) or [Azure CLI](#)

## Get object IDs

To add or remove role assignments, you might need to specify the unique ID of an object. The ID has the format: `11111111-1111-1111-1111-111111111111`. You can get the ID using the Azure portal or Azure CLI.

### User

To get the object ID for an Azure AD user, you can use [az ad user show](#).

```
az ad user show --id "{email}" --query objectId --output tsv
```

### Group

To get the object ID for an Azure AD group, you can use [az ad group show](#) or [az ad group list](#).

```
az ad group show --group "{name}" --query objectId --output tsv
```

### Application

To get the object ID for an Azure AD service principal (identity used by an application), you can use [az ad sp list](#). For a service principal, use the object ID and **not** the application ID.

```
az ad sp list --display-name "{name}" --query [].objectId --output tsv
```

## Add a role assignment

In Azure RBAC, to grant access, you add a role assignment.

### User at a resource group scope

To add a role assignment for a user at a resource group scope, use [az role assignment create](#).

```
az role assignment create --role {roleNameOrId} --assignee {assignee} --resource-group {resourceGroup}
```

The following example assigns the *Virtual Machine Contributor* role to *patlong@contoso.com* user at the *pharma-sales* resource group scope:

```
az role assignment create --role "Virtual Machine Contributor" --assignee patlong@contoso.com --resource-group pharma-sales
```

## Using the unique role ID

There are a couple of times when a role name might change, for example:

- You are using your own custom role and you decide to change the name.
- You are using a preview role that has **(Preview)** in the name. When the role is released, the role is renamed.

### IMPORTANT

A preview version is provided without a service level agreement, and it's not recommended for production workloads. Certain features might not be supported or might have constrained capabilities. For more information, see [Supplemental Terms of Use for Microsoft Azure Previews](#).

Even if a role is renamed, the role ID does not change. If you are using scripts or automation to create your role assignments, it's a best practice to use the unique role ID instead of the role name. Therefore, if a role is renamed, your scripts are more likely to work.

To add a role assignment using the unique role ID instead of the role name, use [az role assignment create](#).

```
az role assignment create --role {roleId} --assignee {assignee} --resource-group {resourceGroup}
```

The following example assigns the *Virtual Machine Contributor* role to the *patlong@contoso.com* user at the *pharma-sales* resource group scope. To get the unique role ID, you can use [az role definition list](#) or see [Azure built-in roles](#).

```
az role assignment create --role 9980e02c-c2be-4d73-94e8-173b1dc7cf3c --assignee patlong@contoso.com --resource-group pharma-sales
```

## Group at a subscription scope

To add a role assignment for a group, use [az role assignment create](#). For information about how to get the object ID of the group, see [Get object IDs](#).

```
az role assignment create --role {roleNameOrId} --assignee-object-id {assigneeObjectId} --resource-group {resourceGroup} --scope /subscriptions/{subscriptionId}
```

The following example assigns the *Reader* role to the *Ann Mack Team* group with ID 22222222-2222-2222-2222-222222222222 at a subscription scope.

```
az role assignment create --role Reader --assignee-object-id 22222222-2222-2222-2222-222222222222 --scope /subscriptions/00000000-0000-0000-0000-000000000000
```

## Group at a resource scope

To add a role assignment for a group, use [az role assignment create](#). For information about how to get the object ID of the group, see [Get object IDs](#).

The following example assigns the *Virtual Machine Contributor* role to the *Ann Mack Team* group with ID

22222222-2222-2222-2222-222222222222 at a resource scope for a virtual network named *pharma-sales-project-network*.

```
az role assignment create --role "Virtual Machine Contributor" --assignee-object-id 22222222-2222-2222-2222-222222222222 --scope /subscriptions/00000000-0000-0000-0000-000000000000/resourcegroups/pharma-sales/providers/Microsoft.Network/virtualNetworks/pharma-sales-project-network
```

## Application at a resource group scope

To add a role assignment for an application, use [az role assignment create](#). For information about how to get the object ID of the application, see [Get object IDs](#).

```
az role assignment create --role {roleNameOrId} --assignee-object-id {assigneeObjectId} --resource-group {resourceGroup}
```

The following example assigns the *Virtual Machine Contributor* role to an application with object ID 44444444-4444-4444-4444-444444444444 at the *pharma-sales* resource group scope.

```
az role assignment create --role "Virtual Machine Contributor" --assignee-object-id 44444444-4444-4444-4444-444444444444 --resource-group pharma-sales
```

## User at a subscription scope

To add a role assignment for a user at a subscription scope, use [az role assignment create](#). To get the subscription ID, you can find it on the **Subscriptions** blade in the Azure portal or you can use [az account list](#).

```
az role assignment create --role {roleNameOrId} --assignee {assignee} --subscription {subscriptionNameOrId}
```

The following example assigns the *Reader* role to the *annm@example.com* user at a subscription scope.

```
az role assignment create --role "Reader" --assignee annm@example.com --subscription 00000000-0000-0000-0000-000000000000
```

## User at a management group scope

To add a role assignment for a user at a management group scope, use [az role assignment create](#). To get the management group ID, you can find it on the **Management groups** blade in the Azure portal or you can use [az account management-group list](#).

```
az role assignment create --role {roleNameOrId} --assignee {assignee} --scope /providers/Microsoft.Management/managementGroups/{groupId}
```

The following example assigns the *Billing Reader* role to the *alain@example.com* user at a management group scope.

```
az role assignment create --role "Billing Reader" --assignee alain@example.com --scope /providers/Microsoft.Management/managementGroups/marketing-group
```

## New service principal

If you create a new service principal and immediately try to assign a role to that service principal, that role assignment can fail in some cases. For example, if you use a script to create a new managed identity and then try to assign a role to that service principal, the role assignment might fail. The reason for this failure is likely a replication delay. The service principal is created in one region; however, the role assignment might occur in a

different region that hasn't replicated the service principal yet. To address this scenario, you should specify the principal type when creating the role assignment.

To add a role assignment, use `az role assignment create`, specify a value for `--assignee-object-id`, and then set `--assignee-principal-type` to `ServicePrincipal`.

```
az role assignment create --role {roleNameOrId} --assignee-object-id {assigneeObjectId} --assignee-principal-type {assigneePrincipalType} --resource-group {resourceGroup} --scope /subscriptions/{subscriptionId}
```

The following example assigns the *Virtual Machine Contributor* role to the *msi-test* managed identity at the *pharma-sales* resource group scope:

```
az role assignment create --role "Virtual Machine Contributor" --assignee-object-id 33333333-3333-3333-3333-333333333333 --assignee-principal-type ServicePrincipal --resource-group pharma-sales
```

## Remove a role assignment

In Azure RBAC, to remove access, you remove a role assignment by using `az role assignment delete`:

```
az role assignment delete --assignee {assignee} --role {roleNameOrId} --resource-group {resourceGroup}
```

The following example removes the *Virtual Machine Contributor* role assignment from the *patlong@contoso.com* user on the *pharma-sales* resource group:

```
az role assignment delete --assignee patlong@contoso.com --role "Virtual Machine Contributor" --resource-group pharma-sales
```

The following example removes the *Reader* role from the *Ann Mack Team* group with ID 22222222-2222-2222-2222-222222222222 at a subscription scope. For information about how to get the object ID of the group, see [Get object IDs](#).

```
az role assignment delete --assignee 22222222-2222-2222-2222-222222222222 --role "Reader" --subscription 00000000-0000-0000-0000-000000000000
```

The following example removes the *Billing Reader* role from the *alain@example.com* user at the management group scope. To get the ID of the management group, you can use `az account management-group list`.

```
az role assignment delete --assignee alain@example.com --role "Billing Reader" --scope /providers/Microsoft.Management/managementGroups/marketing-group
```

## Next steps

- [List Azure role assignments using Azure CLI](#)
- [Use the Azure CLI to manage Azure resources and resource groups](#)

# Add or remove Azure role assignments using the REST API

7/21/2020 • 2 minutes to read • [Edit Online](#)

Azure role-based access control (RBAC) is the authorization system you use to manage access to Azure resources. To grant access, you assign roles to users, groups, service principals, or managed identities at a particular scope. This article describes how to assign roles using the REST API.

## Prerequisites

To add or remove role assignments, you must have:

- `Microsoft.Authorization/roleAssignments/write` and `Microsoft.Authorization/roleAssignments/delete` permissions, such as [User Access Administrator](#) or [Owner](#)

## Add a role assignment

In Azure RBAC, to grant access, you add a role assignment. To add a role assignment, use the [Role Assignments - Create](#) REST API and specify the security principal, role definition, and scope. To call this API, you must have access to the `Microsoft.Authorization/roleAssignments/write` operation. Of the built-in roles, only [Owner](#) and [User Access Administrator](#) are granted access to this operation.

1. Use the [Role Definitions - List](#) REST API or see [Built-in roles](#) to get the identifier for the role definition you want to assign.
2. Use a GUID tool to generate a unique identifier that will be used for the role assignment identifier. The identifier has the format: `00000000-0000-0000-0000-000000000000`
3. Start with the following request and body:

```
PUT  
https://management.azure.com/{scope}/providers/Microsoft.Authorization/roleAssignments/{roleAssignmentId}?api-version=2015-07-01
```

```
{  
  "properties": {  
    "roleDefinitionId":  
      "/{scope}/providers/Microsoft.Authorization/roleDefinitions/{roleDefinitionId}",  
    "principalId": "{principalId}"  
  }  
}
```

4. Within the URI, replace `{scope}` with the scope for the role assignment.

SCOPE	TYPE
<code>providers/Microsoft.Management/managementGroups/{groupManagement group}</code>	
<code>subscriptions/{subscriptionId1}</code>	Subscription

SCOPE	TYPE
subscriptions/{subscriptionId1}/resourceGroups/myresourcegroup	Resource group
subscriptions/{subscriptionId1}/resourceGroups/myresourceprovider/providers/microsoft.web/sites/mysite1	Resource provider

In the previous example, `microsoft.web` is a resource provider that refers to an App Service instance. Similarly, you can use any other resource providers and specify the scope. For more information, see [Azure Resource providers and types](#) and supported [Azure Resource Manager resource provider operations](#).

5. Replace `{roleAssignmentId}` with the GUID identifier of the role assignment.
6. Within the request body, replace `{scope}` with the scope for the role assignment.

SCOPE	TYPE
providers/Microsoft.Management/managementGroups/{group1}	Management group
subscriptions/{subscriptionId1}	Subscription
subscriptions/{subscriptionId1}/resourceGroups/myresourcegroup	Resource group
subscriptions/{subscriptionId1}/resourceGroups/myresourceprovider/providers/microsoft.web/sites/mysite1	Resource provider

7. Replace `{roleDefinitionId}` with the role definition identifier.
8. Replace `{principalId}` with the object identifier of the user, group, or service principal that will be assigned the role.

The following request and body assigns the [Backup Reader](#) role to a user at subscription scope:

PUT https://management.azure.com/subscriptions/{subscriptionId1}/providers/microsoft.authorization/roleassignments/{roleAssignmentId1}?api-version=2015-07-01
{   "properties": {     "roleDefinitionId": "/subscriptions/{subscriptionId1}/providers/Microsoft.Authorization/roleDefinitions/a795c7a0-d4a2-40c1-ae25-d81f01202912",     "principalId": "{objectId1}"   } }

The following shows an example of the output:

```
{
  "properties": {
    "roleDefinitionId": "/subscriptions/{subscriptionId1}/providers/Microsoft.Authorization/roleDefinitions/a795c7a0-d4a2-40c1-ae25-d81f01202912",
    "principalId": "{objectId1}",
    "scope": "/subscriptions/{subscriptionId1}",
    "createdOn": "2020-05-06T23:55:23.7679147Z",
    "updatedOn": "2020-05-06T23:55:23.7679147Z",
    "createdBy": null,
    "updatedBy": "{updatedByObjectId1}"
  },
  "id": "/subscriptions/{subscriptionId1}/providers/Microsoft.Authorization/roleAssignments/{roleAssignmentId1}",
  "type": "Microsoft.Authorization/roleAssignments",
  "name": "{roleAssignmentId1}"
}
```

## Remove a role assignment

In Azure RBAC, to remove access, you remove a role assignment. To remove a role assignment, use the [Role Assignments - Delete](#) REST API. To call this API, you must have access to the `Microsoft.Authorization/roleAssignments/delete` operation. Of the built-in roles, only [Owner](#) and [User Access Administrator](#) are granted access to this operation.

1. Get the role assignment identifier (GUID). This identifier is returned when you first create the role assignment or you can get it by listing the role assignments.
2. Start with the following request:

```
DELETE
https://management.azure.com/{scope}/providers/Microsoft.Authorization/roleAssignments/{roleAssignmentId}?api-version=2015-07-01
```

3. Within the URL, replace `{scope}` with the scope for removing the role assignment.

SCOPE	TYPE
<code>providers/Microsoft.Management/managementGroups/{group}</code>	Management group
<code>subscriptions/{subscriptionId1}</code>	Subscription
<code>subscriptions/{subscriptionId1}/resourceGroups/myresourcegroup</code>	Resource group
<code>subscriptions/{subscriptionId1}/resourceGroups/myresourcegroup/providers/microsoft.web/sites/mysite1</code>	Resource

4. Replace `{roleAssignmentId}` with the GUID identifier of the role assignment.

The following request removes the specified role assignment at subscription scope:

```
DELETE
https://management.azure.com/subscriptions/{subscriptionId1}/providers/microsoft.authorization/roleAssignments/{roleAssignmentId1}?api-version=2015-07-01
```

The following shows an example of the output:

```
{  
  "properties": {  
    "roleDefinitionId":  
      "/subscriptions/{subscriptionId1}/providers/Microsoft.Authorization/roleDefinitions/a795c7a0-d4a2-40c1-ae25-  
      d81f01202912",  
    "principalId": "{objectId1}",  
    "scope": "/subscriptions/{subscriptionId1}",  
    "createdOn": "2020-05-06T23:55:24.5379478Z",  
    "updatedOn": "2020-05-06T23:55:24.5379478Z",  
    "createdBy": "{createdByObjectId1}",  
    "updatedBy": "{updatedByObjectId1}"  
},  
  "id":  
    "/subscriptions/{subscriptionId1}/providers/Microsoft.Authorization/roleAssignments/{roleAssignmentId1}",  
    "type": "Microsoft.Authorization/roleAssignments",  
    "name": "{roleAssignmentId1}"  

```

## Next steps

- [List Azure role assignments using the REST API](#)
- [Deploy resources with Resource Manager templates and Resource Manager REST API](#)
- [Azure REST API Reference](#)
- [Create or update Azure custom roles using the REST API](#)

# Add Azure role assignments using Azure Resource Manager templates

7/21/2020 • 7 minutes to read • [Edit Online](#)

Azure role-based access control (RBAC) is the authorization system you use to manage access to Azure resources. To grant access, you assign roles to users, groups, service principals, or managed identities at a particular scope. In addition to using Azure PowerShell or the Azure CLI, you can assign roles using [Azure Resource Manager templates](#). Templates can be helpful if you need to deploy resources consistently and repeatedly. This article describes how to assign roles using templates.

## Get object IDs

To assign a role, you need to specify the ID of the user, group, or application you want to assign the role to. The ID has the format: `11111111-1111-1111-1111-111111111111`. You can get the ID using the Azure portal, Azure PowerShell, or Azure CLI.

### User

To get the ID of a user, you can use the [Get-AzADUser](#) or [az ad user show](#) commands.

```
$objectId = (Get-AzADUser -DisplayName "{name}").id
```

```
objectId=$(az ad user show --id "{email}" --query objectId --output tsv)
```

### Group

To get the ID of a group, you can use the [Get-AzADGroup](#) or [az ad group show](#) commands.

```
$objectId = (Get-AzADGroup -DisplayName "{name}").id
```

```
objectId=$(az ad group show --group "{name}" --query objectId --output tsv)
```

### Application

To get the ID of a service principal (identity used by an application), you can use the [Get-AzADServicePrincipal](#) or [az ad sp list](#) commands. For a service principal, use the object ID and **not** the application ID.

```
$objectId = (Get-AzADServicePrincipal -DisplayName "{name}").id
```

```
objectId=$(az ad sp list --display-name "{name}" --query [].objectId --output tsv)
```

## Add a role assignment

In Azure RBAC, to grant access, you add a role assignment.

### Resource group scope (without parameters)

The following template shows a basic way to add a role assignment. Some values are specified within the template.

The following template demonstrates:

- How to assign the [Reader](#) role to a user, group, or application at a resource group scope

To use the template, you must do the following:

- Create a new JSON file and copy the template
- Replace `<your-principal-id>` with the ID of a user, group, or application to assign the role to

```
{  
    "$schema": "https://schema.management.azure.com/schemas/2015-01-01/deploymentTemplate.json#",  
    "contentVersion": "1.0.0.0",  
    "resources": [  
        {  
            "type": "Microsoft.Authorization/roleAssignments",  
            "apiVersion": "2018-09-01-preview",  
            "name": "[guid(resourceGroup().id)]",  
            "properties": {  
                "roleDefinitionId": "[concat('/subscriptions/', subscription().subscriptionId,  
                '/providers/Microsoft.Authorization/roleDefinitions/', 'acdd72a7-3385-48ef-bd42-f606fba81ae7')]",  
                "principalId": "<your-principal-id>"  
            }  
        }  
    ]  
}
```

Here are example [New-AzResourceGroupDeployment](#) and [az group deployment create](#) commands for how to start the deployment in a resource group named ExampleGroup.

```
New-AzResourceGroupDeployment -ResourceGroupName ExampleGroup -TemplateFile rbac-test.json
```

```
az group deployment create --resource-group ExampleGroup --template-file rbac-test.json
```

The following shows an example of the Reader role assignment to a user for a resource group after deploying the template.

The screenshot shows the Azure portal's 'Access control (IAM)' blade for the 'ExampleGroup' resource group. The left sidebar includes options like Overview, Activity log, Access control (IAM), Tags, Events, Settings, Quickstart, Deployments, and Policies. The 'Access control (IAM)' option is selected. The main area displays a table of role assignments. One row for 'TestUser1' is highlighted with a red box. The table also lists other roles such as 'Storage Blob Data Reader' and 'User Access Administrator'.

READER			
	TestUser1 testuser1@	User	Reader ⓘ This resource
STORAGE BLOB DATA READER			
	Alain Charon alain@	User	Storage Blob Data Read... Subscription (Inherited)
USER ACCESS ADMINISTRATOR			
	MS-PIM	App	User Access Administra... Subscription (Inherited)

## Resource group or subscription scope

The previous template isn't very flexible. The following template uses parameters and can be used at different scopes. The following template demonstrates:

- How to assign a role to a user, group, or application at either a resource group or subscription scope

- How to specify the Owner, Contributor, and Reader roles as a parameter

To use the template, you must specify the following inputs:

- The ID of a user, group, or application to assign the role to
- A unique ID that will be used for the role assignment, or you can use the default ID

```
{
    "$schema": "https://schema.management.azure.com/schemas/2015-01-01/deploymentTemplate.json#",
    "contentVersion": "1.0.0.0",
    "parameters": {
        "principalId": {
            "type": "string",
            "metadata": {
                "description": "The principal to assign the role to"
            }
        },
        "builtInRoleType": {
            "type": "string",
            "allowedValues": [
                "Owner",
                "Contributor",
                "Reader"
            ],
            "metadata": {
                "description": "Built-in role to assign"
            }
        },
        "roleNameGuid": {
            "type": "string",
            "defaultValue": "[newGuid()]",
            "metadata": {
                "description": "A new GUID used to identify the role assignment"
            }
        }
    },
    "variables": {
        "Owner": "[concat('/subscriptions/', subscription().subscriptionId,
        '/providers/Microsoft.Authorization/roleDefinitions/', '8e3af657-a8ff-443c-a75c-2fe8c4bcb635')]",
        "Contributor": "[concat('/subscriptions/', subscription().subscriptionId,
        '/providers/Microsoft.Authorization/roleDefinitions/', 'b24988ac-6180-42a0-ab88-20f7382dd24c')]",
        "Reader": "[concat('/subscriptions/', subscription().subscriptionId,
        '/providers/Microsoft.Authorization/roleDefinitions/', 'acdd72a7-3385-48ef-bd42-f606fba81ae7')]"
    },
    "resources": [
        {
            "type": "Microsoft.Authorization/roleAssignments",
            "apiVersion": "2018-09-01-preview",
            "name": "[parameters('roleNameGuid')]",
            "properties": {
                "roleDefinitionId": "[variables(parameters('builtInRoleType'))]",
                "principalId": "[parameters('principalId')]"
            }
        }
    ]
}
```

#### NOTE

This template is not idempotent unless the same `roleNameGuid` value is provided as a parameter for each deployment of the template. If no `roleNameGuid` is provided, by default a new GUID is generated on each deployment and subsequent deployments will fail with a `Conflict: RoleAssignmentExists` error.

The scope of the role assignment is determined from the level of the deployment. Here are example [New-AzResourceGroupDeployment](#) and [az group deployment create](#) commands for how to start the deployment at a resource group scope.

```
New-AzResourceGroupDeployment -ResourceGroupName ExampleGroup -TemplateFile rbac-test.json -principalId $objectid -builtInRoleType Reader
```

```
az group deployment create --resource-group ExampleGroup --template-file rbac-test.json --parameters principalId=$objectid builtInRoleType=Reader
```

Here are example [New-AzDeployment](#) and [az deployment create](#) commands for how to start the deployment at a subscription scope and specify the location.

```
New-AzDeployment -Location centralus -TemplateFile rbac-test.json -principalId $objectid -builtInRoleType Reader
```

```
az deployment create --location centralus --template-file rbac-test.json --parameters principalId=$objectid builtInRoleType=Reader
```

## Resource scope

If you need to add a role assignment at the level of a resource, the format of the role assignment is different. You provide the resource provider namespace and resource type of the resource to assign the role to. You also include the name of the resource in the name of the role assignment.

For the type and name of the role assignment, use the following format:

```
"type": "{resource-provider-namespace}/{resource-type}/providers/roleAssignments",
"name": "{resource-name}/Microsoft.Authorization/{role-assign-GUID}"
```

The following template demonstrates:

- How to create a new storage account
- How to assign a role to a user, group, or application at the storage account scope
- How to specify the Owner, Contributor, and Reader roles as a parameter

To use the template, you must specify the following inputs:

- The ID of a user, group, or application to assign the role to

```
{
    "$schema": "https://schema.management.azure.com/schemas/2015-01-01/deploymentTemplate.json#",
    "contentVersion": "1.0.0.0",
    "parameters": {
        "principalId": {
            "type": "string",
            "metadata": {
                "description": "The principal to assign the role to"
            }
        },
        "builtInRoleType": {
            "type": "string",
            "allowedValues": [
                "Owner",
                "Contributor",
                "Reader"
            ],
            "metadata": {
                "description": "Built-in role to assign"
            }
        },
        "location": {
            "type": "string",
            "defaultValue": "[resourceGroup().location]"
        }
    },
    "variables": {
        "Owner": "[concat('/subscriptions/', subscription().subscriptionId,
'/providers/Microsoft.Authorization/roleDefinitions/', '8e3af657-a8ff-443c-a75c-2fe8c4bcb635')]",
        "Contributor": "[concat('/subscriptions/', subscription().subscriptionId,
'/providers/Microsoft.Authorization/roleDefinitions/', 'b24988ac-6180-42a0-ab88-20f7382dd24c')]",
        "Reader": "[concat('/subscriptions/', subscription().subscriptionId,
'/providers/Microsoft.Authorization/roleDefinitions/', 'acdd72a7-3385-48ef-bd42-f606fba81ae7')]",
        "storageName": "[concat('storage', uniqueString(resourceGroup().id))]"
    },
    "resources": [
        {
            "apiVersion": "2019-04-01",
            "type": "Microsoft.Storage/storageAccounts",
            "name": "[variables('storageName')]",
            "location": "[parameters('location')]",
            "sku": {
                "name": "Standard_LRS"
            },
            "kind": "Storage",
            "properties": {}
        },
        {
            "type": "Microsoft.Storage/storageAccounts/providers/roleAssignments",
            "apiVersion": "2018-09-01-preview",
            "name": "[concat(variables('storageName'), '/Microsoft.Authorization/',
guid(uniqueString(variables('storageName'))))]",
            "dependsOn": [
                "[variables('storageName')]"
            ],
            "properties": {
                "roleDefinitionId": "[variables(parameters('builtInRoleType'))]",
                "principalId": "[parameters('principalId')]"
            }
        }
    ]
}
}
```

To deploy the previous template, you use the resource group commands. Here are example [New-AzResourceGroupDeployment](#) and [az group deployment create](#) commands for how to start the deployment at a resource scope.

```
New-AzResourceGroupDeployment -ResourceGroupName ExampleGroup -TemplateFile rbac-test.json -principalId $objectid -builtInRoleType Contributor
```

```
az group deployment create --resource-group ExampleGroup --template-file rbac-test.json --parameters principalId=$objectid builtInRoleType=Contributor
```

The following shows an example of the Contributor role assignment to a user for a storage account after deploying the template.

The screenshot shows the 'storagekhufwx4jvvk36 - Access control (IAM)' blade in the Azure portal. On the left, there's a navigation menu with options like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Data transfer, and Storage Explorer (preview). The main area displays role assignments:

- BILLING READER:** A row for 'SA Sales Admins' (Group) with 'Billing Reader' (Subscription (Inherited)).
- CONTRIBUTOR:** A row for 'TE TestUser1 testuser1@...' (User) with 'Contributor' (This resource).
- OWNER:** A row for 'AD Admin admin@...' (User) with 'Owner' (Subscription (Inherited)).

A red box highlights the 'Contributor' assignment for the user 'TestUser1'.

## New service principal

If you create a new service principal and immediately try to assign a role to that service principal, that role assignment can fail in some cases. For example, if you create a new managed identity and then try to assign a role to that service principal in the same Azure Resource Manager template, the role assignment might fail. The reason for this failure is likely a replication delay. The service principal is created in one region; however, the role assignment might occur in a different region that hasn't replicated the service principal yet. To address this scenario, you should set the `principalType` property to `ServicePrincipal` when creating the role assignment.

The following template demonstrates:

- How to create a new managed identity service principal
- How to specify the `principalType`
- How to assign the Contributor role to that service principal at a resource group scope

To use the template, you must specify the following inputs:

- The base name of the managed identity, or you can use the default string

```
{
    "$schema": "http://schema.management.azure.com/schemas/2015-01-01/deploymentTemplate.json#",
    "contentVersion": "1.0.0.0",
    "parameters": {
        "baseName": {
            "type": "string",
            "defaultValue": "msi-test"
        }
    },
    "variables": {
        "identityName": "[concat(parameters('baseName'), '-bootstrap')]",
        "bootstrapRoleAssignmentId": "[guid(concat(resourceGroup().id, 'contributor'))]",
        "contributorRoleDefinitionId": "[concat('/subscriptions/', subscription().subscriptionId,
'/providers/Microsoft.Authorization/roleDefinitions/', 'b24988ac-6180-42a0-ab88-20f7382dd24c')]"
    },
    "resources": [
        {
            "type": "Microsoft.ManagedIdentity/userAssignedIdentities",
            "name": "[variables('identityName')]",
            "apiVersion": "2018-11-30",
            "location": "[resourceGroup().location]"
        },
        {
            "type": "Microsoft.Authorization/roleAssignments",
            "apiVersion": "2018-09-01-preview",
            "name": "[variables('bootstrapRoleAssignmentId')]",
            "dependsOn": [
                "[resourceId('Microsoft.ManagedIdentity/userAssignedIdentities', variables('identityName'))]"
            ],
            "properties": {
                "roleDefinitionId": "[variables('contributorRoleDefinitionId')]",
                "principalId": "[reference(resourceId('Microsoft.ManagedIdentity/userAssignedIdentities',
variables('identityName')), '2018-11-30').principalId]",
                "scope": "[resourceGroup().id]",
                "principalType": "ServicePrincipal"
            }
        }
    ]
}
```

Here are example [New-AzResourceGroupDeployment](#) and [az group deployment create](#) commands for how to start the deployment at a resource group scope.

```
New-AzResourceGroupDeployment -ResourceGroupName ExampleGroup2 -TemplateFile rbac-test.json
```

```
az group deployment create --resource-group ExampleGroup2 --template-file rbac-test.json
```

The following shows an example of the Contributor role assignment to a new managed identity service principal after deploying the template.

The screenshot shows the 'Access control (IAM)' blade for the 'ExampleGroup2' resource group. On the left, there's a sidebar with various navigation options like Overview, Activity log, Access control (IAM), Tags, Events, Settings, Quickstart, Deployments, and Policies. The 'Access control (IAM)' option is selected. The main area displays three sections: CONTRIBUTOR, OWNER, and READER. The 'Contributor' section is highlighted with a red box. It lists an 'App' named 'msi-test-bootstrap' with the role 'Contributor'. Below it, the 'OWNER' section lists two users: 'AD Admin' (User) and 'A2 Admin 2' (User), both with the role 'Owner'. The 'Subscription (Inherited)' column indicates that these roles are inherited from the subscription level.

CONTRIBUTOR				
	msi-test-bootstrap	App	Contributor	This resource

OWNER				
	AD Admin admin@	User	Owner	Subscription (Inherited)
	A2 Admin 2 admin2@	User	Owner	Subscription (Inherited)

READER				
--------	--	--	--	--

## Remove a role assignment

In Azure RBAC, to remove access to an Azure resource, you remove the role assignment. There isn't a way to remove a role assignment using a template. To remove a role assignment, you must use other tools such as:

- [Azure portal](#)
- [Azure PowerShell](#)
- [Azure CLI](#)
- [REST API](#)

## Next steps

- [Quickstart: Create and deploy Azure Resource Manager templates by using the Azure portal](#)
- [Understand the structure and syntax of Azure Resource Manager Templates](#)
- [Create resource groups and resources at the subscription level](#)
- [Azure Quickstart Templates](#)

# Understand Azure deny assignments

5/3/2020 • 2 minutes to read • [Edit Online](#)

Similar to a role assignment, a *deny assignment* attaches a set of deny actions to a user, group, or service principal at a particular scope for the purpose of denying access. Deny assignments block users from performing specific Azure resource actions even if a role assignment grants them access.

This article describes how deny assignments are defined.

## How deny assignments are created

Deny assignments are created and managed by Azure to protect resources. Azure Blueprints and Azure managed apps use deny assignments to protect system-managed resources. Azure Blueprints and Azure managed apps are the only way that deny assignments can be created. You can't directly create your own deny assignments. For more information about how Blueprints uses deny assignments to lock resources, see [Understand resource locking in Azure Blueprints](#).

### NOTE

You can't directly create your own deny assignments.

## Compare role assignments and deny assignments

Deny assignments follow a similar pattern as role assignments, but also have some differences.

CAPABILITY	ROLE ASSIGNMENT	DENY ASSIGNMENT
Grant access	✓	
Deny access		✓
Can be directly created	✓	
Apply at a scope	✓	✓
Exclude principals		✓
Prevent inheritance to child scopes		✓
Apply to <a href="#">classic subscription administrator</a> assignments		✓

## Deny assignment properties

A deny assignment has the following properties:

PROPERTY	REQUIRED	TYPE	DESCRIPTION
----------	----------	------	-------------

PROPERTY	REQUIRED	TYPE	DESCRIPTION
<code>DenyAssignmentName</code>	Yes	String	The display name of the deny assignment. Names must be unique for a given scope.
<code>Description</code>	No	String	The description of the deny assignment.
<code>Permissions.Actions</code>	At least one Actions or one DataActions	String[]	An array of strings that specify the management operations to which the deny assignment blocks access.
<code>Permissions.NotActions</code>	No	String[]	An array of strings that specify the management operations to exclude from the deny assignment.
<code>Permissions.DataActions</code>	At least one Actions or one DataActions	String[]	An array of strings that specify the data operations to which the deny assignment blocks access.
<code>Permissions.NotDataActions</code>	No	String[]	An array of strings that specify the data operations to exclude from the deny assignment.
<code>Scope</code>	No	String	A string that specifies the scope that the deny assignment applies to.
<code>DoNotApplyToChildScopes</code>	No	Boolean	Specifies whether the deny assignment applies to child scopes. Default value is false.
<code>Principals[i].Id</code>	Yes	String[]	An array of Azure AD principal object IDs (user, group, service principal, or managed identity) to which the deny assignment applies. Set to an empty GUID  00000000-0000-0000-0000-000000000000 to represent all principals.
<code>Principals[i].Type</code>	No	String[]	An array of object types represented by <code>Principals[i].Id</code> . Set to <code>SystemDefined</code> to represent all principals.

PROPERTY	REQUIRED	TYPE	DESCRIPTION
<code>ExcludePrincipals[i].Id</code>	No	String[]	An array of Azure AD principal object IDs (user, group, service principal, or managed identity) to which the deny assignment does not apply.
<code>ExcludePrincipals[i].Type</code>	No	String[]	An array of object types represented by <code>ExcludePrincipals[i].Id</code> .
<code>IsSystemProtected</code>	No	Boolean	Specifies whether this deny assignment was created by Azure and cannot be edited or deleted. Currently, all deny assignments are system protected.

## The All Principals principal

To support deny assignments, a system-defined principal named *All Principals* has been introduced. This principal represents all users, groups, service principals, and managed identities in an Azure AD directory. If the principal ID is a zero GUID `00000000-0000-0000-0000-000000000000` and the principal type is `SystemDefined`, the principal represents all principals. In Azure PowerShell output, All Principals looks like the following:

```
Principals      : {
    DisplayName: All Principals
    ObjectType: SystemDefined
    ObjectId:   00000000-0000-0000-0000-000000000000
}
```

All Principals can be combined with `ExcludePrincipals` to deny all principals except some users. All Principals has the following constraints:

- Can be used only in `Principals` and cannot be used in `ExcludePrincipals`.
- `Principals[i].Type` must be set to `SystemDefined`.

## Next steps

- [Tutorial: Protect new resources with Azure Blueprints resource locks](#)
- [List Azure deny assignments using the Azure portal](#)

# List Azure deny assignments using the Azure portal

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Azure deny assignments block users from performing specific Azure resource actions even if a role assignment grants them access. This article describes how to list deny assignments using the Azure portal.

## NOTE

You can't directly create your own deny assignments. For information about how deny assignments are created, see [Azure deny assignments](#).

## Prerequisites

To get information about a deny assignment, you must have:

- `Microsoft.Authorization/denyAssignments/read` permission, which is included in most [Azure built-in roles](#).

## List deny assignments

Follow these steps to list deny assignments at the subscription or management group scope.

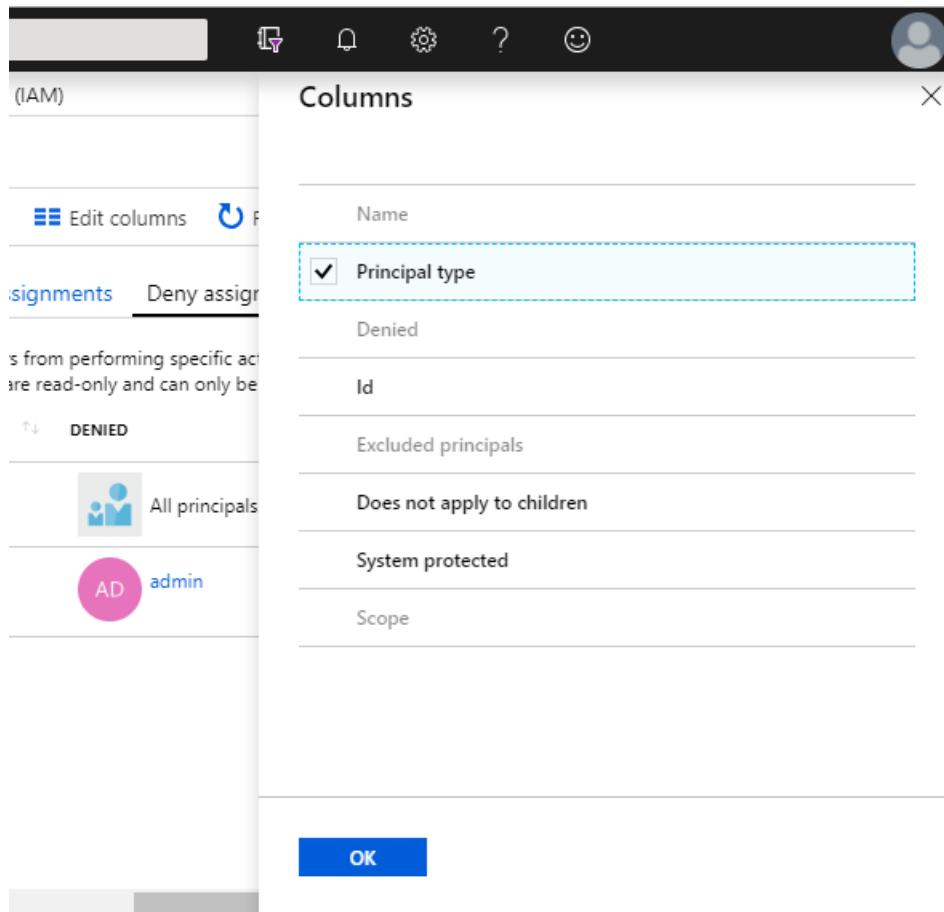
1. In the Azure portal, click **All services** and then **Management groups** or **Subscriptions**.
2. Click the management group or subscription you want to list.
3. Click **Access control (IAM)**.
4. Click the **Deny assignments** tab (or click the **View** button on the View deny assignments tile).

If there are any deny assignments at this scope or inherited to this scope, they will be listed.

The screenshot shows the Microsoft Azure portal interface. The left sidebar has a dark theme with various service icons like App Services, Function Apps, and Storage accounts. The main content area is titled "Pay-As-You-Go - Access control (IAM)". A navigation bar at the top of the content area includes "Check access", "Role assignments", and "Deny assignments" (which is highlighted in blue). Below this, a note states: "Deny assignments block users from performing specific actions even if a role assignment grants them access. At this time, deny assignments are read-only and can only be set by Azure." A "Learn more" link is provided. A table lists two deny assignments:

NAME	DENIED	EXCLUDED PRINCIPALS	SCOPE
Test deny name-everyone	All principals	Yes	This resource
Test deny name 2	admin	No	This resource

5. To display additional columns, click **Edit Columns**.



<b>Name</b>	Name of the deny assignment.
<b>Principal type</b>	User, group, system-defined group, or service principal.
<b>Denied</b>	Name of the security principal that is included in the deny assignment.
<b>Id</b>	Unique identifier for the deny assignment.
<b>Excluded principals</b>	Whether there are security principals that are excluded from the deny assignment.
<b>Does not apply to children</b>	Whether the deny assignment is inherited to subscopes.
<b>System protected</b>	Whether the deny assignment is managed by Azure. Currently, always Yes.
<b>Scope</b>	Management group, subscription, resource group, or resource.

6. Add a checkmark to any of the enabled items and then click **OK** to display the selected columns.

## List details about a deny assignment

Follow these steps to list additional details about a deny assignment.

1. Open the Deny assignments pane as described in the previous section.

- Click the deny assignment name to open the **Users** blade.

The screenshot shows the 'Deny assignment - Users' blade. On the left, there's a sidebar with 'Manage' options: 'Users' (selected), 'Denied Permissions', and 'Properties'. The main area has a search bar and a message: 'Deny assignments are currently read-only.' Below this are two tables:

- Deny assignment applies to:** Shows 'All principals' as a 'System defined' principal with 'DENIED' status.
- Deny assignment excludes:** Shows 'admin' (User) and 'Tabsgroup' (Group) as excluded principals.

The **Users** blade includes the following two sections.

<b>Deny assignment applies to</b>	Security principals that the deny assignment applies to.
<b>Deny assignment excludes</b>	Security principals that are excluded from the deny assignment.

**System-Defined Principal** represents all users, groups, service principals, and managed identities in an Azure AD directory.

- To see a list of the permissions that are denied, click **Denied Permissions**.

The screenshot shows the 'Deny assignment - Denied Permissions' blade. The sidebar has 'Manage' options: 'Users' (selected), 'Denied Permissions' (highlighted with a dashed blue border), and 'Properties'. The main area has a search bar and a message: 'Deny assignments are currently read-only.' Below this are three sections:

- Showing 2 of 2 permissions:** A table with columns 'OPERATION' and 'ACTION TYPE'. It lists 'Microsoft.Storage/\*' under 'DataActions' and 'Microsoft.Compute/\*' under 'NotDataActions'.
- ACTION TYPE**: A table showing 'Actions' with a description 'Denied management operations.'

ACTION TYPE	DESCRIPTION
<b>NotActions</b>	Management operations excluded from denied management operation.
<b>DataActions</b>	Denied data operations.
<b>NotDataActions</b>	Data operations excluded from denied data operation.

For the example shown in the previous screenshot, the following are the effective permissions:

- All storage operations on the data plane are denied except for compute operations.
4. To see the properties for a deny assignment, click **Properties**.

The screenshot shows the 'Deny assignment - Properties' blade in the Azure portal. The 'Properties' tab is selected. The blade contains the following information:

- NAME:** Test deny name-everyone
- ID:** /subscriptions/
- DESCRIPTION:** test deny description-ux df1
- SCOPE:** /subscriptions/
- DOES NOT APPLY TO CHILDREN:** Yes
- SYSTEM PROTECTED:** Yes

A note at the top of the blade says: "Deny assignments are currently read-only."

On the **Properties** blade, you can see the deny assignment name, ID, description, and scope. The **Does not apply to children** switch indicates whether the deny assignment is inherited to subscopes. The **System protected** switch indicates whether this deny assignment is managed by Azure. Currently, this is **Yes** in all cases.

## Next steps

- [Understand Azure deny assignments](#)
- [List Azure deny assignments using Azure PowerShell](#)

# List Azure deny assignments using Azure PowerShell

7/21/2020 • 2 minutes to read • [Edit Online](#)

Azure deny assignments block users from performing specific Azure resource actions even if a role assignment grants them access. This article describes how to list deny assignments using Azure PowerShell.

## NOTE

You can't directly create your own deny assignments. For information about how deny assignments are created, see [Azure deny assignments](#).

## Prerequisites

To get information about a deny assignment, you must have:

- `Microsoft.Authorization/denyAssignments/read` permission, which is included in most [Azure built-in roles](#)
- [PowerShell in Azure Cloud Shell](#) or [Azure PowerShell](#)

## List deny assignments

### List all deny assignments

To list all deny assignments for the current subscription, use [Get-AzDenyAssignment](#).

```
Get-AzDenyAssignment
```

```

PS C:\> Get-AzDenyAssignment

Id : 22222222-2222-2222-2222-222222222222
DenyAssignmentName : Deny assignment '22222222-2222-2222-2222-222222222222' created by Blueprint Assignment
Assignment
          '/subscriptions/11111111-1111-1111-1111-
111111111111/providers/Microsoft.Blueprint/blueprintAssignments/assignment-locked-storageaccount-TestingBPLocks'.
Description : Created by Blueprint Assignment '/subscriptions/11111111-1111-1111-1111-
111111111111/providers/Microsoft.Blueprint/blueprintAssignments/assignment-locked-storageaccount-TestingBPLocks'.
Actions : {*}
NotActions : */read
DataActions : {}
NotDataActions : {}
Scope : /subscriptions/11111111-1111-1111-111111111111/resourceGroups/TestingBPLocks
DoNotApplyToChildScopes : True
Principals : {
    DisplayName: All Principals
    ObjectType: SystemDefined
    ObjectId: 00000000-0000-0000-0000-000000000000
}
ExcludePrincipals : {
    ObjectType: ServicePrincipal
}
IsSystemProtected : True

Id : 33333333-3333-3333-3333-333333333333
DenyAssignmentName : Deny assignment '33333333-3333-3333-3333-333333333333' created by Blueprint Assignment
Assignment
          '/subscriptions/11111111-1111-1111-1111-
111111111111/providers/Microsoft.Blueprint/blueprintAssignments/assignment-locked-storageaccount-TestingBPLocks'.
Description : Created by Blueprint Assignment '/subscriptions/11111111-1111-1111-1111-
111111111111/providers/Microsoft.Blueprint/blueprintAssignments/assignment-locked-storageaccount-TestingBPLocks'.
Actions : {*}
NotActions : */read
DataActions : {}
NotDataActions : {}
Scope : /subscriptions/11111111-1111-1111-1111-
111111111111/resourceGroups/TestingBPLocks/providers/Microsoft.Storage/storageAccounts/storep6vkuxmu4m4pq
DoNotApplyToChildScopes : True
Principals : {
    DisplayName: All Principals
    ObjectType: SystemDefined
    ObjectId: 00000000-0000-0000-0000-000000000000
}
ExcludePrincipals : {
    DisplayName: assignment-locked-storageaccount-TestingBPLocks
    ObjectType: ServicePrincipal
    ObjectId: 2311a0b7-657a-4ca2-af6f-d1c33f6d2fff
}
IsSystemProtected : True

```

## List deny assignments at a resource group scope

To list all deny assignments at a resource group scope, use [Get-AzDenyAssignment](#).

```
Get-AzDenyAssignment -ResourceGroupName <resource_group_name>
```

```
PS C:\> Get-AzDenyAssignment -ResourceGroupName TestingBPLocks | FL DenyAssignmentName, Scope

DenyAssignmentName : Deny assignment '22222222-2222-2222-2222-222222222222' created by Blueprint Assignment
                     '/subscriptions/11111111-1111-1111-1111-
111111111111/providers/Microsoft.Blueprint/blueprintAssignments/assignment-locked-storageaccount-
TestingBPLocks'.
Scope             : /subscriptions/11111111-1111-1111-111111111111/resourceGroups/TestingBPLocks
Principals       : {
    DisplayName:      All Principals
    ObjectType:      SystemDefined
    ObjectId:        00000000-0000-0000-0000-000000000000
}
```

### List deny assignments at a subscription scope

To list all deny assignments at a subscription scope, use [Get-AzDenyAssignment](#). To get the subscription ID, you can find it on the **Subscriptions** blade in the Azure portal or you can use [Get-AzSubscription](#).

```
Get-AzDenyAssignment -Scope /subscriptions/<subscription_id>
```

```
PS C:\> Get-AzDenyAssignment -Scope /subscriptions/11111111-1111-1111-1111-111111111111
```

## Next steps

- [Understand Azure deny assignments](#)
- [List Azure deny assignments using the Azure portal](#)
- [List Azure deny assignments using the REST API](#)

# List Azure deny assignments using the REST API

7/21/2020 • 2 minutes to read • [Edit Online](#)

Azure deny assignments block users from performing specific Azure resource actions even if a role assignment grants them access. This article describes how to list deny assignments using the REST API.

## NOTE

You can't directly create your own deny assignments. For information about how deny assignments are created, see [Azure deny assignments](#).

## Prerequisites

To get information about a deny assignment, you must have:

- `Microsoft.Authorization/denyAssignments/read` permission, which is included in most [Azure built-in roles](#).

## List a single deny assignment

1. Start with the following request:

```
GET https://management.azure.com/{scope}/providers/Microsoft.Authorization/denyAssignments/{deny-assignment-id}?api-version=2018-07-01-preview
```

2. Within the URI, replace `{scope}` with the scope for which you want to list the deny assignments.

SCOPE	TYPE
<code>subscriptions/{subscriptionId}</code>	Subscription
<code>subscriptions/{subscriptionId}/resourceGroups/myresourcegroup</code>	Resource group
<code>subscriptions/{subscriptionId}/resourceGroups/myresourcegroup/providers/Microsoft.Web/sites/mysite1</code>	Resource

3. Replace `{deny-assignment-id}` with the deny assignment identifier you want to retrieve.

## List multiple deny assignments

1. Start with one of the following requests:

```
GET https://management.azure.com/{scope}/providers/Microsoft.Authorization/denyAssignments?api-version=2018-07-01-preview
```

With optional parameters:

```
GET https://management.azure.com/{scope}/providers/Microsoft.Authorization/denyAssignments?api-version=2018-07-01-preview$filter={filter}
```

2. Within the URI, replace `{scope}` with the scope for which you want to list the deny assignments.

SCOPE	TYPE
<code>subscriptions/{subscriptionId}</code>	Subscription
<code>subscriptions/{subscriptionId}/resourceGroups/myresourcegroup</code>	Resource group
<code>subscriptions/{subscriptionId}/resourceGroups/myresourcegroup/providers/Microsoft.Web/sites/mysite1</code>	Resource provider

3. Replace `{filter}` with the condition that you want to apply to filter the deny assignment list.

FILTER	DESCRIPTION
(no filter)	Lists all deny assignments at, above, and below the specified scope.
<code>\$filter=atScope()</code>	Lists deny assignments for only the specified scope and above. Does not include the deny assignments at subscopes.
<code>\$filter=assignedTo('{objectId}')</code>	Lists deny assignments for the specified user or service principal. If the user is a member of a group that has a deny assignment, that deny assignment is also listed. This filter is transitive for groups which means that if the user is a member of a group and that group is a member of another group that has a deny assignment, that deny assignment is also listed. This filter only accepts an object ID for a user or a service principal. You cannot pass an object ID for a group.
<code>\$filter=atScope()+and+assignedTo('{objectId}')</code>	Lists deny assignments for the specified user or service principal and at the specified scope.
<code>\$filter=denyAssignmentName+eq+'{deny-assignment-name}'</code>	Lists deny assignments with the specified name.
<code>\$filter=principalId+eq+'{objectId}'</code>	Lists deny assignments for the specified user, group, or service principal.

## List deny assignments at the root scope (/)

- Elevate your access as described in [Elevate access to manage all Azure subscriptions and management groups](#).
- Use the following request:

```
GET https://management.azure.com/providers/Microsoft.Authorization/denyAssignments?api-version=2018-07-01-preview&$filter={filter}
```

3. Replace `{filter}` with the condition that you want to apply to filter the deny assignment list. A filter is required.

FILTER	DESCRIPTION
<code>\$filter=atScope()</code>	List deny assignments for only the root scope. Does not include the deny assignments at subscopes.

FILTER	DESCRIPTION
<pre>\$filter=denyAssignmentName+eq+'{deny-assignment-name}'</pre>	List deny assignments with the specified name.

4. Remove elevated access.

## Next steps

- [Understand Azure deny assignments](#)
- [Elevate access to manage all Azure subscriptions and management groups](#)
- [Azure REST API Reference](#)

# Azure custom roles

7/21/2020 • 7 minutes to read • [Edit Online](#)

## IMPORTANT

Adding a management group to `AssignableScopes` is currently in preview. This preview version is provided without a service level agreement, and it's not recommended for production workloads. Certain features might not be supported or might have constrained capabilities. For more information, see [Supplemental Terms of Use for Microsoft Azure Previews](#).

If the [Azure built-in roles](#) don't meet the specific needs of your organization, you can create your own custom roles. Just like built-in roles, you can assign custom roles to users, groups, and service principals at management group, subscription, and resource group scopes.

Custom roles can be shared between subscriptions that trust the same Azure AD directory. There is a limit of **5,000** custom roles per directory. (For Azure Germany and Azure China 21Vianet, the limit is 2,000 custom roles.) Custom roles can be created using the Azure portal, Azure PowerShell, Azure CLI, or the REST API.

## Custom role example

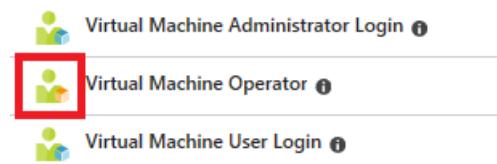
The following shows what a custom role looks like as displayed using Azure PowerShell in JSON format. This custom role can be used for monitoring and restarting virtual machines.

```
{  
  "Name": "Virtual Machine Operator",  
  "Id": "88888888-8888-8888-888888888888",  
  "IsCustom": true,  
  "Description": "Can monitor and restart virtual machines.",  
  "Actions": [  
    "Microsoft.Storage/*/read",  
    "Microsoft.Network/*/read",  
    "Microsoft.Compute/*/read",  
    "Microsoft.Compute/virtualMachines/start/action",  
    "Microsoft.Compute/virtualMachines/restart/action",  
    "Microsoft.Authorization/*/read",  
    "Microsoft.ResourceHealth/availabilityStatuses/read",  
    "Microsoft.Resources/subscriptions/resourceGroups/read",  
    "Microsoft.Insights/alertRules/*",  
    "Microsoft.Insights/diagnosticSettings/*",  
    "Microsoft.Support/*"  
  ],  
  "NotActions": [],  
  "DataActions": [],  
  "NotDataActions": [],  
  "AssignableScopes": [  
    "/subscriptions/{subscriptionId1}",  
    "/subscriptions/{subscriptionId2}",  
    "/providers/Microsoft.Management/managementGroups/{groupId1}"  
  ]  
}
```

The following shows the same custom role as displayed using Azure CLI.

```
[
  {
    "assignableScopes": [
      "/subscriptions/{subscriptionId1}",
      "/subscriptions/{subscriptionId2}",
      "/providers/Microsoft.Management/managementGroups/{groupId1}"
    ],
    "description": "Can monitor and restart virtual machines.",
    "id": "/subscriptions/{subscriptionId1}/providers/Microsoft.Authorization/roleDefinitions/88888888-8888-8888-888888888888",
    "name": "88888888-8888-8888-888888888888",
    "permissions": [
      {
        "actions": [
          "Microsoft.Storage/*/read",
          "Microsoft.Network/*/read",
          "Microsoft.Compute/*/read",
          "Microsoft.Compute/virtualMachines/start/action",
          "Microsoft.Compute/virtualMachines/restart/action",
          "Microsoft.Authorization/*/read",
          "Microsoft.ResourceHealth/availabilityStatuses/read",
          "Microsoft.Resources/subscriptions/resourceGroups/read",
          "Microsoft.Insights/alertRules/*",
          "Microsoft.Insights/diagnosticSettings/*",
          "Microsoft.Support/*"
        ],
        "dataActions": [],
        "notActions": [],
        "notDataActions": []
      }
    ],
    "roleName": "Virtual Machine Operator",
    "roleType": "CustomRole",
    "type": "Microsoft.Authorization/roleDefinitions"
  }
]
```

When you create a custom role, it appears in the Azure portal with an orange resource icon.



## Custom role properties

The following table describes what the custom role properties mean.

PROPERTY	REQUIRED	TYPE	DESCRIPTION
----------	----------	------	-------------

PROPERTY	REQUIRED	TYPE	DESCRIPTION
<code>Name</code> <code>roleName</code>	Yes	String	The display name of the custom role. While a role definition is a management group or subscription-level resource, a role definition can be used in multiple subscriptions that share the same Azure AD directory. This display name must be unique at the scope of the Azure AD directory. Can include letters, numbers, spaces, and special characters. Maximum number of characters is 128.
<code>Id</code> <code>name</code>	Yes	String	The unique ID of the custom role. For Azure PowerShell and Azure CLI, this ID is automatically generated when you create a new role.
<code>IsCustom</code> <code>roleType</code>	Yes	String	Indicates whether this is a custom role. Set to <code>true</code> or <code>CustomRole</code> for custom roles. Set to <code>false</code> or <code>BuiltInRole</code> for built-in roles.
<code>Description</code> <code>description</code>	Yes	String	The description of the custom role. Can include letters, numbers, spaces, and special characters. Maximum number of characters is 1024.
<code>Actions</code> <code>actions</code>	Yes	String[]	An array of strings that specifies the management operations that the role allows to be performed. For more information, see <a href="#">Actions</a> .
<code>NotActions</code> <code>notActions</code>	No	String[]	An array of strings that specifies the management operations that are excluded from the allowed <code>Actions</code> . For more information, see <a href="#">NotActions</a> .

PROPERTY	REQUIRED	TYPE	DESCRIPTION
<code>DataActions</code> <code>dataActions</code>	No	String[]	An array of strings that specifies the data operations that the role allows to be performed to your data within that object. If you create a custom role with <code>DataActions</code> , that role cannot be assigned at the management group scope. For more information, see <a href="#">DataActions</a> .
<code>NotDataActions</code> <code>notDataActions</code>	No	String[]	An array of strings that specifies the data operations that are excluded from the allowed <code>DataActions</code> . For more information, see <a href="#">NotDataActions</a> .
<code>AssignableScopes</code> <code>assignableScopes</code>	Yes	String[]	An array of strings that specifies the scopes that the custom role is available for assignment. You can only define one management group in <code>AssignableScopes</code> of a custom role. Adding a management group to <code>AssignableScopes</code> is currently in preview. For more information, see <a href="#">AssignableScopes</a> .

## Wildcard permissions

`Actions`, `NotActions`, `DataActions`, and `NotDataActions` support wildcards (\*) to define permissions. A wildcard (\*) extends a permission to everything that matches the action string you provide. For example, suppose that you wanted to add all the permissions related to Azure Cost Management and exports. You could add all of these action strings:

```
Microsoft.CostManagement/exports/action
Microsoft.CostManagement/exports/read
Microsoft.CostManagement/exports/write
Microsoft.CostManagement/exports/delete
Microsoft.CostManagement/exports/run/action
```

Instead of adding all of these strings, you could just add a wildcard string. For example, the following wildcard string is equivalent to the previous five strings. This would also include any future export permissions that might be added.

```
Microsoft.CostManagement/exports/*
```

You can also have multiple wildcards in a string. For example, the following string represents all query

permissions for Cost Management.

```
Microsoft.CostManagement/*/query/*
```

## Steps to create a custom role

To create a custom role, here are basics steps you should follow.

1. Decide how you want to create the custom role.

You can create custom roles using Azure portal, Azure PowerShell, Azure CLI, or the REST API.

2. Determine the permissions you need.

When you create a custom role, you need to know the operations that are available to define your permissions. To view the list of operations, see the [Azure Resource Manager resource provider operations](#). You will add the operations to the `Actions` or `NotActions` properties of the [role definition](#). If you have data operations, you will add those to the `DataActions` or `NotDataActions` properties.

3. Create the custom role.

Typically, you start with an existing built-in role and then modify it for your needs. The easiest way is to use the Azure portal. For steps on how to create a custom role using the Azure portal, see [Create or update Azure custom roles using the Azure portal](#).

4. Test the custom role.

Once you have your custom role, you have to test it to verify that it works as you expect. If you need to make adjustments later, you can update the custom role.

## Who can create, delete, update, or view a custom role

Just like built-in roles, the `AssignableScopes` property specifies the scopes that the role is available for assignment. The `AssignableScopes` property for a custom role also controls who can create, delete, update, or view the custom role.

TASK	OPERATION	DESCRIPTION
Create/delete a custom role	<code>Microsoft.Authorization/roleDefinitions/write</code>	Users that are granted this operation on all the <code>AssignableScopes</code> of the custom role can create (or delete) custom roles for use in those scopes. For example, <a href="#">Owners</a> and <a href="#">User Access Administrators</a> of management groups, subscriptions, and resource groups.
Update a custom role	<code>Microsoft.Authorization/roleDefinitions/write</code>	Users that are granted this operation on all the <code>AssignableScopes</code> of the custom role can update custom roles in those scopes. For example, <a href="#">Owners</a> and <a href="#">User Access Administrators</a> of management groups, subscriptions, and resource groups.

TASK	OPERATION	DESCRIPTION
View a custom role	Microsoft.Authorization/ roleDefinitions/read	Users that are granted this operation at a scope can view the custom roles that are available for assignment at that scope. All built-in roles allow custom roles to be available for assignment.

## Custom role limits

The following list describes the limits for custom roles.

- Each directory can have up to **5000** custom roles.
- Azure Germany and Azure China 21Vianet can have up to 2000 custom roles for each directory.
- You cannot set `AssignableScopes` to the root scope ( `"/"` ).
- You can only define one management group in `AssignableScopes` of a custom role. Adding a management group to `AssignableScopes` is currently in preview.
- Custom roles with `DataActions` cannot be assigned at the management group scope.
- Azure Resource Manager doesn't validate the management group's existence in the role definition's assignable scope.

For more information about custom roles and management groups, see [Organize your resources with Azure management groups](#).

## Input and output formats

To create a custom role using the command line, you typically use JSON to specify the properties you want for the custom role. Depending on the tools you use, the input and output formats will look slightly different. This section lists the input and output formats depending on the tool.

### Azure PowerShell

To create a custom role using Azure PowerShell, you must provide following input.

```
{
  "Name": "",
  "Description": "",
  "Actions": [],
  "NotActions": [],
  "DataActions": [],
  "NotDataActions": [],
  "AssignableScopes": []
}
```

To update a custom role using Azure PowerShell, you must provide the following input. Note that the `Id` property has been added.

```
{  
  "Name": "",  
  "Id": "",  
  "Description": "",  
  "Actions": [],  
  "NotActions": [],  
  "DataActions": [],  
  "NotDataActions": [],  
  "AssignableScopes": []  
}
```

The following shows an example of the output when you list a custom role using Azure PowerShell and the [ConvertTo-Json](#) command.

```
{  
  "Name": "",  
  "Id": "",  
  "IsCustom": true,  
  "Description": "",  
  "Actions": [],  
  "NotActions": [],  
  "DataActions": [],  
  "NotDataActions": [],  
  "AssignableScopes": []  
}
```

## Azure CLI

To create or update a custom role using Azure CLI, you must provide following input. This format is the same format when you create a custom role using Azure PowerShell.

```
{  
  "Name": "",  
  "Description": "",  
  "Actions": [],  
  "NotActions": [],  
  "DataActions": [],  
  "NotDataActions": [],  
  "AssignableScopes": []  
}
```

The following shows an example of the output when you list a custom role using Azure CLI.

```
[  
  {  
    "assignableScopes": [],  
    "description": "",  
    "id": "",  
    "name": "",  
    "permissions": [  
      {  
        "actions": [],  
        "dataActions": [],  
        "notActions": [],  
        "notDataActions": []  
      }  
    ],  
    "roleName": "",  
    "roleType": "CustomRole",  
    "type": "Microsoft.Authorization/roleDefinitions"  
  }  
]
```

## REST API

To create or update a custom role using the REST API, you must provide following input. This format is the same format that gets generated when you create a custom role using the Azure portal.

```
{  
  "properties": {  
    "roleName": "",  
    "description": "",  
    "assignableScopes": [],  
    "permissions": [  
      {  
        "actions": [],  
        "notActions": [],  
        "dataActions": [],  
        "notDataActions": []  
      }  
    ]  
  }  
}
```

The following shows an example of the output when you list a custom role using the REST API.

```
{  
  "properties": {  
    "roleName": "",  
    "type": "CustomRole",  
    "description": "",  
    "assignableScopes": [],  
    "permissions": [  
      {  
        "actions": [],  
        "notActions": [],  
        "dataActions": [],  
        "notDataActions": []  
      }  
    ],  
    "createdOn": "",  
    "updatedOn": "",  
    "createdBy": "",  
    "updatedBy": ""  
  },  
  "id": "",  
  "type": "Microsoft.Authorization/roleDefinitions",  
  "name": ""  
}
```

## Next steps

- [Tutorial: Create an Azure custom role using Azure PowerShell](#)
- [Tutorial: Create an Azure custom role using Azure CLI](#)
- [Understand Azure role definitions](#)
- [Troubleshoot Azure RBAC](#)

# Create or update Azure custom roles using the Azure portal

7/21/2020 • 9 minutes to read • [Edit Online](#)

If the [Azure built-in roles](#) don't meet the specific needs of your organization, you can create your own Azure custom roles. Just like built-in roles, you can assign custom roles to users, groups, and service principals at subscription and resource group scopes. Custom roles are stored in an Azure Active Directory (Azure AD) directory and can be shared across subscriptions. Each directory can have up to 5000 custom roles. Custom roles can be created using the Azure portal, Azure PowerShell, Azure CLI, or the REST API. This article describes how to create custom roles using the Azure portal.

## Prerequisites

To create custom roles, you need:

- Permissions to create custom roles, such as [Owner](#) or [User Access Administrator](#)

## Step 1: Determine the permissions you need

Azure has thousands of permissions that you can potentially include in your custom role. Here are four ways that you can determine the permissions you will want to add to your custom role:

METHOD	DESCRIPTION
Look at existing roles	You can look at existing roles to see what permissions are being used. For more information, see <a href="#">Azure built-in roles</a> .
Search for permissions by keyword	When you create a custom role using the Azure portal, you can search for permissions by keyword. For example, you can search for <i>virtual machine</i> or <i>billing</i> permissions. This search functionality is described more later in <a href="#">Step 4: Permissions</a> .
Download all permissions	When you create a custom role using the Azure portal, you can download all of the permissions as a CSV file and then search this file. On the <b>Add permissions</b> pane, click the <b>Download all permissions</b> button to download all of the permissions. For more information about the Add permissions pane, see <a href="#">Step 4: Permissions</a> .
View the permissions in the docs	You can view the available permissions in <a href="#">Azure Resource Manager resource provider operations</a> .

## Step 2: Choose how to start

There are three ways that you can start to create a custom role. You can clone an existing role, start from scratch, or start with a JSON file. The easiest way is to find an existing role that has most of the permissions you need and then clone and modify it for your scenario.

### Clone a role

If an existing role does not quite have the permissions you need, you can clone it and then modify the permissions. Follow these steps to start cloning a role.

1. In the Azure portal, open a subscription or resource group where you want the custom role to be assignable and then open Access control (IAM).

The following screenshot shows the Access control (IAM) page opened for a subscription.

2. Click the Roles tab to see a list of all the built-in and custom roles.
3. Search for a role you want to clone such as the Billing Reader role.
4. At the end of the row, click the ellipsis (...) and then click Clone.

Name	Type	Users	Groups	Service Principals
Billing Reader	BuiltInRole	0	1	

This opens the custom roles editor with the **Clone a role** option selected.

5. Proceed to [Step 3: Basics](#).

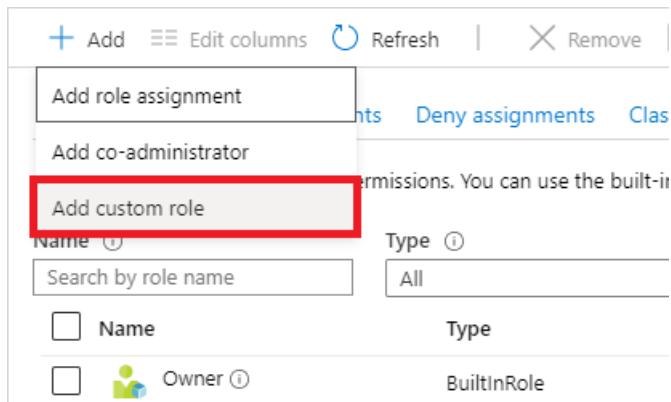
## Start from scratch

If you prefer, you can follow these steps to start a custom role from scratch.

1. In the Azure portal, open a subscription or resource group where you want the custom role to be assignable

and then open **Access control (IAM)**.

2. Click **Add** and then click **Add custom role**.



The screenshot shows the 'Add role assignment' blade in the Azure portal. At the top, there are buttons for 'Add', 'Edit columns', 'Refresh', and 'Remove'. Below these are three tabs: 'Assignments' (selected), 'Deny assignments', and 'Classifications'. A large red box highlights the 'Add custom role' button. Below the button, there are sections for 'Name' (with a search bar) and 'Type' (set to 'All'). Under 'Name', there are two filter options: 'Name' (unchecked) and 'Owner' (unchecked, with a person icon). Under 'Type', it says 'BuiltInRole'.

This opens the custom roles editor with the **Start from scratch** option selected.

3. Proceed to [Step 3: Basics](#).

### Start from JSON

If you prefer, you can specify most of your custom role values in a JSON file. You can open the file in the custom roles editor, make additional changes, and then create the custom role. Follow these steps to start with a JSON file.

1. Create a JSON file that has the following format:

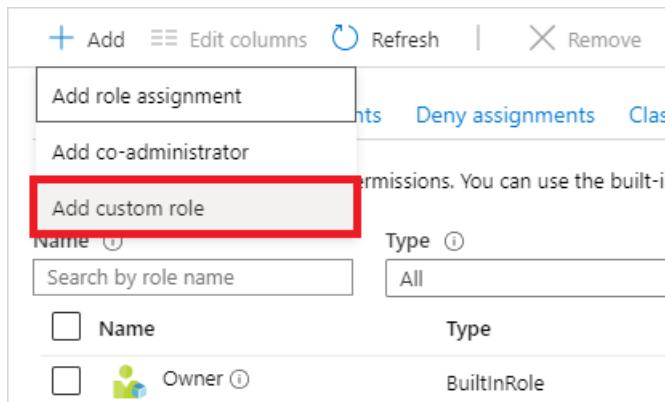
```
{  
  "properties": {  
    "roleName": "",  
    "description": "",  
    "assignableScopes": [],  
    "permissions": [  
      {  
        "actions": [],  
        "notActions": [],  
        "dataActions": [],  
        "notDataActions": []  
      }  
    ]  
  }  
}
```

2. In the JSON file, specify values for the various properties. Here's an example with some values added. For information about the different properties, see [Understand Azure role definitions](#).

```
{
  "properties": {
    "roleName": "Billing Reader Plus",
    "description": "Read billing data and download invoices",
    "assignableScopes": [
      "/subscriptions/11111111-1111-1111-1111-111111111111"
    ],
    "permissions": [
      {
        "actions": [
          "Microsoft.Authorization/*/read",
          "Microsoft.Billing/*/read",
          "Microsoft.Commerce/*/read",
          "Microsoft.Consumption/*/read",
          "Microsoft.Management/managementGroups/read",
          "Microsoft.CostManagement/*/read",
          "Microsoft.Support/*"
        ],
        "notActions": [],
        "dataActions": [],
        "notDataActions": []
      }
    ]
  }
}
```

3. In the Azure portal, open the **Access control (IAM)** page.

4. Click **Add** and then click **Add custom role**.



This opens the custom roles editor.

5. On the Basics tab, in **Baseline permissions**, select **Start from JSON**.
6. Next to the Select a file box, click the folder button to open the Open dialog box.
7. Select your JSON file and then click **Open**.
8. Proceed to [Step 3: Basics](#).

## Step 3: Basics

On the **Basics** tab, you specify the name, description, and baseline permissions for your custom role.

1. In the **Custom role name** box, specify a name for the custom role. The name must be unique for the Azure AD directory. The name can include letters, numbers, spaces, and special characters.
2. In the **Description** box, specify an optional description for the custom role. This will become the tooltip for the custom role.

The **Baseline permissions** option should already be set based on the previous step, but you can change.

**Create a custom role**

Got feedback?

**Basics** **Permissions** **Assignable scopes** **JSON** **Review + create**

To create a custom role for Azure resources, fill out some basic information. [Learn more](#)

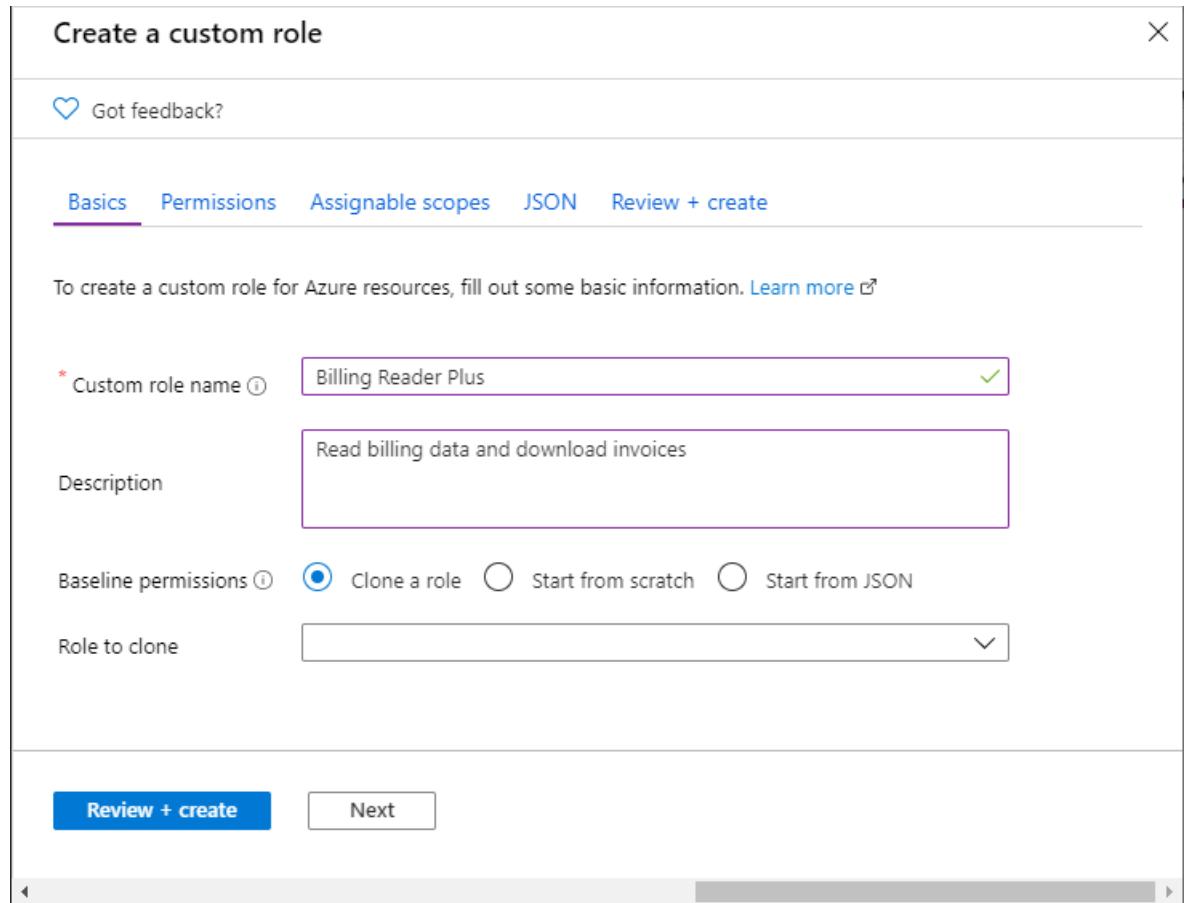
\* Custom role name  ✓

Description

Baseline permissions  Clone a role  Start from scratch  Start from JSON

Role to clone

**Review + create** **Next**



## Step 4: Permissions

On the **Permissions** tab, you specify the permissions for your custom role. Depending on whether you cloned a role or if you started with JSON, the Permissions tab might already list some permissions.

**Create a custom role**

Got feedback?

**Basics** **Permissions** **Assignable scopes** **JSON** **Review + create**

[+ Add permissions](#) [+ Exclude permissions](#)

Click Add permissions to select the permissions you want to add to this custom role.  
To add a wildcard (\*) permission, you must manually add the permission on the JSON tab. [Learn more](#)  
To exclude specific permissions from a wildcard permission, click Exclude permissions. [Learn more](#)

Permission	↑↓	Description	↑↓	Permission type	↑↓
Microsoft.Authorization/*/read	--			Action	
Microsoft.Billing/*/read	--			Action	
Microsoft.Commerce/*/read	--			Action	
Microsoft.Consumption/*/read	--			Action	
Microsoft.Management/managementgroups/read		List management groups for the automation account		Action	
Microsoft.CostManagement/*/read	--			Action	
Microsoft.Support/*	--			Action	

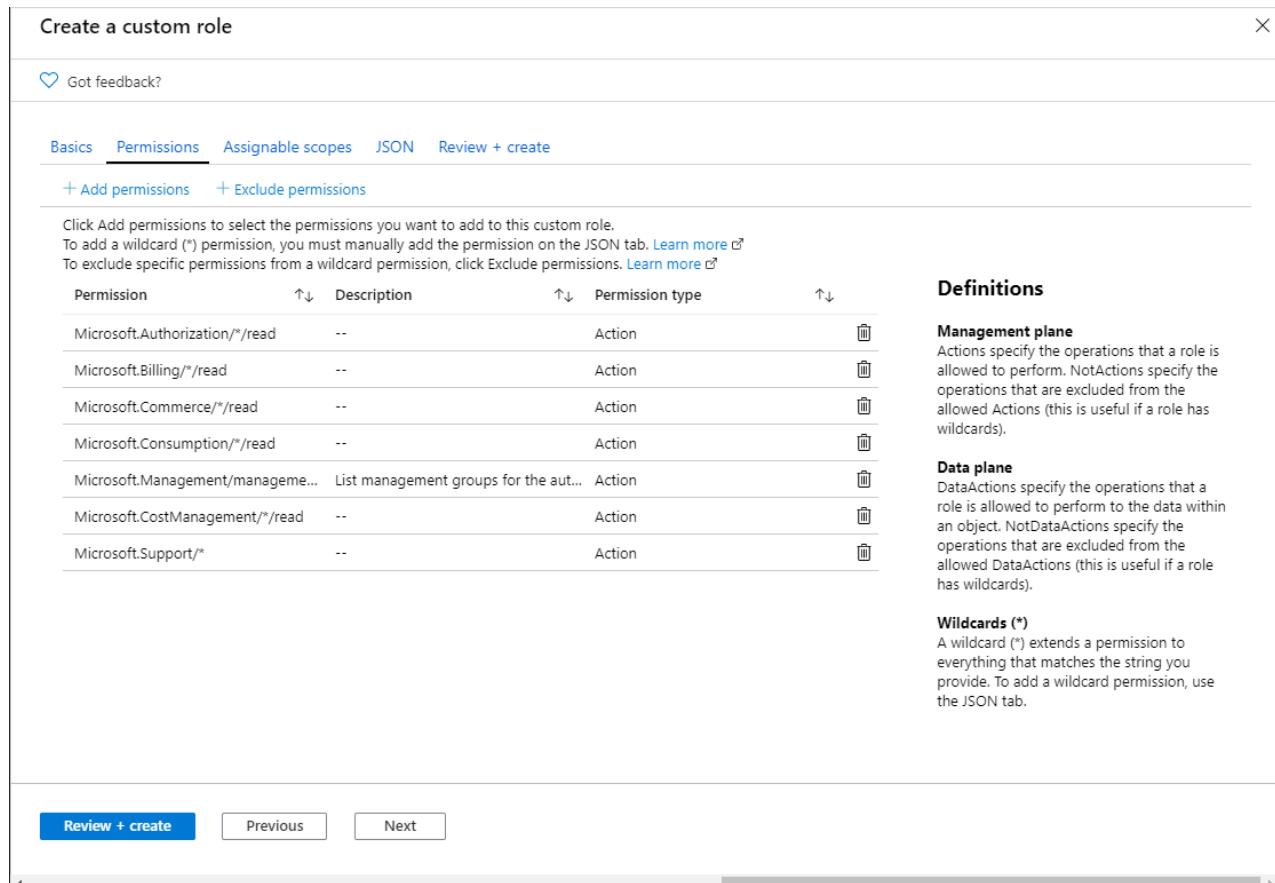
**Definitions**

**Management plane**  
Actions specify the operations that a role is allowed to perform. NotActions specify the operations that are excluded from the allowed Actions (this is useful if a role has wildcards).

**Data plane**  
DataActions specify the operations that a role is allowed to perform to the data within an object. NotDataActions specify the operations that are excluded from the allowed DataActions (this is useful if a role has wildcards).

**Wildcards (\*)**  
A wildcard (\*) extends a permission to everything that matches the string you provide. To add a wildcard permission, use the JSON tab.

**Review + create** **Previous** **Next**



## Add or remove permissions

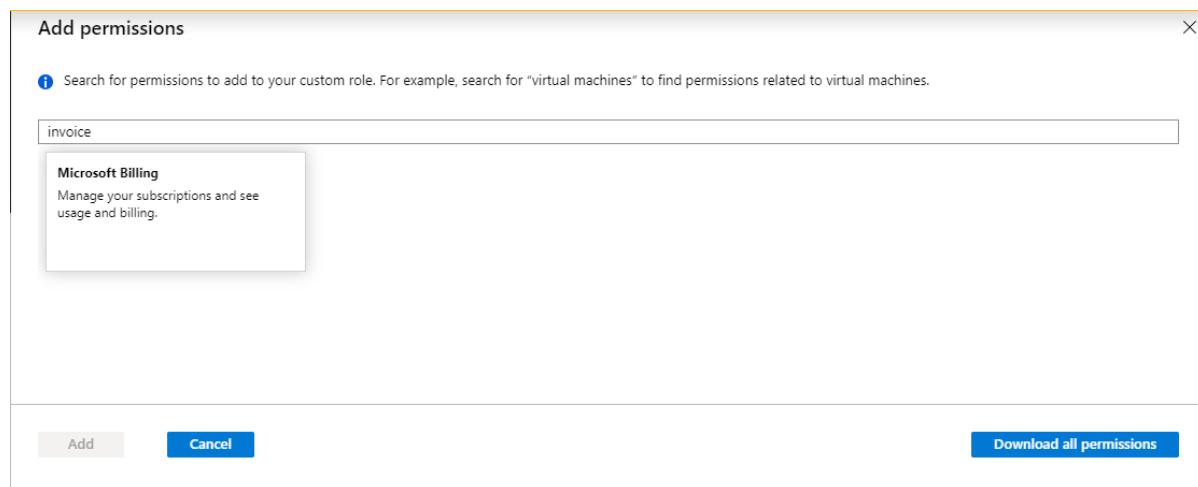
Follow these steps to add or remove permissions for your custom role.

1. To add permissions, click **Add permissions** to open the Add permissions pane.

This pane lists all available permissions grouped into different categories in a card format. Each category represents a *resource provider*, which is a service that supplies Azure resources.

2. In the **Search for a permission** box, type a string to search for permissions. For example, search for *invoice* to find permissions related to invoice.

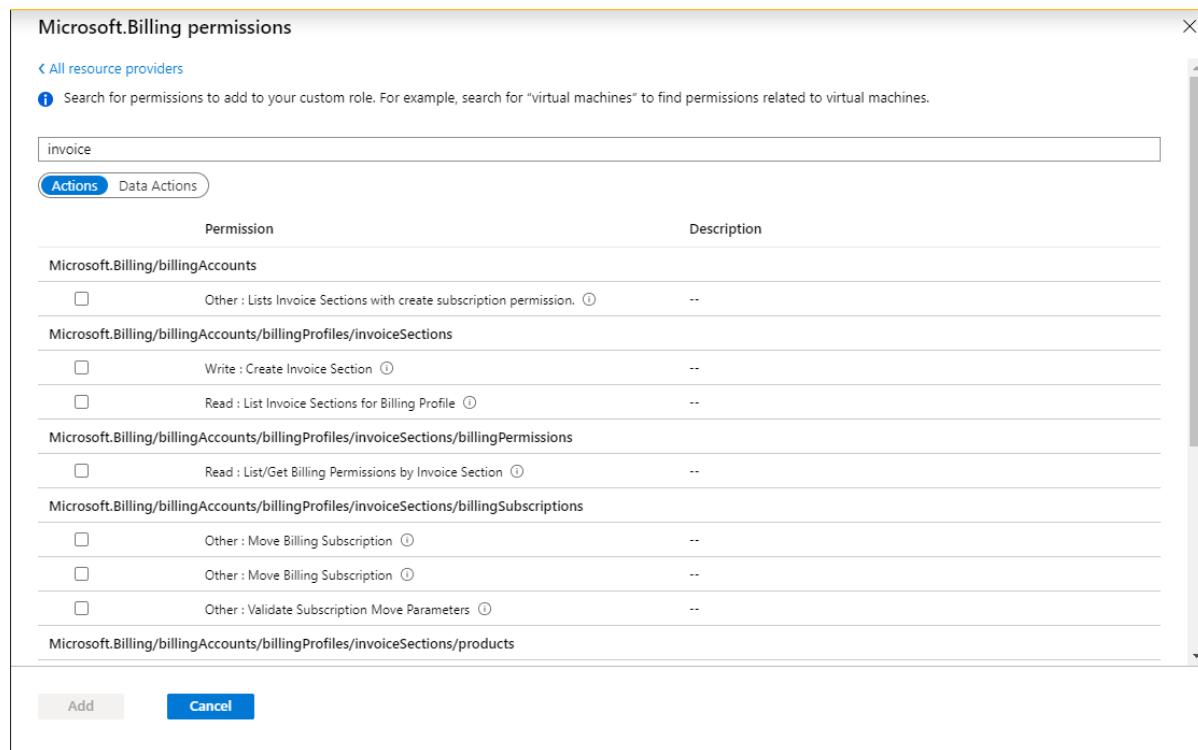
A list of resource provider cards will be displayed based on your search string. For a list of how resource providers map to Azure services, see [Resource providers for Azure services](#).



The screenshot shows the 'Add permissions' pane. At the top, there's a search bar with the placeholder 'Search for permissions to add to your custom role. For example, search for "virtual machines" to find permissions related to virtual machines.' Below the search bar is a list of resource providers. One card is highlighted: 'Microsoft Billing' with the description 'Manage your subscriptions and see usage and billing.'. At the bottom of the pane are three buttons: 'Add' (gray), 'Cancel' (blue), and 'Download all permissions' (blue).

3. Click a resource provider card that might have the permissions you want to add to your custom role, such as **Microsoft Billing**.

A list of the management permissions for that resource provider is displayed based on your search string.



The screenshot shows the 'Microsoft.Billing permissions' pane. At the top, there's a back arrow and a search bar with the placeholder 'Search for permissions to add to your custom role. For example, search for "virtual machines" to find permissions related to virtual machines.' Below the search bar is a toggle switch between 'Actions' (selected) and 'Data Actions'. The main area displays a table of permissions under various resource provider paths. Some permissions have a help icon (info icon) next to them. At the bottom of the pane are three buttons: 'Add' (gray), 'Cancel' (blue), and a 'Data Actions' button.

Permission	Description
Microsoft.Billing/billingAccounts <input type="checkbox"/> Other : Lists Invoice Sections with create subscription permission. ⓘ	--
Microsoft.Billing/billingAccounts/billingProfiles/invoiceSections <input type="checkbox"/> Write : Create Invoice Section ⓘ	--
<input type="checkbox"/> Read : List Invoice Sections for Billing Profile ⓘ	--
Microsoft.Billing/billingAccounts/billingProfiles/invoiceSections/billingPermissions <input type="checkbox"/> Read : List/Billing Permissions by Invoice Section ⓘ	--
Microsoft.Billing/billingAccounts/billingProfiles/invoiceSections/billingSubscriptions <input type="checkbox"/> Other : Move Billing Subscription ⓘ	--
<input type="checkbox"/> Other : Move Billing Subscription ⓘ	--
<input type="checkbox"/> Other : Validate Subscription Move Parameters ⓘ	--
Microsoft.Billing/billingAccounts/billingProfiles/invoiceSections/products	

4. If you are looking for permissions that apply to the data plane, click **Data Actions**. Otherwise, leave the actions toggle set to **Actions** to list permissions that apply to the management plane. For more information, about the differences between the management plane and data plane, see [Management and data operations](#).

- If necessary, update the search string to further refine your search.
- Once you find one or more permissions you want to add to your custom role, add a check mark next to the permissions. For example, add a check mark next to **Other : Download Invoice** to add the permission to download invoices.
- Click **Add** to add the permission to your permission list.

The permission gets added as an **Actions** or a **DataActions**.

Permission	Description	Permission type
Microsoft.Authorization/*/read	--	Action
Microsoft.Billing/*/read	--	Action
Microsoft.Commerce/*/read	--	Action
Microsoft.Consumption/*/read	--	Action
Microsoft.Management/managementgroups/read	List management groups for the automation account	Action
Microsoft.CostManagement/*/read	--	Action
Microsoft.Support/*	--	Action
Microsoft.Billing/invoices/download/*	Download invoice using download link	Action

- To remove permissions, click the delete icon at the end of the row. In this example, since a user will not need the ability to create support tickets, the **Microsoft.Support/\*** permission can be deleted.

### Add wildcard permissions

Depending on how you chose to start, you might have permissions with wildcards (\*) in your list of permissions. A wildcard (\*) extends a permission to everything that matches the action string you provide. For example, the following wildcard string adds all permissions related to Azure Cost Management and exports. This would also include any future export permissions that might be added.

```
Microsoft.CostManagement/exports/*
```

If you want to add a new wildcard permission, you can't add it using the **Add permissions** pane. To add a wildcard permission, you have to add it manually using the **JSON** tab. For more information, see [Step 6: JSON](#).

### Exclude permissions

If your role has a wildcard (\*) permission and you want to exclude or subtract specific permissions from that wildcard permission, you can exclude them. For example, let's say that you have the following wildcard permission:

```
Microsoft.CostManagement/exports/*
```

If you don't want to allow an export to be deleted, you could exclude the following delete permission:

When you exclude a permission, it is added as a `NotActions` or `NotDataActions`. The effective management permissions are computed by adding all of the `Actions` and then subtracting all of the `NotActions`. The effective data permissions are computed by adding all of the `DataActions` and then subtracting all of the `NotDataActions`.

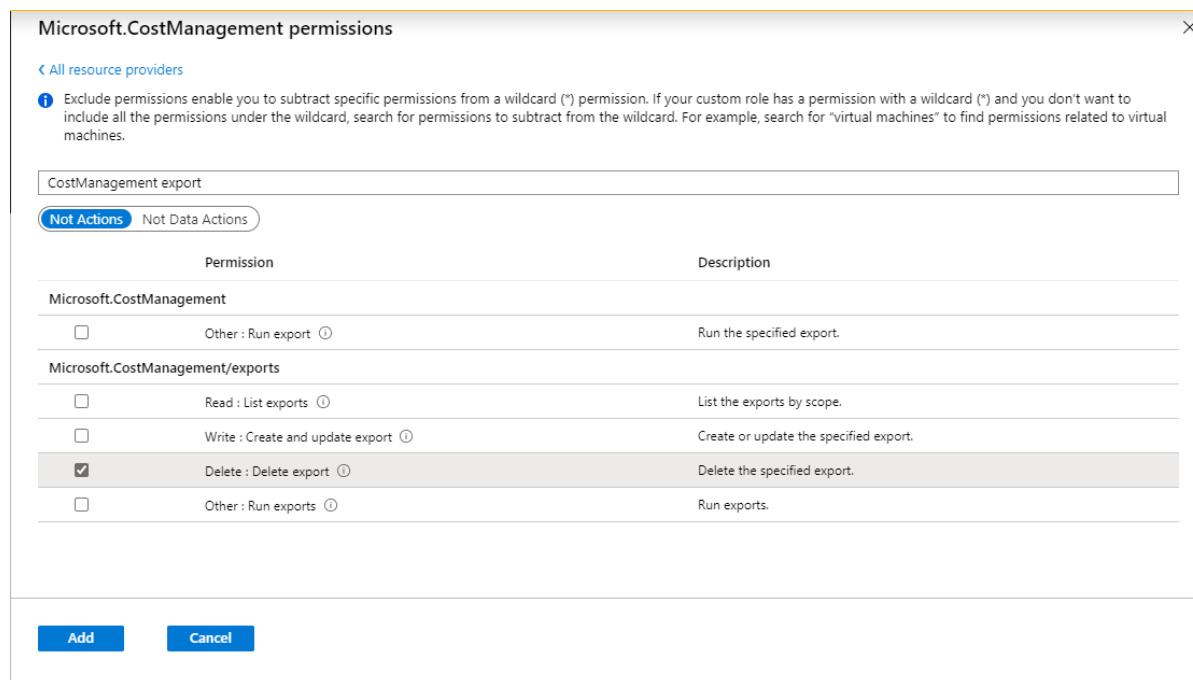
#### NOTE

Excluding a permission is not the same as a deny. Excluding permissions is simply a convenient way to subtract permissions from a wildcard permission.

1. To exclude or subtract a permission from an allowed wildcard permission, click **Exclude permissions** to open the Exclude permissions pane.

On this pane, you specify the management or data permissions that are excluded or subtracted.

2. Once you find one or more permissions that you want to exclude, add a check mark next to the permissions and then click the **Add** button.



The permission gets added as a `NotActions` or `NotDataActions`.

[+ Add permissions](#) [+ Exclude permissions](#)

Click Add permissions to select the permissions you want to add to this custom role.  
To add a wildcard (\*) permission, you must manually add the permission on the JSON tab. [Learn more](#)  
To exclude specific permissions from a wildcard permission, click Exclude permissions. [Learn more](#)

Permission	↑↓	Description	↑↓	Permission type	↑↓
Microsoft.Authorization/*/read	--			Action	
Microsoft.Billing/*/read	--			Action	
Microsoft.Commerce/*/read	--			Action	
Microsoft.Consumption/*/read	--			Action	
Microsoft.Management/managementGro...	List management groups for the authenti...	Action			
Microsoft.CostManagement/*/read	--			Action	
Microsoft.Billing/invoices/download/action	Download invoice using download link fro...	Action			
Microsoft.CostManagement/exports/*	--			Action	
Microsoft.CostManagement/exports/delete	Delete the specified export.	NotAction			

## Step 5: Assignable scopes

On the **Assignable scopes** tab, you specify where your custom role is available for assignment, such as subscription or resource group. Depending on how you chose to start, this tab might list the scope where you opened the Access control (IAM) page. Setting assignable scope to root scope ("/") is not supported. Currently, you cannot add a management group as an assignable scope.

1. Click **Add assignable scopes** to open the Add assignable scopes pane.

Create a custom role X

[Got feedback?](#)

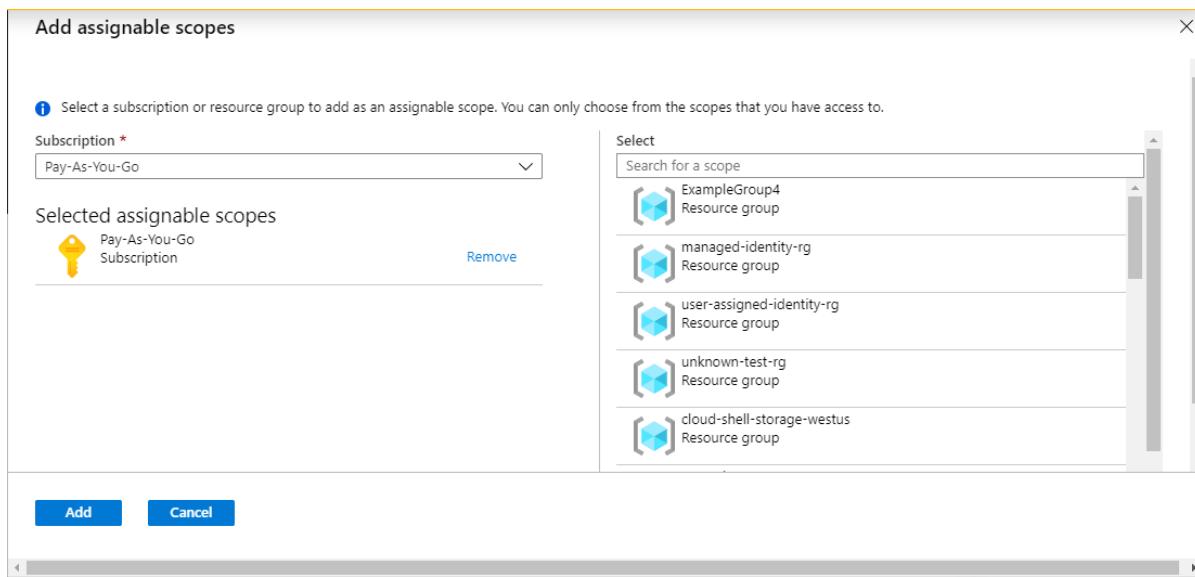
[+ Add assignable scopes](#)

Click Add assignable scopes to select the scopes (subscriptions or resource groups) where this role will be available for assignment. Your role must have at least one assignable scope. [Learn more](#)

Assignable scope	↑↓	Type	↑↓
/subscriptions/11111111-1111-1111-1111-111111111111		Subscription	

[Review + create](#) [Previous](#) [Next](#)

2. Click one or more scopes that you want to use, typically your subscription.



- Click the **Add** button to add your assignable scope.

## Step 6: JSON

On the **JSON** tab, you see your custom role formatted in JSON. If you want, you can directly edit the JSON. If you want to add a wildcard (\*) permission, you must use this tab.

- To edit the JSON, click **Edit**.

```

1 "properties": {
2     "roleName": "Billing Reader Plus",
3     "description": "Read billing data and download invoices",
4     "assignableScopes": [
5         "/subscriptions/11111111-1111-1111-1111-111111111111"
6     ],
7     "permissions": [
8         {
9             "actions": [
10                 "Microsoft.Authorization/*/read",
11                 "Microsoft.Billing/*/read",
12                 "Microsoft.Commerce/*/read",
13                 "Microsoft.Consumption/*/read",
14                 "Microsoft.Management/managementGroups/read",
15                 "Microsoft.CostManagement/*/read",
16                 "Microsoft.Billing/invoices/download/action",
17                 "Microsoft.CostManagement/exports/*"
18             ],
19             "notActions": [
20                 "Microsoft.CostManagement/exports/delete"
21             ],
22             "dataActions": []
23         }
24     ]
25 }
  
```

- Make changes to the JSON.

If the JSON is not formatted correctly, you will see a red jagged line and an indicator in the vertical gutter.

- When finished editing, click **Save**.

## Step 7: Review + create

On the **Review + create** tab, you can review your custom role settings.

1. Review your custom role settings.

**Create a custom role**

Got feedback?

Basics Permissions Assignable scopes JSON Review + create

**Basics**

Role name Billing Reader Plus

Role description Read billing data and download invoices

**Permissions**

Action	Microsoft.Authorization/*/read
Action	Microsoft.Billing/*/read
Action	Microsoft.Commerce/*/read
Action	Microsoft.Consumption/*/read
Action	Microsoft.Management/managementGroups/read
Action	Microsoft.CostManagement/*/read
Action	Microsoft.Billing/invoices/download/action
Action	Microsoft.CostManagement/exports/*
NotAction	Microsoft.CostManagement/exports/delete

**Assignable Scopes**

Scope /subscriptions/11111111-1111-1111-1111-111111111111

**Create** Previous

2. Click **Create** to create your custom role.

After a few moments, a message box appears indicating your custom role was successfully created.

**Create a custom role**

Got feedback?

You have successfully created the custom role "Billing Reader Plus". It may take the system a few minutes to display your role everywhere.

**OK**

Role description No role description provided

**Permissions**

If any errors are detected, a message will be displayed.

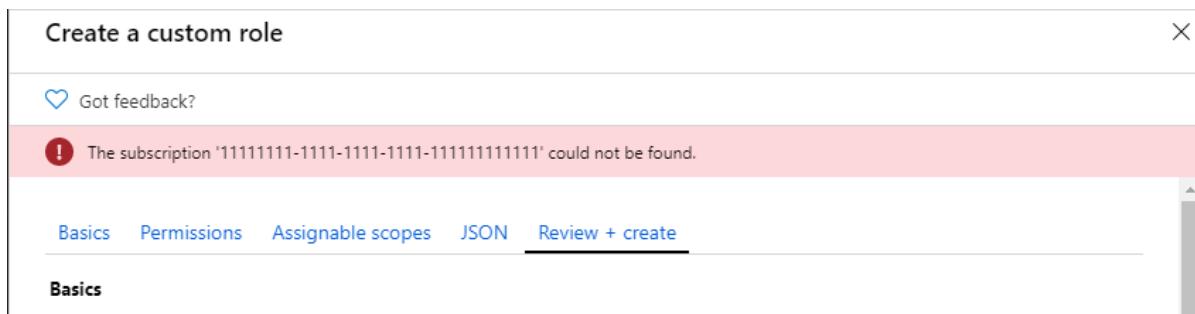
Create a custom role

Got feedback?

The subscription '11111111-1111-1111-1111-111111111111' could not be found.

Basics Permissions Assignable scopes JSON Review + create

Basics



3. View your new custom role in the **Roles** list. If you don't see your custom role, click **Refresh**.

It can take a few minutes for your custom role to appear everywhere.

## List custom roles

Follow these steps to view your custom roles.

1. Open a subscription or resource group and then open **Access control (IAM)**.
2. Click the **Roles** tab to see a list of all the built-in and custom roles.
3. In the **Type** list, select **CustomRole** to just see your custom roles.

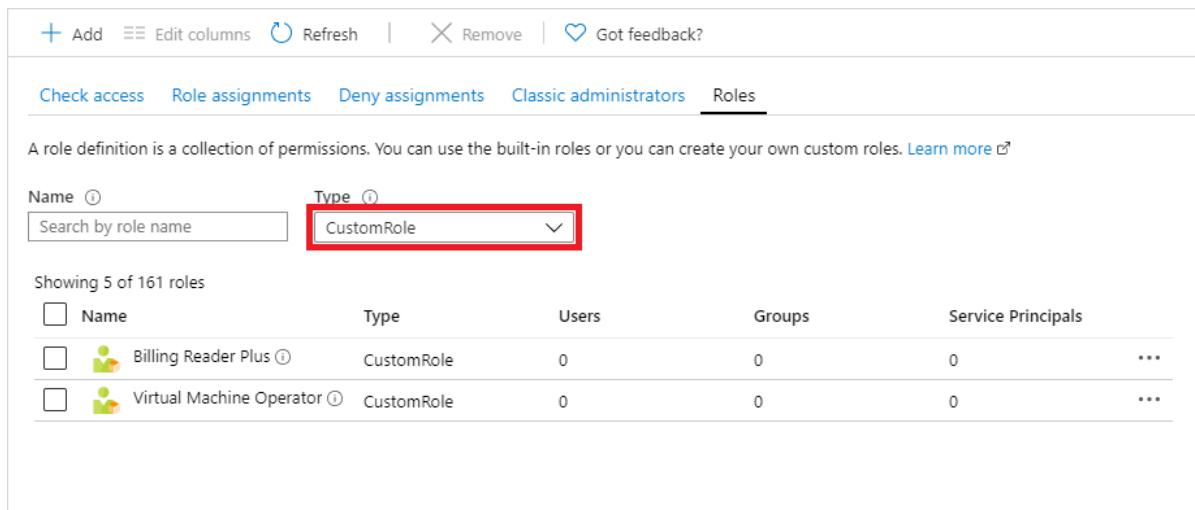
If you just created your custom role and you don't see it in the list, click **Refresh**.

+ Add Edit columns Refresh | X Remove | Got feedback?

Check access Role assignments Deny assignments Classic administrators Roles

A role definition is a collection of permissions. You can use the built-in roles or you can create your own custom roles. [Learn more](#)

Name	Type	Users	Groups	Service Principals	...
Search by role name	CustomRole				
Showing 5 of 161 roles					
<input type="checkbox"/> Name	Type	Users	Groups	Service Principals	
<input type="checkbox"/> Billing Reader Plus	CustomRole	0	0	0	...
<input type="checkbox"/> Virtual Machine Operator	CustomRole	0	0	0	...



## Update a custom role

1. As described earlier in this article, open your list of custom roles.
2. Click the ellipsis (...) for the custom role you want to update and then click **Edit**. Note that you can't update built-in roles.

The custom role is opened in the editor.

Name ⓘ Search by role name Type ⓘ CustomRole

Showing 5 of 161 roles

Name	Type	Users	Groups	Service Principals
<input checked="" type="checkbox"/> Billing Reader Plus ⓘ	CustomRole	0	0	<a href="#">Permissions</a> ... Delete Edit Clone
<input type="checkbox"/> Virtual Machine Operator ⓘ	CustomRole	0	0	

3. Use the different tabs to update the custom role.
4. Once you are finished with your changes, click the **Review + create** tab to review your changes.
5. Click the **Update** button to update your custom role.

## Delete a custom role

1. As described earlier in this article, open your list of custom roles.
2. Remove any role assignments that using the custom role.
3. Click the ellipsis (...) for the custom role you want to delete and then click **Delete**.

Name ⓘ Search by role name Type ⓘ CustomRole

Showing 5 of 161 roles

Name	Type	Users	Groups	Service Principals
<input checked="" type="checkbox"/> Billing Reader Plus ⓘ	CustomRole	0	0	<a href="#">Permissions</a> ... Delete Edit Clone
<input type="checkbox"/> Virtual Machine Operator ⓘ	CustomRole	0	0	

It can take a few minutes for your custom role to be completely deleted.

## Next steps

- [Tutorial: Create an Azure custom role using Azure PowerShell](#)
- [Azure custom roles](#)
- [Azure Resource Manager resource provider operations](#)

# Create or update Azure custom roles using Azure PowerShell

7/21/2020 • 7 minutes to read • [Edit Online](#)

## IMPORTANT

Adding a management group to `AssignableScopes` is currently in preview. This preview version is provided without a service level agreement, and it's not recommended for production workloads. Certain features might not be supported or might have constrained capabilities. For more information, see [Supplemental Terms of Use for Microsoft Azure Previews](#).

If the [Azure built-in roles](#) don't meet the specific needs of your organization, you can create your own custom roles. This article describes how to list, create, update, or delete custom roles using Azure PowerShell.

For a step-by-step tutorial on how to create a custom role, see [Tutorial: Create an Azure custom role using Azure PowerShell](#).

## NOTE

This article has been updated to use the new Azure PowerShell Az module. You can still use the AzureRM module, which will continue to receive bug fixes until at least December 2020. To learn more about the new Az module and AzureRM compatibility, see [Introducing the new Azure PowerShell Az module](#). For Az module installation instructions, see [Install Azure PowerShell](#).

## Prerequisites

To create custom roles, you need:

- Permissions to create custom roles, such as [Owner](#) or [User Access Administrator](#)
- [Azure Cloud Shell](#) or [Azure PowerShell](#)

## List custom roles

To list the roles that are available for assignment at a scope, use the `Get-AzRoleDefinition` command. The following example lists all roles that are available for assignment in the selected subscription.

```
Get-AzRoleDefinition | FT Name, IsCustom
```

Name	IsCustom
-----	-----
Virtual Machine Operator	True
AcrImageSigner	False
AcrQuarantineReader	False
AcrQuarantineWriter	False
API Management Service Contributor	False
...	

The following example lists just the custom roles that are available for assignment in the selected subscription.

```
Get-AzRoleDefinition | ? {$_._IsCustom -eq $true} | FT Name, IsCustom
```

Name	IsCustom
Virtual Machine Operator	True

If the selected subscription isn't in the `AssignableScopes` of the role, the custom role won't be listed.

## List a custom role definition

To list a custom role definition, use [Get-AzRoleDefinition](#). This is the same command as you use for a built-in role.

```
Get-AzRoleDefinition <role_name> | ConvertTo-Json
```

```
PS C:\> Get-AzRoleDefinition "Virtual Machine Operator" | ConvertTo-Json

{
  "Name": "Virtual Machine Operator",
  "Id": "00000000-0000-0000-000000000000",
  "IsCustom": true,
  "Description": "Can monitor and restart virtual machines.",
  "Actions": [
    "Microsoft.Storage/*/read",
    "Microsoft.Network/*/read",
    "Microsoft.Compute/*/read",
    "Microsoft.Compute/virtualMachines/start/action",
    "Microsoft.Compute/virtualMachines/restart/action",
    "Microsoft.Authorization/*/read",
    "Microsoft.ResourceHealth/availabilityStatuses/read",
    "Microsoft.Resources/subscriptions/resourceGroups/read",
    "Microsoft.Insights/alertRules/*",
    "Microsoft.Support/*"
  ],
  "NotActions": [],
  "DataActions": [],
  "NotDataActions": [],
  "AssignableScopes": [
    "/subscriptions/11111111-1111-1111-1111-111111111111"
  ]
}
```

The following example lists just the actions of the role:

```
(Get-AzRoleDefinition <role_name>).Actions
```

```
PS C:\> (Get-AzRoleDefinition "Virtual Machine Operator").Actions

"Microsoft.Storage/*/read",
"Microsoft.Network/*/read",
"Microsoft.Compute/*/read",
"Microsoft.Compute/virtualMachines/start/action",
"Microsoft.Compute/virtualMachines/restart/action",
"Microsoft.Authorization/*/read",
"Microsoft.ResourceHealth/availabilityStatuses/read",
"Microsoft.Resources/subscriptions/resourceGroups/read",
"Microsoft.Insights/alertRules/*",
"Microsoft.Insights/diagnosticSettings/*",
"Microsoft.Support/*"
```

## Create a custom role

To create a custom role, use the [New-AzRoleDefinition](#) command. There are two methods of structuring the role, using `PSRoleDefinition` object or a JSON template.

### Get operations for a resource provider

When you create custom roles, it is important to know all the possible operations from the resource providers. You can view the list of [resource provider operations](#) or you can use the [Get-AzProviderOperation](#) command to get this information. For example, if you want to check all the available operations for virtual machines, use this command:

```
Get-AzProviderOperation <operation> | FT OperationName, Operation, Description -AutoSize
```

```
PS C:\> Get-AzProviderOperation "Microsoft.Compute/virtualMachines/*" | FT OperationName, Operation, Description -AutoSize

OperationName          Operation
Description
-----
-----
Get Virtual Machine      Microsoft.Compute/virtualMachines/read
Get the propertie...
Create or Update Virtual Machine Microsoft.Compute/virtualMachines/write
Creates a new vir...
Delete Virtual Machine    Microsoft.Compute/virtualMachines/delete
Deletes the virtu...
Start Virtual Machine     Microsoft.Compute/virtualMachines/start/action
Starts the virtua...
...
...
```

### Create a custom role with the `PSRoleDefinition` object

When you use PowerShell to create a custom role, you can use one of the [built-in roles](#) as a starting point or you can start from scratch. The first example in this section starts with a built-in role and then customizes it with more permissions. Edit the attributes to add the `Actions`, `NotActions`, or `AssignableScopes` that you want, and then save the changes as a new role.

The following example starts with the [Virtual Machine Contributor](#) built-in role to create a custom role named *Virtual Machine Operator*. The new role grants access to all read operations of *Microsoft.Compute*, *Microsoft.Storage*, and *Microsoft.Network* resource providers and grants access to start, restart, and monitor virtual machines. The custom role can be used in two subscriptions.

```

$role = Get-AzRoleDefinition "Virtual Machine Contributor"
$role.Id = $null
$role.Name = "Virtual Machine Operator"
$role.Description = "Can monitor and restart virtual machines."
$role.Actions.Clear()
$role.Actions.Add("Microsoft.Storage/*/read")
$role.Actions.Add("Microsoft.Network/*/read")
$role.Actions.Add("Microsoft.Compute/*/read")
$role.Actions.Add("Microsoft.Compute/virtualMachines/start/action")
$role.Actions.Add("Microsoft.Compute/virtualMachines/restart/action")
$role.Actions.Add("Microsoft.Authorization/*/read")
$role.Actions.Add("Microsoft.ResourceHealth/availabilityStatuses/read")
$role.Actions.Add("Microsoft.Resources/subscriptions/resourceGroups/read")
$role.Actions.Add("Microsoft.Insights/alertRules/*")
$role.Actions.Add("Microsoft.Support/*")
$roleAssignableScopes.Clear()
$roleAssignableScopes.Add("/subscriptions/00000000-0000-0000-0000-000000000000")
$roleAssignableScopes.Add("/subscriptions/11111111-1111-1111-1111-111111111111")
New-AzRoleDefinition -Role $role

```

The following example shows another way to create the *Virtual Machine Operator* custom role. It starts by creating a new `PSRoleDefinition` object. The action operations are specified in the `perms` variable and set to the `Actions` property. The `NotActions` property is set by reading the `NotActions` from the [Virtual Machine Contributor](#) built-in role. Since [Virtual Machine Contributor](#) does not have any `NotActions`, this line is not required, but it shows how information can be retrieved from another role.

```

$role = [Microsoft.Azure.Commands.Resources.Models.Authorization.PSRoleDefinition]::new()
$role.Name = 'Virtual Machine Operator 2'
$role.Description = 'Can monitor and restart virtual machines.'
$role.IsCustom = $true
$perms = 'Microsoft.Storage/*/read','Microsoft.Network/*/read','Microsoft.Compute/*/read'
$perms += 'Microsoft.Compute/virtualMachines/start/action','Microsoft.Compute/virtualMachines/restart/action'
$perms += 'Microsoft.Authorization/*/read'
$perms += 'Microsoft.ResourceHealth/availabilityStatuses/read'
$perms += 'Microsoft.Resources/subscriptions/resourceGroups/read'
$perms += 'Microsoft.Insights/alertRules/*','Microsoft.Support/*'
$role.Actions = $perms
$role.NotActions = (Get-AzRoleDefinition -Name 'Virtual Machine Contributor').NotActions
$subs = '/subscriptions/00000000-0000-0000-000000000000','/subscriptions/11111111-1111-1111-1111-111111111111'
$roleAssignableScopes = $subs
New-AzRoleDefinition -Role $role

```

## Create a custom role with JSON template

A JSON template can be used as the source definition for the custom role. The following example creates a custom role that allows read access to storage and compute resources, access to support, and adds that role to two subscriptions. Create a new file `C:\CustomRoles\customrole1.json` with the following example. The `Id` should be set to `null` on initial role creation as a new ID is generated automatically.

```
{
  "Name": "Custom Role 1",
  "Id": null,
  "IsCustom": true,
  "Description": "Allows for read access to Azure storage and compute resources and access to support",
  "Actions": [
    "Microsoft.Compute/*/read",
    "Microsoft.Storage/*/read",
    "Microsoft.Support/*"
  ],
  "NotActions": [],
  "AssignableScopes": [
    "/subscriptions/00000000-0000-0000-0000-000000000000",
    "/subscriptions/11111111-1111-1111-1111-111111111111"
  ]
}
```

To add the role to the subscriptions, run the following PowerShell command:

```
New-AzRoleDefinition -InputFile "C:\CustomRoles\customrole1.json"
```

## Update a custom role

Similar to creating a custom role, you can modify an existing custom role using either the `PSRoleDefinition` object or a JSON template.

### Update a custom role with the `PSRoleDefinition` object

To modify a custom role, first, use the `Get-AzRoleDefinition` command to retrieve the role definition. Second, make the desired changes to the role definition. Finally, use the `Set-AzRoleDefinition` command to save the modified role definition.

The following example adds the `Microsoft.Insights/diagnosticSettings/*` operation to the *Virtual Machine Operator* custom role.

```
$role = Get-AzRoleDefinition "Virtual Machine Operator"
$role.Actions.Add("Microsoft.Insights/diagnosticSettings/*")
Set-AzRoleDefinition -Role $role
```

```
PS C:\> $role = Get-AzRoleDefinition "Virtual Machine Operator"
PS C:\> $role.Actions.Add("Microsoft.Insights/diagnosticSettings/*")
PS C:\> Set-AzRoleDefinition -Role $role

Name          : Virtual Machine Operator
Id            : 88888888-8888-8888-8888-888888888888
IsCustom      : True
Description   : Can monitor and restart virtual machines.
Actions       : {Microsoft.Storage/*/read, Microsoft.Network/*/read, Microsoft.Compute/*/read,
               Microsoft.Compute/virtualMachines/start/action...}
NotActions    : {}
AssignableScopes : {/subscriptions/00000000-0000-0000-0000-000000000000,
                  /subscriptions/11111111-1111-1111-1111-111111111111}
```

The following example adds an Azure subscription to the assignable scopes of the *Virtual Machine Operator* custom role.

```

Get-AzSubscription -SubscriptionName Production3

$role = Get-AzRoleDefinition "Virtual Machine Operator"
$role.AssivableScopes.Add("/subscriptions/22222222-2222-2222-2222-222222222222")
Set-AzRoleDefinition -Role $role

```

```

PS C:\> Get-AzSubscription -SubscriptionName Production3

Name      : Production3
Id       : 22222222-2222-2222-222222222222
TenantId : 99999999-9999-9999-9999-999999999999
State    : Enabled

PS C:\> $role = Get-AzRoleDefinition "Virtual Machine Operator"
PS C:\> $role.AssivableScopes.Add("/subscriptions/22222222-2222-2222-222222222222")
PS C:\> Set-AzRoleDefinition -Role $role

Name          : Virtual Machine Operator
Id            : 88888888-8888-8888-888888888888
IsCustom      : True
Description   : Can monitor and restart virtual machines.
Actions       : {Microsoft.Storage/*/read, Microsoft.Network/*/read, Microsoft.Compute/*/read,
               Microsoft.Compute/virtualMachines/start/action...}
NotActions    : {}
AssignableScopes : {/subscriptions/00000000-0000-0000-0000-000000000000,
                  /subscriptions/11111111-1111-1111-1111-111111111111,
                  /subscriptions/22222222-2222-2222-222222222222}

```

The following example adds a management group to `AssignableScopes` of the *Virtual Machine Operator* custom role. Adding a management group to `AssignableScopes` is currently in preview.

```

Get-AzManagementGroup

$role = Get-AzRoleDefinition "Virtual Machine Operator"
$role.AssivableScopes.Add("/providers/Microsoft.Management/managementGroups/{groupId1}")
Set-AzRoleDefinition -Role $role

```

```

PS C:\> Get-AzManagementGroup

Id          : /providers/Microsoft.Management/managementGroups/marketing-group
Type        : /providers/Microsoft.Management/managementGroups
Name        : marketing-group
TenantId   : 99999999-9999-9999-9999-999999999999
DisplayName : Marketing group

PS C:\> $role = Get-AzRoleDefinition "Virtual Machine Operator"
PS C:\> $role.AssivableScopes.Add("/providers/Microsoft.Management/managementGroups/marketing-group")
PS C:\> Set-AzRoleDefinition -Role $role

Name          : Virtual Machine Operator
Id            : 88888888-8888-8888-888888888888
IsCustom      : True
Description   : Can monitor and restart virtual machines.
Actions       : {Microsoft.Storage/*/read, Microsoft.Network/*/read, Microsoft.Compute/*/read,
               Microsoft.Compute/virtualMachines/start/action...}
NotActions    : {}
AssignableScopes : {/subscriptions/00000000-0000-0000-0000-000000000000,
                  /subscriptions/11111111-1111-1111-1111-111111111111,
                  /subscriptions/22222222-2222-2222-222222222222,
                  /providers/Microsoft.Management/managementGroups/marketing-group}

```

## Update a custom role with a JSON template

Using the previous JSON template, you can easily modify an existing custom role to add or remove Actions. Update the JSON template and add the read action for networking as shown in the following example. The definitions listed in the template are not cumulatively applied to an existing definition, meaning that the role appears exactly as you specify in the template. You also need to update the Id field with the ID of the role. If you aren't sure what this value is, you can use the [Get-AzRoleDefinition](#) cmdlet to get this information.

```
{  
  "Name": "Custom Role 1",  
  "Id": "acce7ded-2559-449d-bcd5-e9604e50bad1",  
  "IsCustom": true,  
  "Description": "Allows for read access to Azure storage and compute resources and access to support",  
  "Actions": [  
    "Microsoft.Compute/*/read",  
    "Microsoft.Storage/*/read",  
    "Microsoft.Network/*/read",  
    "Microsoft.Support/*"  
,  
  ],  
  "NotActions": [],  
  "AssignableScopes": [  
    "/subscriptions/00000000-0000-0000-0000-000000000000",  
    "/subscriptions/11111111-1111-1111-1111-111111111111"  
  ]  
}
```

To update the existing role, run the following PowerShell command:

```
Set-AzRoleDefinition -InputFile "C:\CustomRoles\customrole1.json"
```

## Delete a custom role

To delete a custom role, use the [Remove-AzRoleDefinition](#) command.

The following example removes the *Virtual Machine Operator* custom role.

```
Get-AzRoleDefinition "Virtual Machine Operator"  
Get-AzRoleDefinition "Virtual Machine Operator" | Remove-AzRoleDefinition
```

```
PS C:\> Get-AzRoleDefinition "Virtual Machine Operator"  
  
Name          : Virtual Machine Operator  
Id            : 88888888-8888-8888-8888-888888888888  
IsCustom      : True  
Description   : Can monitor and restart virtual machines.  
Actions       : {Microsoft.Storage/*/read, Microsoft.Network/*/read, Microsoft.Compute/*/read,  
               Microsoft.Compute/virtualMachines/start/action...}  
NotActions    : {}  
AssignableScopes : {/subscriptions/00000000-0000-0000-0000-000000000000,  
                   /subscriptions/11111111-1111-1111-1111-111111111111}  
  
PS C:\> Get-AzRoleDefinition "Virtual Machine Operator" | Remove-AzRoleDefinition  
  
Confirm  
Are you sure you want to remove role definition with name 'Virtual Machine Operator'.  
[Y] Yes [N] No [S] Suspend [?] Help (default is "Y"): Y
```

## Next steps

- [Tutorial: Create an Azure custom role using Azure PowerShell](#)
- [Azure custom roles](#)
- [Azure Resource Manager resource provider operations](#)

# Create or update Azure custom roles using Azure CLI

7/21/2020 • 3 minutes to read • [Edit Online](#)

## IMPORTANT

Adding a management group to `AssignableScopes` is currently in preview. This preview version is provided without a service level agreement, and it's not recommended for production workloads. Certain features might not be supported or might have constrained capabilities. For more information, see [Supplemental Terms of Use for Microsoft Azure Previews](#).

If the [Azure built-in roles](#) don't meet the specific needs of your organization, you can create your own custom roles. This article describes how to list, create, update, or delete custom roles using Azure CLI.

For a step-by-step tutorial on how to create a custom role, see [Tutorial: Create an Azure custom role using Azure CLI](#).

## Prerequisites

To create custom roles, you need:

- Permissions to create custom roles, such as [Owner](#) or [User Access Administrator](#)
- [Azure Cloud Shell](#) or [Azure CLI](#)

## List custom roles

To list custom roles that are available for assignment, use `az role definition list`. The following example lists all the custom roles in the current subscription.

```
az role definition list --custom-role-only true --output json --query '[].{roleName:roleName, roleType:roleType}'
```

```
[  
 {  
   "roleName": "My Management Contributor",  
   "type": "CustomRole"  
 },  
 {  
   "roleName": "My Service Reader Role",  
   "type": "CustomRole"  
 },  
 {  
   "roleName": "Virtual Machine Operator",  
   "type": "CustomRole"  
 }]
```

## List a custom role definition

To list a custom role definition, use `az role definition list`. This is the same command you would use for a built-in role.

```
az role definition list --name {roleName}
```

The following example lists the *Virtual Machine Operator* role definition:

```
az role definition list --name "Virtual Machine Operator"
```

```
[  
  {  
    "assignableScopes": [  
      "/subscriptions/{subscriptionId}"  
    ],  
    "description": "Can monitor and restart virtual machines.",  
    "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/00000000-0000-  
0000-0000-000000000000",  
    "name": "00000000-0000-0000-0000-000000000000",  
    "permissions": [  
      {  
        "actions": [  
          "Microsoft.Storage/*/read",  
          "Microsoft.Network/*/read",  
          "Microsoft.Compute/*/read",  
          "Microsoft.Compute/virtualMachines/start/action",  
          "Microsoft.Compute/virtualMachines/restart/action",  
          "Microsoft.Authorization/*/read",  
          "Microsoft.ResourceHealth/availabilityStatuses/read",  
          "Microsoft.Resources/subscriptions/resourceGroups/read",  
          "Microsoft.Insights/alertRules/*",  
          "Microsoft.Insights/diagnosticSettings/*",  
          "Microsoft.Support/*"  
        ],  
        "dataActions": [],  
        "notActions": [],  
        "notDataActions": []  
      }  
    ],  
    "roleName": "Virtual Machine Operator",  
    "roleType": "CustomRole",  
    "type": "Microsoft.Authorization/roleDefinitions"  
  }  
]
```

The following example lists just the actions of the *Virtual Machine Operator* role:

```
az role definition list --name "Virtual Machine Operator" --output json --query '[].permissions[0].actions'
```

```
[  
  [  
    "Microsoft.Storage/*/read",  
    "Microsoft.Network/*/read",  
    "Microsoft.Compute/*/read",  
    "Microsoft.Compute/virtualMachines/start/action",  
    "Microsoft.Compute/virtualMachines/restart/action",  
    "Microsoft.Authorization/*/read",  
    "Microsoft.ResourceHealth/availabilityStatuses/read",  
    "Microsoft.Resources/subscriptions/resourceGroups/read",  
    "Microsoft.Insights/alertRules/*",  
    "Microsoft.Insights/diagnosticSettings/*",  
    "Microsoft.Support/*"  
  ],  
]
```

## Create a custom role

To create a custom role, use [az role definition create](#). The role definition can be a JSON description or a path to a file containing a JSON description.

```
az role definition create --role-definition {roleDefinition}
```

The following example creates a custom role named *Virtual Machine Operator*. This custom role assigns access to all read operations of *Microsoft.Compute*, *Microsoft.Storage*, and *Microsoft.Network* resource providers and assigns access to start, restart, and monitor virtual machines. This custom role can be used in two subscriptions. This example uses a JSON file as an input.

vmoperator.json

```
{  
  "Name": "Virtual Machine Operator",  
  "IsCustom": true,  
  "Description": "Can monitor and restart virtual machines.",  
  "Actions": [  
    "Microsoft.Storage/*/read",  
    "Microsoft.Network/*/read",  
    "Microsoft.Compute/*/read",  
    "Microsoft.Compute/virtualMachines/start/action",  
    "Microsoft.Compute/virtualMachines/restart/action",  
    "Microsoft.Authorization/*/read",  
    "Microsoft.ResourceHealth/availabilityStatuses/read",  
    "Microsoft.Resources/subscriptions/resourceGroups/read",  
    "Microsoft.Insights/alertRules/*",  
    "Microsoft.Support/*"  
,  
  "NotActions": [  
    ],  
  "AssignableScopes": [  
    "/subscriptions/{subscriptionId1}",  
    "/subscriptions/{subscriptionId2}"  
  ]  
}
```

```
az role definition create --role-definition ~/roles/vmoperator.json
```

## Update a custom role

To update a custom role, first use [az role definition list](#) to retrieve the role definition. Second, make the desired changes to the role definition. Finally, use [az role definition update](#) to save the updated role definition.

```
az role definition update --role-definition {roleDefinition}
```

The following example adds the *Microsoft.Insights/diagnosticSettings*/operation to `Actions` and adds a management group to `AssignableScopes` for the *Virtual Machine Operator* custom role. Adding a management group to `AssignableScopes` is currently in preview.

vmoperator.json

```
{
  "Name": "Virtual Machine Operator",
  "IsCustom": true,
  "Description": "Can monitor and restart virtual machines.",
  "Actions": [
    "Microsoft.Storage/*/read",
    "Microsoft.Network/*/read",
    "Microsoft.Compute/*/read",
    "Microsoft.Compute/virtualMachines/start/action",
    "Microsoft.Compute/virtualMachines/restart/action",
    "Microsoft.Authorization/*/read",
    "Microsoft.ResourceHealth/availabilityStatuses/read",
    "Microsoft.Resources/subscriptions/resourceGroups/read",
    "Microsoft.Insights/alertRules/*",
    "Microsoft.Insights/diagnosticSettings/*",
    "Microsoft.Support/*"
  ],
  "NotActions": [
  ],
  "AssignableScopes": [
    "/subscriptions/{subscriptionId1}",
    "/subscriptions/{subscriptionId2}",
    "/providers/Microsoft.Management/managementGroups/marketing-group"
  ]
}
```

```
az role definition update --role-definition ~/roles/vmoperator.json
```

## Delete a custom role

To delete a custom role, use [az role definition delete](#). To specify the role to delete, use the role name or the role ID. To determine the role ID, use [az role definition list](#).

```
az role definition delete --name {roleNameOrId}
```

The following example deletes the *Virtual Machine Operator* custom role.

```
az role definition delete --name "Virtual Machine Operator"
```

## Next steps

- [Tutorial: Create an Azure custom role using Azure CLI](#)
- [Azure custom roles](#)
- [Azure Resource Manager resource provider operations](#)

# Create or update Azure custom roles using the REST API

7/21/2020 • 5 minutes to read • [Edit Online](#)

## IMPORTANT

Adding a management group to `AssignableScopes` is currently in preview. This preview version is provided without a service level agreement, and it's not recommended for production workloads. Certain features might not be supported or might have constrained capabilities. For more information, see [Supplemental Terms of Use for Microsoft Azure Previews](#).

If the [Azure built-in roles](#) don't meet the specific needs of your organization, you can create your own custom roles. This article describes how to list, create, update, or delete custom roles using the REST API.

## List custom roles

To list all custom roles in a directory, use the [Role Definitions - List](#) REST API.

1. Start with the following request:

```
GET https://management.azure.com/providers/Microsoft.Authorization/roleDefinitions?api-version=2015-07-01&filter={filter}
```

2. Replace `{filter}` with the role type.

FILTER	DESCRIPTION
<code>\$filter=type+eq+'CustomRole'</code>	Filter based on the CustomRole type

## List custom roles at a scope

To list custom roles at a scope, use the [Role Definitions - List](#) REST API.

1. Start with the following request:

```
GET https://management.azure.com/{scope}/providers/Microsoft.Authorization/roleDefinitions?api-version=2015-07-01&filter={filter}
```

2. Within the URL, replace `{scope}` with the scope for which you want to list the roles.

SCOPE	TYPE
<code>subscriptions/{subscriptionId1}</code>	Subscription
<code>subscriptions/{subscriptionId1}/resourceGroups/{resourceGroup}</code>	Resource group
<code>subscriptions/{subscriptionId1}/resourceGroups/{resourceGroup}/providers/Microsoft.Web/sites/{site1}</code>	Web site

SCOPE	TYPE
providers/Microsoft.Management/managementGroups/{group}	Management group

- Replace *{filter}* with the role type.

FILTER	DESCRIPTION
\$filter=type+eq+'CustomRole'	Filter based on the CustomRole type

## List a custom role definition by name

To get information about a custom role by its display name, use the [Role Definitions - Get](#) REST API.

- Start with the following request:

```
GET https://management.azure.com/{scope}/providers/Microsoft.Authorization/roleDefinitions?api-version=2015-07-01&$filter={filter}
```

- Within the URL, replace *{scope}* with the scope for which you want to list the roles.

SCOPE	TYPE
subscriptions/{subscriptionId1}	Subscription
subscriptions/{subscriptionId1}/resourceGroups/{resourceGroup}	Resource group
subscriptions/{subscriptionId1}/resourceGroups/{resourceGroup}/providers/Microsoft.Web/sites/{site1}	Resource
providers/Microsoft.Management/managementGroups/{group}	Management group

- Replace *{filter}* with the display name for the role.

FILTER	DESCRIPTION
\$filter=roleName+eq+'{roleDisplayName}'	Use the URL encoded form of the exact display name of the role. For instance, \$filter=roleName+eq+'Virtual%20Machine%20Contributor'

## List a custom role definition by ID

To get information about a custom role by its unique identifier, use the [Role Definitions - Get](#) REST API.

- Use the [Role Definitions - List](#) REST API to get the GUID identifier for the role.
- Start with the following request:

```
GET  
https://management.azure.com/{scope}/providers/Microsoft.Authorization/roleDefinitions/{roleDefinitionId}  
?api-version=2015-07-01
```

- Within the URL, replace *{scope}* with the scope for which you want to list the roles.

SCOPE	TYPE
subscriptions/{subscriptionId1}	Subscription
subscriptions/{subscriptionId1}/resourceGroups/{resourceGroup}	Resource group
subscriptions/{subscriptionId1}/resourceGroups/{resourceGroup}/providers/Microsoft.Web/sites/{site1}	Resource
providers/Microsoft.Management/managementGroups/{groupManagement}	Management group

4. Replace *{roleDefinitionId}* with the GUID identifier of the role definition.

## Create a custom role

To create a custom role, use the [Role Definitions - Create Or Update REST API](#). To call this API, you must be signed in with a user that is assigned a role that has the `Microsoft.Authorization/roleDefinitions/write` permission on all the `assignableScopes`. Of the built-in roles, only [Owner](#) and [User Access Administrator](#) include this permission.

1. Review the list of [resource provider operations](#) that are available to create the permissions for your custom role.
2. Use a GUID tool to generate a unique identifier that will be used for the custom role identifier. The identifier has the format: `00000000-0000-0000-0000-000000000000`
3. Start with the following request and body:

```
PUT
https://management.azure.com/{scope}/providers/Microsoft.Authorization/roleDefinitions/{roleDefinitionId}
?api-version=2015-07-01
```

```
{
  "name": "{roleDefinitionId}",
  "properties": {
    "roleName": "",
    "description": "",
    "type": "CustomRole",
    "permissions": [
      {
        "actions": [
          ],
        "notActions": [
          ]
      }
    ],
    "assignableScopes": [
      "/subscriptions/{subscriptionId1}",
      "/subscriptions/{subscriptionId2}",
      "/subscriptions/{subscriptionId1}/resourceGroups/{resourceGroup1}",
      "/subscriptions/{subscriptionId2}/resourceGroups/{resourceGroup2}",
      "/providers/Microsoft.Management/managementGroups/{groupId1}"
    ]
  }
}
```

4. Within the URL, replace *{scope}* with the first `assignableScopes` of the custom role.

SCOPE	TYPE
subscriptions/{subscriptionId1}	Subscription
subscriptions/{subscriptionId1}/resourceGroups/{resourceGroup}	Resource group
providers/Microsoft.Management/managementGroups/{group}	Management group

5. Replace *{roleDefinitionId}* with the GUID identifier of the custom role.
6. Within the request body, replace *{roleDefinitionId}* with the GUID identifier.
7. If *assignableScopes* is a subscription or resource group, replace the *{subscriptionId}* or *{resourceGroup}* instances with your identifiers.
8. If *assignableScopes* is a management group, replace the *{groupId}* instance with your management group identifier. Adding a management group to *assignableScopes* is currently in preview.
9. In the *actions* property, add the operations that the role allows to be performed.
10. In the *notActions* property, add the operations that are excluded from the allowed *actions*.
11. In the *roleName* and *description* properties, specify a unique role name and a description. For more information about the properties, see [Azure custom roles](#).

The following shows an example of a request body:

```
{
  "name": "88888888-8888-8888-8888-888888888888",
  "properties": {
    "roleName": "Virtual Machine Operator",
    "description": "Can monitor and restart virtual machines.",
    "type": "CustomRole",
    "permissions": [
      {
        "actions": [
          "Microsoft.Storage/*/read",
          "Microsoft.Network/*/read",
          "Microsoft.Compute/*/read",
          "Microsoft.Compute/virtualMachines/start/action",
          "Microsoft.Compute/virtualMachines/restart/action",
          "Microsoft.Authorization/*/read",
          "Microsoft.ResourceHealth/availabilityStatuses/read",
          "Microsoft.Resources/subscriptions/resourceGroups/read",
          "Microsoft.Insights/alertRules/*",
          "Microsoft.Support/*"
        ],
        "notActions": []
      }
    ],
    "assignableScopes": [
      "/subscriptions/00000000-0000-0000-0000-000000000000",
      "/providers/Microsoft.Management/managementGroups/marketing-group"
    ]
  }
}
```

## Update a custom role

To update a custom role, use the [Role Definitions - Create Or Update REST API](#). To call this API, you must be signed

in with a user that is assigned a role that has the `Microsoft.Authorization/roleDefinitions/write` permission on all the `assignableScopes`. Of the built-in roles, only **Owner** and **User Access Administrator** include this permission.

1. Use the [Role Definitions - List](#) or [Role Definitions - Get](#) REST API to get information about the custom role.

For more information, see the earlier [List custom roles](#) section.

2. Start with the following request:

```
PUT  
https://management.azure.com/{scope}/providers/Microsoft.Authorization/roleDefinitions/{roleDefinitionId}  
?api-version=2015-07-01
```

3. Within the URL, replace `{scope}` with the first `assignableScopes` of the custom role.

SCOPE	TYPE
<code>subscriptions/{subscriptionId1}</code>	Subscription
<code>subscriptions/{subscriptionId1}/resourceGroups/{resourceGroup1}</code>	Resource group
<code>providers/Microsoft.Management/managementGroups/{groupId1}</code>	Management group

4. Replace `{roleDefinitionId}` with the GUID identifier of the custom role.

5. Based on the information about the custom role, create a request body with the following format:

```
{
  "name": "{roleDefinitionId}",
  "properties": {
    "roleName": "",
    "description": "",
    "type": "CustomRole",
    "permissions": [
      {
        "actions": [
          ],
        "notActions": [
          ]
      }
    ],
    "assignableScopes": [
      "/subscriptions/{subscriptionId1}",
      "/subscriptions/{subscriptionId2}",
      "/subscriptions/{subscriptionId1}/resourceGroups/{resourceGroup1}",
      "/subscriptions/{subscriptionId2}/resourceGroups/{resourceGroup2}",
      "/providers/Microsoft.Management/managementGroups/{groupId1}"
    ]
  }
}
```

6. Update the request body with the changes you want to make to the custom role.

The following shows an example of a request body with a new diagnostic settings action added:

```
{
  "name": "88888888-8888-8888-8888-888888888888",
  "properties": {
    "roleName": "Virtual Machine Operator",
    "description": "Can monitor and restart virtual machines.",
    "type": "CustomRole",
    "permissions": [
      {
        "actions": [
          "Microsoft.Storage/*/read",
          "Microsoft.Network/*/read",
          "Microsoft.Compute/*/read",
          "Microsoft.Compute/virtualMachines/start/action",
          "Microsoft.Compute/virtualMachines/restart/action",
          "Microsoft.Authorization/*/read",
          "Microsoft.ResourceHealth/availabilityStatuses/read",
          "Microsoft.Resources/subscriptions/resourceGroups/read",
          "Microsoft.Insights/alertRules/*",
          "Microsoft.Insights/diagnosticSettings/*",
          "Microsoft.Support/*"
        ],
        "notActions": []
      }
    ],
    "assignableScopes": [
      "/subscriptions/00000000-0000-0000-0000-000000000000",
      "/providers/Microsoft.Management/managementGroups/marketing-group"
    ]
  }
}
```

## Delete a custom role

To delete a custom role, use the [Role Definitions - Delete](#) REST API. To call this API, you must be signed in with a user that is assigned a role that has the `Microsoft.Authorization/roleDefinitions/delete` permission on all the `assignableScopes`. Of the built-in roles, only [Owner](#) and [User Access Administrator](#) include this permission.

1. Use the [Role Definitions - List](#) or [Role Definitions - Get](#) REST API to get the GUID identifier of the custom role. For more information, see the earlier [List custom roles](#) section.
2. Start with the following request:

```
DELETE
https://management.azure.com/{scope}/providers/Microsoft.Authorization/roleDefinitions/{roleDefinitionId}
?api-version=2015-07-01
```

3. Within the URL, replace `{scope}` with the scope that you want to delete the custom role.

SCOPE	TYPE
<code>subscriptions/{subscriptionId1}</code>	Subscription
<code>subscriptions/{subscriptionId1}/resourceGroups/{resourceGroup}</code>	Resource group
<code>providers/Microsoft.Management/managementGroups/{groupManagementGroup}</code>	Management group

4. Replace `{roleDefinitionId}` with the GUID identifier of the custom role.

## Next steps

- [Azure custom roles](#)
- [Add or remove Azure role assignments using the REST API](#)
- [Azure REST API Reference](#)

# Create an Azure custom role using an Azure Resource Manager template

7/21/2020 • 3 minutes to read • [Edit Online](#)

If the [Azure built-in roles](#) don't meet the specific needs of your organization, you can create your own [custom roles](#). This article describes how to create a custom role using an Azure Resource Manager template.

An [ARM template](#) is a JavaScript Object Notation (JSON) file that defines the infrastructure and configuration for your project. The template uses declarative syntax, which lets you state what you intend to deploy without having to write the sequence of programming commands to create it.

## Prerequisites

To create a custom role, you must have:

- Permissions to create custom roles, such as [Owner](#) or [User Access Administrator](#)

## Create a custom role

To create a custom role, you specify a role name, permissions, and where the role can be used. In this article, you create a role named "Custom Role - RG Reader" with resource permissions that can be assigned at a subscription scope or lower.

### Review the template

The template used in this article is from [Azure Quickstart Templates](#). The template has four parameters and a resources section. The four parameters are:

- Array of actions with a default value of ["Microsoft.Resources/subscriptions/resourceGroups/read"]
- Array of notActions with an empty default value
- Role name with a default value of "Custom Role - RG Reader"
- Role description with a default value of "Subscription Level Deployment of a Role Definition"

The resource defined in the template is:

- [Microsoft.Authorization/roleDefinitions](#)

The scope where this custom role can be assigned is set to the current subscription.

```
{
    "$schema": "https://schema.management.azure.com/schemas/2018-05-01/subscriptionDeploymentTemplate.json#",
    "contentVersion": "1.0.0.0",
    "parameters": {
        "actions": {
            "type": "array",
            "defaultValue": [
                "Microsoft.Resources/subscriptions/resourceGroups/read"
            ],
            "metadata": {
                "description": "Array of actions for the roleDefinition"
            }
        },
        "notActions": {
            "type": "array",
            "defaultValue": [ ],
            "metadata": {
                "description": "Array of notActions for the roleDefinition"
            }
        },
        "roleName": {
            "type": "string",
            "defaultValue": "Custom Role - RG Reader",
            "metadata": {
                "description": "Friendly name of the role definition"
            }
        },
        "roleDescription": {
            "type": "string",
            "defaultValue": "Subscription Level Deployment of a Role Definition",
            "metadata": {
                "description": "Detailed description of the role definition"
            }
        }
    },
    "variables": {
        "roleDefName": "[guid(subscription().id, string(parameters('actions')), string(parameters('notActions')))]"
    },
    "resources": [
        {
            "type": "Microsoft.Authorization/roleDefinitions",
            "apiVersion": "2018-07-01",
            "name": "[variables('roleDefName')]",
            "properties": {
                "roleName": "[parameters('roleName')]",
                "description": "[parameters('roleDescription')]",
                "type": "customRole",
                "isCustom": true,
                "permissions": [
                    {
                        "actions": "[parameters('actions')]",
                        "notActions": "[parameters('notActions')]"
                    }
                ],
                "assignableScopes": [
                    "[subscription().id]"
                ]
            }
        }
    ]
}
```

## Deploy the template

Follow these steps to deploy the previous template.

1. Sign in to the [Azure portal](#).

2. Open Azure Cloud Shell for PowerShell.
3. Copy and paste the following script into Cloud Shell.

```
$location = Read-Host -Prompt "Enter a location (i.e. centralus)"
[string[]]$actions = Read-Host -Prompt "Enter actions as a comma-separated list (i.e. action1,action2)"
$actions = $actions.Split(',')

$templateUri = "https://raw.githubusercontent.com/Azure/azure-quickstart-templates/master/subscription-deployments/create-role-def/azuredeploy.json"

New-AzDeployment -Location $location -TemplateUri $templateUri -actions $actions
```

4. Enter a location for the deployment such as *centralus*.
5. Enter a list of actions for the custom role as a comma-separated list such as *Microsoft.Resources/resources/read,Microsoft.Resources/subscriptions/resourceGroups/read*.
6. If necessary, press Enter to run the New-AzDeployment command.

The [New-AzDeployment](#) command deploys the template to create the custom role.

You should see output similar to the following:

```
PS> New-AzDeployment -Location $location -TemplateUri $templateUri -actions $actions

Id : /subscriptions/{subscriptionId}/providers/Microsoft.Resources/deployments/azuredeploy
DeploymentName : azuredeploy
Location : centralus
ProvisioningState : Succeeded
Timestamp : 6/25/2020 8:08:32 PM
Mode : Incremental
TemplateLink :
    Uri : https://raw.githubusercontent.com/Azure/azure-quickstart-templates/master/subscription-deployments/create-role-def/azuredeploy.json
        ContentVersion : 1.0.0.0

Parameters :
    Name          Type          Value
    ======        ======        ======
    actions       Array         [
        "Microsoft.Resources/resources/read",
        "Microsoft.Resources/subscriptions/resourceGroups/read"
    ]
    notActions    Array         []
    roleName     String        Custom Role - RG Reader
    roleDescription String        Subscription Level Deployment of
a Role Definition

Outputs :
DeploymentLogLevel :
```

## Review deployed resources

Follow these steps to verify that the custom role was created.

1. Run the [Get-AzRoleDefinition](#) command to list the custom role.

```
Get-AzRoleDefinition "Custom Role - RG Reader" | ConvertTo-Json
```

You should see output similar to the following:

```
{  
  "Name": "Custom Role - RG Reader",  
  "Id": "11111111-1111-1111-1111-111111111111",  
  "IsCustom": true,  
  "Description": "Subscription Level Deployment of a Role Definition",  
  "Actions": [  
    "Microsoft.Resources/resources/read",  
    "Microsoft.Resources/subscriptions/resourceGroups/read"  
  ],  
  "NotActions": [],  
  "DataActions": [],  
  "NotDataActions": [],  
  "AssignableScopes": [  
    "/subscriptions/{subscriptionId}"  
  ]  
}
```

2. In the Azure portal, open your subscription.
3. In the left menu, click **Access control (IAM)**.
4. Click the **Roles** tab.
5. Set the **Type** list to **CustomRole**.
6. Verify that the **Custom Role - RG Reader** role is listed.

Name	Type	Users	Groups	Service Principals
Billing Reader Plus	CustomRole	0	0	0
Custom Role - RG Reader	CustomRole	0	0	0
Virtual Machine Operator	CustomRole	0	0	0

## Clean up resources

To remove the custom role, follow these steps.

1. Run the following command to remove the custom role.

```
Get-AzRoleDefinition -Name "Custom Role - RG Reader" | Remove-AzRoleDefinition
```

2. Enter Y to confirm that you want to remove the custom role.

## Next steps

- [Understand Azure role definitions](#)

- Quickstart: Add an Azure role assignment using an Azure Resource Manager template
- [ARM template documentation](#)

# View activity logs for Azure RBAC changes

7/21/2020 • 3 minutes to read • [Edit Online](#)

Sometimes you need information about Azure role-based access control (Azure RBAC) changes, such as for auditing or troubleshooting purposes. Anytime someone makes changes to role assignments or role definitions within your subscriptions, the changes get logged in [Azure Activity Log](#). You can view the activity logs to see all the Azure RBAC changes for the past 90 days.

## Operations that are logged

Here are the Azure RBAC-related operations that are logged in Activity Log:

- Create role assignment
- Delete role assignment
- Create or update custom role definition
- Delete custom role definition

## Azure portal

The easiest way to get started is to view the activity logs with the Azure portal. The following screenshot shows an example of role assignment operations in the activity log. It also includes an option to download the logs as a CSV file.

Operation name	Status	Time	Time stamp	Subscription	Event initiated by
> Create role assignment	Succeeded	23 min ago	Thu Feb 27 ...	Pay-As-You-Go	
> Delete role assignment	Succeeded	26 min ago	Thu Feb 27 ...	Pay-As-You-Go	
> Delete role assignment	Succeeded	27 min ago	Thu Feb 27 ...	Pay-As-You-Go	
> Create role assignment	Succeeded	29 min ago	Thu Feb 27 ...	Pay-As-You-Go	
> Create role assignment	Succeeded	31 min ago	Thu Feb 27 ...	Pay-As-You-Go	
> Create role assignment	Succeeded	32 min ago	Thu Feb 27 ...	Pay-As-You-Go	

The activity log in the portal has several filters. Here are the Azure RBAC-related filters:

FILTER	VALUE
Event category	<ul style="list-style-type: none"><li>• Administrative</li></ul>

FILTER	VALUE
Operation	<ul style="list-style-type: none"> <li>• Create role assignment</li> <li>• Delete role assignment</li> <li>• Create or update custom role definition</li> <li>• Delete custom role definition</li> </ul>

For more information about activity logs, see [View activity logs to monitor actions on resources](#).

## Azure PowerShell

### NOTE

This article has been updated to use the new Azure PowerShell Az module. You can still use the AzureRM module, which will continue to receive bug fixes until at least December 2020. To learn more about the new Az module and AzureRM compatibility, see [Introducing the new Azure PowerShell Az module](#). For Az module installation instructions, see [Install Azure PowerShell](#).

To view activity logs with Azure PowerShell, use the [Get-AzLog](#) command.

This command lists all role assignment changes in a subscription for the past seven days:

```
Get-AzLog -StartTime (Get-Date).AddDays(-7) | Where-Object {$_.Authorization.Action -like 'Microsoft.Authorization/roleAssignments/*'}
```

This command lists all role definition changes in a resource group for the past seven days:

```
Get-AzLog -ResourceGroupName pharma-sales -StartTime (Get-Date).AddDays(-7) | Where-Object {$_.Authorization.Action -like 'Microsoft.Authorization/roleDefinitions/*'}
```

This command lists all role assignment and role definition changes in a subscription for the past seven days and displays the results in a list:

```
Get-AzLog -StartTime (Get-Date).AddDays(-7) | Where-Object {$_.Authorization.Action -like 'Microsoft.Authorization/role*'} | Format-List Caller,EventTimestamp,{$_.Authorization.Action},Properties
```

```

Caller : alain@example.com
EventTimestamp : 2/27/2020 9:18:07 PM
$.Authorization.Action : Microsoft.Authorization/roleAssignments/write
Properties :
    statusCode : Created
    serviceRequestId: 11111111-1111-1111-1111-111111111111

Caller : alain@example.com
EventTimestamp : 2/27/2020 9:18:05 PM
$.Authorization.Action : Microsoft.Authorization/roleAssignments/write
Properties :
    requestBody : {"Id":"22222222-2222-2222-222222222222","Properties": {"PrincipalId":"33333333-3333-3333-3333-333333333333", "RoleDefinitionId":"/subscriptions/00000000-0000-0000-0000-000000000000/providers/Microsoft.Authorization/roleDefinitions/b24988ac-6180-42a0-ab88-20f7382dd24c", "Scope":"/subscriptions/00000000-0000-0000-0000-000000000000/resourceGroups/pharma-sales"}}
```

## Azure CLI

To view activity logs with the Azure CLI, use the [az monitor activity-log list](#) command.

This command lists the activity logs in a resource group from February 27, looking forward seven days:

```
az monitor activity-log list --resource-group pharma-sales --start-time 2020-02-27 --offset 7d
```

This command lists the activity logs for the Authorization resource provider from February 27, looking forward seven days:

```
az monitor activity-log list --namespace "Microsoft.Authorization" --start-time 2020-02-27 --offset 7d
```

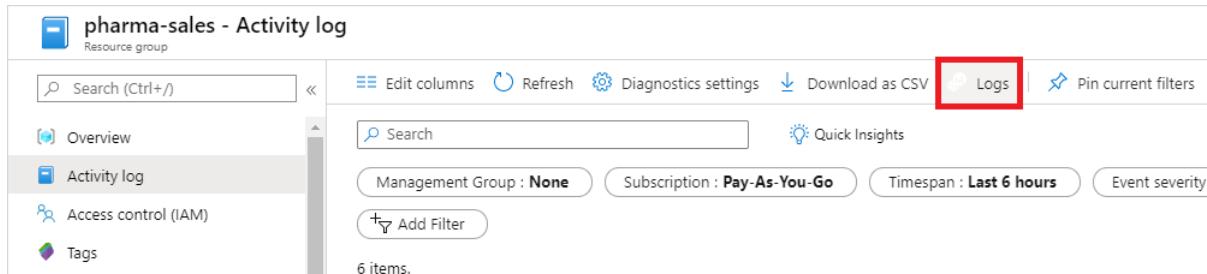
## Azure Monitor logs

[Azure Monitor logs](#) is another tool you can use to collect and analyze Azure RBAC changes for all your Azure resources. Azure Monitor logs has the following benefits:

- Write complex queries and logic
- Integrate with alerts, Power BI, and other tools
- Save data for longer retention periods
- Cross-reference with other logs such as security, virtual machine, and custom

Here are the basic steps to get started:

1. [Create a Log Analytics workspace](#).
2. [Configure the Activity Log Analytics solution](#) for your workspace.
3. [View the activity logs](#). A quick way to navigate to the Activity Log Analytics solution Overview page is to click the **Logs** option.



4. Optionally use the [Azure Monitor Log Analytics](#) to query and view the logs. For more information, see [Get started with Azure Monitor log queries](#).

Here's a query that returns new role assignments organized by target resource provider:

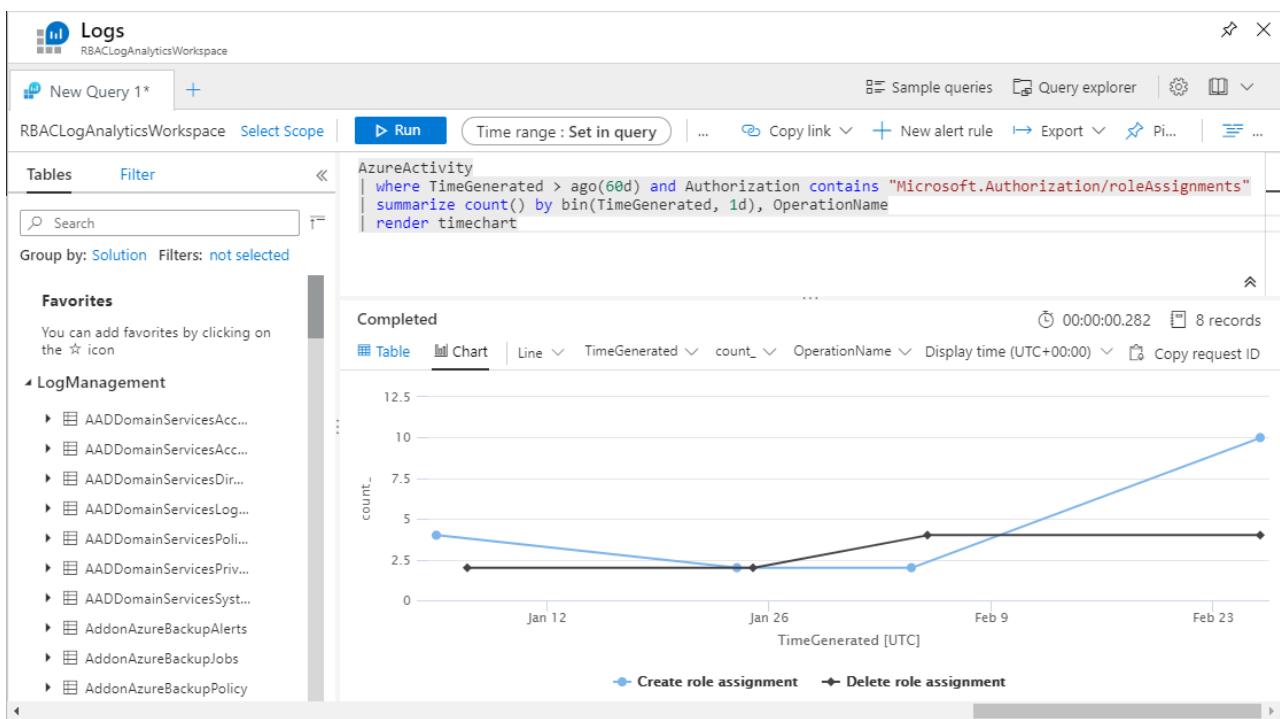
```
AzureActivity  
| where TimeGenerated > ago(60d) and Authorization contains "Microsoft.Authorization/roleAssignments/write" and  
ActivityStatus == "Succeeded"  
| parse ResourceId with * "/providers/" TargetResourceAuthProvider "/*"  
| summarize count(), makeset(Caller) by TargetResourceAuthProvider
```

Here's a query that returns role assignment changes displayed in a chart:

```

AzureActivity
| where TimeGenerated > ago(60d) and Authorization contains "Microsoft.Authorization/roleAssignments"
| summarize count() by bin(TimeGenerated, 1d), OperationName
| render timechart

```



## Next steps

- [View events in activity log](#)
- [Monitor Subscription Activity with the Azure Activity Log](#)

# Elevate access to manage all Azure subscriptions and management groups

7/21/2020 • 8 minutes to read • [Edit Online](#)

As a Global Administrator in Azure Active Directory (Azure AD), you might not have access to all subscriptions and management groups in your directory. This article describes the ways that you can elevate your access to all subscriptions and management groups.

## NOTE

For information about viewing or deleting personal data, see [Azure Data Subject Requests for the GDPR](#). For more information about GDPR, see the [GDPR section of the Service Trust portal](#).

## Why would you need to elevate your access?

If you are a Global Administrator, there might be times when you want to do the following actions:

- Regain access to an Azure subscription or management group when a user has lost access
- Grant another user or yourself access to an Azure subscription or management group
- See all Azure subscriptions or management groups in an organization
- Allow an automation app (such as an invoicing or auditing app) to access all Azure subscriptions or management groups

## How does elevated access work?

Azure AD and Azure resources are secured independently from one another. That is, Azure AD role assignments do not grant access to Azure resources, and Azure role assignments do not grant access to Azure AD. However, if you are a [Global Administrator](#) in Azure AD, you can assign yourself access to all Azure subscriptions and management groups in your directory. Use this capability if you don't have access to Azure subscription resources, such as virtual machines or storage accounts, and you want to use your Global Administrator privilege to gain access to those resources.

When you elevate your access, you will be assigned the [User Access Administrator](#) role in Azure at root scope (`/`). This allows you to view all resources and assign access in any subscription or management group in the directory. User Access Administrator role assignments can be removed using Azure PowerShell, Azure CLI, or the REST API.

You should remove this elevated access once you have made the changes you need to make at root scope.



## Azure portal

### Elevate access for a Global Administrator

Follow these steps to elevate access for a Global Administrator using the Azure portal.

1. Sign in to the [Azure portal](#) or the [Azure Active Directory admin center](#) as a Global Administrator.

If you are using Azure AD Privileged Identity Management, [activate your Global Administrator role assignment](#).

2. Open [Azure Active Directory](#).

3. Under **Manage**, select **Properties**.

Contoso - Properties	
Search (Ctrl+ /)	Save Discard
>Password reset	
Company branding	
User settings	
<b>Properties</b>	
Notifications settings	
Security	
Monitoring	
Sign-ins	
Audit logs	

**Directory properties**

Name: Contoso  
Country or region: United States  
Location: United States, Europe datacenters  
Notification language: English

4. Under **Access management for Azure resources**, set the toggle to **Yes**.

Save Discard

Technical contact

Global privacy contact

Privacy statement URL

Access management for Azure resources

Admin (admin@contoso.com) can manage access to all Azure subscriptions and management groups in this directory. [Learn more](#)

Yes  No

[Manage Security defaults](#)

When you set the toggle to **Yes**, you are assigned the User Access Administrator role in Azure RBAC at root scope (/). This grants you permission to assign roles in all Azure subscriptions and management groups associated with this Azure AD directory. This toggle is only available to users who are assigned the Global Administrator role in Azure AD.

When you set the toggle to **No**, the User Access Administrator role in Azure RBAC is removed from your user account. You can no longer assign roles in all Azure subscriptions and management groups that are associated with this Azure AD directory. You can view and manage only the Azure subscriptions and management groups to which you have been granted access.

**NOTE**

If you're using [Privileged Identity Management](#), deactivating your role assignment does not change the **Access management for Azure resources** toggle to **No**. To maintain least privileged access, we recommend that you set this toggle to **No** before you deactivate your role assignment.

5. Click **Save** to save your setting.

This setting is not a global property and applies only to the currently signed in user. You can't elevate access for all members of the Global Administrator role.

6. Sign out and sign back in to refresh your access.

You should now have access to all subscriptions and management groups in your directory. When you view the Access control (IAM) pane, you'll notice that you have been assigned the User Access Administrator role at root scope.

All services > Subscriptions > Pay-As-You-Go - Access control (IAM)

### Pay-As-You-Go - Access control (IAM)

Subscription

Search (Ctrl+ /)

Overview

Activity log

Access control (IAM)

Diagnose and solve problems

Security

Events

Cost Management

Cost analysis

Budgets

Advisor recommendations

Billing

Invoices

External services

Payment methods

+ Add Edit columns Refresh Remove Got feedback?

		Subscription Admins	Group	Owner	This resource
<input type="checkbox"/>	SA	Subscription Admins	Group	Owner	This resource
Reader					
<input type="checkbox"/>	AM	Ann	User	Reader	This resource
<input type="checkbox"/>	App2	App	App	Reader	This resource
<input type="checkbox"/>	AZ	azure-user	User	Reader	This resource
Storage Blob Data Reader					
<input type="checkbox"/>	AC	Alain	User	Storage Blob Data Reader	This resource
User Access Administrator					
<input type="checkbox"/>	A2	Admin	User	User Access Administrator	Root (Inherited)
<input type="checkbox"/>	MS-PIM	App	App	User Access Administrator	This resource

7. Make the changes you need to make at elevated access.

For information about assigning roles, see [Add or remove Azure role assignments using the Azure portal](#). If you are using Privileged Identity Management, see [Discover Azure resources to manage](#) or [Assign Azure resource roles](#).

8. Perform the steps in the following section to remove your elevated access.

#### Remove elevated access

To remove the User Access Administrator role assignment at root scope (/), follow these steps.

1. Sign in as the same user that was used to elevate access.
2. In the navigation list, click **Azure Active Directory** and then click **Properties**.
3. Set the **Access management for Azure resources** toggle back to **No**. Since this is a per-user setting, you must be signed in as the same user as was used to elevate access.

If you try to remove the User Access Administrator role assignment on the Access control (IAM) pane, you'll see the following message. To remove the role assignment, you must set the toggle back to **No** or use Azure PowerShell, Azure CLI, or the REST API.

+ Add Edit columns Refresh Remove Got feedback?

Remove role assignments

Role assignments created at root scope must be removed by using the command line. [Learn more](#)

OK

Storage Blob Data Reader

<input type="checkbox"/>	AC	Alain	User	Storage Blob Data Reader	This resource
User Access Administrator					
<input checked="" type="checkbox"/>	A2	Admin	User	User Access Administrator	Root (Inherited)
<input type="checkbox"/>	MS-PIM	App	App	User Access Administrator	This resource

#### 4. Sign out as Global Administrator.

If you are using Privileged Identity Management, deactivate your Global Administrator role assignment.

##### NOTE

If you're using [Privileged Identity Management](#), deactivating your role assignment does not change the **Access management for Azure resources** toggle to **No**. To maintain least privileged access, we recommend that you set this toggle to **No** before you deactivate your role assignment.

## Azure PowerShell

##### NOTE

This article has been updated to use the new Azure PowerShell Az module. You can still use the AzureRM module, which will continue to receive bug fixes until at least December 2020. To learn more about the new Az module and AzureRM compatibility, see [Introducing the new Azure PowerShell Az module](#). For Az module installation instructions, see [Install Azure PowerShell](#).

### List role assignment at root scope (/)

To list the User Access Administrator role assignment for a user at root scope (`/`), use the [Get-AzRoleAssignment](#) command.

```
Get-AzRoleAssignment | where {$_._RoleDefinitionName -eq "User Access Administrator" `  
-and $_.SignInName -eq "<username@example.com>" -and $_.Scope -eq "/"}  
RoleAssignmentId : /providers/Microsoft.Authorization/roleAssignments/11111111-1111-1111-1111-111111111111  
Scope : /  
DisplayName : username  
SignInName : username@example.com  
RoleDefinitionName : User Access Administrator  
RoleDefinitionId : 18d7d88d-d35e-4fb5-a5c3-7773c20a72d9  
ObjectId : 22222222-2222-2222-2222-222222222222  
ObjectType : User  
CanDelegate : False
```

### Remove elevated access

To remove the User Access Administrator role assignment for yourself or another user at root scope (`/`), follow these steps.

1. Sign in as a user that can remove elevated access. This can be the same user that was used to elevate access or another Global Administrator with elevated access at root scope.
2. Use the [Remove-AzRoleAssignment](#) command to remove the User Access Administrator role assignment.

```
Remove-AzRoleAssignment -SignInName <username@example.com> `  
-RoleDefinitionName "User Access Administrator" -Scope "/"
```

## Azure CLI

### List role assignment at root scope (/)

To list the User Access Administrator role assignment for a user at root scope (`/`), use the [az role assignment list](#)

command.

```
az role assignment list --role "User Access Administrator" --scope "/"
```

```
[  
  {  
    "canDelegate": null,  
    "id": "/providers/Microsoft.Authorization/roleAssignments/11111111-1111-1111-1111-111111111111",  
    "name": "11111111-1111-1111-111111111111",  
    "principalId": "22222222-2222-2222-2222-222222222222",  
    "principalName": "username@example.com",  
    "principalType": "User",  
    "roleDefinitionId": "/providers/Microsoft.Authorization/roleDefinitions/18d7d88d-d35e-4fb5-a5c3-  
7773c20a72d9",  
    "roleDefinitionName": "User Access Administrator",  
    "scope": "/",  
    "type": "Microsoft.Authorization/roleAssignments"  
  }  
]
```

## Remove elevated access

To remove the User Access Administrator role assignment for yourself or another user at root scope (`/`), follow these steps.

1. Sign in as a user that can remove elevated access. This can be the same user that was used to elevate access or another Global Administrator with elevated access at root scope.
2. Use the `az role assignment delete` command to remove the User Access Administrator role assignment.

```
az role assignment delete --assignee username@example.com --role "User Access Administrator" --scope  
"/"
```

## REST API

### Elevate access for a Global Administrator

Use the following basic steps to elevate access for a Global Administrator using the REST API.

1. Using REST, call `elevateAccess`, which grants you the User Access Administrator role at root scope (`/`).

```
POST https://management.azure.com/providers/Microsoft.Authorization/elevateAccess?api-version=2016-07-  
01
```

2. Make the changes you need to make at elevated access.

For information about assigning roles, see [Add or remove Azure role assignments using the REST API](#).

3. Perform the steps in a later section to remove your elevated access.

### List role assignments at root scope (`/`)

You can list all of the role assignments for a user at root scope (`/`).

- Call `GET roleAssignments` where `{objectIdOfUser}` is the object ID of the user whose role assignments you want to retrieve.

```
GET https://management.azure.com/providers/Microsoft.Authorization/roleAssignments?api-version=2015-07-01&$filter=principalId+eq+'{objectIdOfUser}'
```

## List deny assignments at root scope (/)

You can list all of the deny assignments for a user at root scope ( / ).

- Call GET denyAssignments where {objectIdOfUser} is the object ID of the user whose deny assignments you want to retrieve.

```
GET https://management.azure.com/providers/Microsoft.Authorization/denyAssignments?api-version=2018-07-01-preview&$filter=gdprExportPrincipalId+eq+'{objectIdOfUser}'
```

## Remove elevated access

When you call elevateAccess , you create a role assignment for yourself, so to revoke those privileges you need to remove the User Access Administrator role assignment for yourself at root scope ( / ).

1. Call GET roleDefinitions where roleName equals User Access Administrator to determine the name ID of the User Access Administrator role.

```
GET https://management.azure.com/providers/Microsoft.Authorization/roleDefinitions?api-version=2015-07-01&$filter=roleName+eq+'User Access Administrator'
```

```
{
  "value": [
    {
      "properties": {
        "roleName": "User Access Administrator",
        "type": "BuiltInRole",
        "description": "Lets you manage user access to Azure resources.",
        "assignableScopes": [
          "/"
        ],
        "permissions": [
          {
            "actions": [
              "*/*",
              "Microsoft.Authorization/*",
              "Microsoft.Support/*"
            ],
            "notActions": []
          }
        ],
        "createdOn": "2001-01-01T08:00:00.000000Z",
        "updatedOn": "2016-05-31T23:14:04.6964687Z",
        "createdBy": null,
        "updatedBy": null
      },
      "id": "/providers/Microsoft.Authorization/roleDefinitions/18d7d88d-d35e-4fb5-a5c3-7773c20a72d9",
      "type": "Microsoft.Authorization/roleDefinitions",
      "name": "18d7d88d-d35e-4fb5-a5c3-7773c20a72d9"
    }
  ],
  "nextLink": null
}
```

Save the ID from the name parameter, in this case 18d7d88d-d35e-4fb5-a5c3-7773c20a72d9 .

2. You also need to list the role assignment for the directory administrator at directory scope. List all

assignments at directory scope for the `principalId` of the directory administrator who made the `elevateAccess` call. This will list all assignments in the directory for the `objectId`.

```
GET https://management.azure.com/providers/Microsoft.Authorization/roleAssignments?api-version=2015-07-01&$filter=principalId+eq+'{objectId}'
```

#### NOTE

A directory administrator should not have many assignments, if the previous query returns too many assignments, you can also query for all assignments just at directory scope level, then filter the results:

```
GET https://management.azure.com/providers/Microsoft.Authorization/roleAssignments?api-version=2015-07-01&$filter=atScope()
```

- The previous calls return a list of role assignments. Find the role assignment where the scope is `"/"` and the `roleDefinitionId` ends with the role name ID you found in step 1 and `principalId` matches the `objectId` of the directory administrator.

Sample role assignment:

```
{
  "value": [
    {
      "properties": {
        "roleDefinitionId": "/providers/Microsoft.Authorization/roleDefinitions/18d7d88d-d35e-4fb5-a5c3-7773c20a72d9",
        "principalId": "{objectID}",
        "scope": "/",
        "createdOn": "2016-08-17T19:21:16.3422480Z",
        "updatedOn": "2016-08-17T19:21:16.3422480Z",
        "createdBy": "22222222-2222-2222-2222-222222222222",
        "updatedBy": "22222222-2222-2222-2222-222222222222"
      },
      "id": "/providers/Microsoft.Authorization/roleAssignments/11111111-1111-1111-1111-111111111111",
      "type": "Microsoft.Authorization/roleAssignments",
      "name": "11111111-1111-1111-111111111111"
    }
  ],
  "nextLink": null
}
```

Again, save the ID from the `name` parameter, in this case `11111111-1111-1111-1111-111111111111`.

- Finally, Use the role assignment ID to remove the assignment added by `elevateAccess`:

```
DELETE https://management.azure.com/providers/Microsoft.Authorization/roleAssignments/11111111-1111-1111-111111111111?api-version=2015-07-01
```

## Next steps

- [Understand the different roles](#)
- [Add or remove Azure role assignments using the REST API](#)

# Azure classic subscription administrators

7/21/2020 • 5 minutes to read • [Edit Online](#)

Microsoft recommends that you manage access to Azure resources using Azure role-based access control (Azure RBAC). However, if you are still using the classic deployment model, you'll need to use a classic subscription administrator role: Service Administrator and Co-Administrator. For more information, see [Azure Resource Manager vs. classic deployment](#).

This article describes how to add or change the Co-Administrator and Service Administrator roles, and how to view the Account Administrator.

## Add a Co-Administrator

### TIP

You only need to add a Co-Administrator if the user needs to manage Azure classic deployments by using [Azure Service Management PowerShell Module](#). If the user only uses the Azure portal to manage the classic resources, you won't need to add the classic administrator for the user.

1. Sign in to the [Azure portal](#) as a Service Administrator or Co-Administrator.

2. Open [Subscriptions](#) and select a subscription.

Co-Administrators can only be assigned at the subscription scope.

3. Click [Access control \(IAM\)](#).

4. Click the [Classic administrators](#) tab.

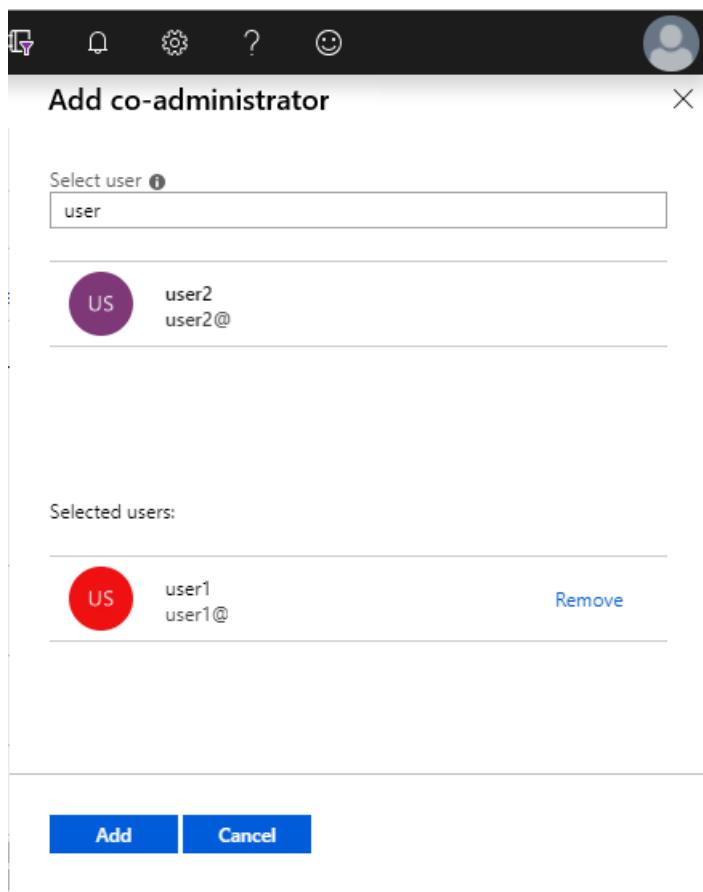
The screenshot shows the Microsoft Azure portal interface. On the left, the navigation menu includes 'Create a resource', 'Dashboard', 'All services', 'FAVORITES' (with 'All resources', 'Resource groups', 'SQL databases', 'Azure Cosmos DB', 'Azure Active Directory', 'Cost Management + Billing', and 'Help + support'), and 'Settings'. The main content area shows the 'Subscriptions' blade for 'Free Trial - Access control (IAM)'. The 'Access control (IAM)' section is selected. The 'Classic administrators' tab is active, displaying a table of users and their roles:

NAME	ROLE
AK Ashish	Service administrator
AB abene	Co-administrator
AF afshin	Co-administrator
EM Eduardo	Co-administrator

5. Click [Add > Add co-administrator](#) to open the Add co-administrators pane.

If the Add co-administrator option is disabled, you do not have permissions.

6. Select the user that you want to add and click [Add](#).



## Add a guest user as a Co-Administrator

To add a guest user as a Co-Administrator, follow the same steps as in the previous [Add a Co-Administrator](#) section. The guest user must meet the following criteria:

- The guest user must have a presence in your directory. This means that the user was invited to your directory and accepted the invite.

For more information, about how to add a guest user to your directory, see [Add Azure Active Directory B2B collaboration users in the Azure portal](#).

### Differences for guest users

Guest users that have been assigned the Co-Administrator role might see some differences as compared to member users with the Co-Administrator role. Consider the following scenario:

- User A with an Azure AD account (work or school account) is a Service Administrator for an Azure subscription.
- User B has a Microsoft account.
- User A assigns the Co-Administrator role to user B.
- User B can do almost everything, but is unable to register applications or look up users in the Azure AD directory.

You would expect that user B could manage everything. The reason for this difference is that the Microsoft account is added to the subscription as a guest user instead of a member user. Guest users have different default permissions in Azure AD as compared to member users. For example, member users can read other users in Azure AD and guest users cannot. Member users can register new service principals in Azure AD and guest users cannot.

If a guest user needs to be able to perform these tasks, a possible solution is to assign the specific Azure AD roles the guest user needs. For example, in the previous scenario, you could assign the [Directory Readers](#) role to read other users and assign the [Application Developer](#) role to be able to create service principals. For more information about member and guest users and their permissions, see [What are the default user permissions in Azure Active Directory?](#). For more information about granting access for guest users, see [Add or remove Azure role](#)

assignments for external guest users using the Azure portal.

Note that the [Azure built-in roles](#) are different than the [Azure AD roles](#). The built-in roles don't grant any access to Azure AD. For more information, see [Understand the different roles](#).

For information that compares member users and guest users, see [What are the default user permissions in Azure Active Directory?](#).

## Remove a Co-Administrator

1. Sign in to the [Azure portal](#) as a Service Administrator or Co-Administrator.
2. Open [Subscriptions](#) and select a subscription.
3. Click [Access control \(IAM\)](#).
4. Click the [Classic administrators](#) tab.
5. Add a checkmark next to the Co-Administrator you want to remove.
6. Click **Remove**.
7. In the message box that appears, click **Yes**.

The screenshot shows the Azure portal interface for managing co-administrators. At the top, there are buttons for 'Add', 'Edit columns', 'Refresh', and 'Remove'. Below this is a confirmation dialog box titled 'Remove co-administrator' with the message: 'Are you sure you want to remove the selected co-administrators? The removed co-administrators will no longer have classic administrator privileges.' Two buttons, 'Yes' and 'No', are at the bottom of the dialog. Below the dialog is a table titled 'Classic administrators' with columns 'NAME' and 'ROLE'. The table lists three users: 'AK Ashish' (Service administrator), 'AB abene' (Co-administrator, highlighted with a blue background and checked in the 'NAME' column), and 'AF afshin' (Co-administrator).

NAME	ROLE
AK Ashish	Service administrator
AB abene	Co-administrator
AF afshin	Co-administrator

## Change the Service Administrator

Only the Account Administrator can change the Service Administrator for a subscription. By default, when you sign up for an Azure subscription, the Service Administrator is the same as the Account Administrator. The user with the Account Administrator role has no access to the Azure portal. The user with the Service Administrator role has full access to the Azure portal. If the Account Administrator and Service Administrator are the same user and you change the Service Administrator to a different user, then the Account Administrator loses access to Azure portal. However, the Account Administrator can always use Account Center to change the Service Administrator back to themselves.

Follow these steps to change the Service Administrator in [Account Center](#).

### Account Center

1. Make sure your scenario is supported by checking the [limitations for changing the Service Administrator](#).
2. Sign in to [Account Center](#) as the Account Administrator.

3. Click a subscription.
4. On the right side, click **Edit subscription details**.

**Summary for Pay-As-You-Go**

OVERVIEW BILLING HISTORY

USAGE YOU ARE RESPONSIBLE FOR

0.01 GB	\$0.00	(i)
DATA TRANSFER IN (GB) - ZONE 1		
0.04 GB	\$0.00	(i)
STANDARD IO - FILES (GB) - LOCALLY REDUNDANT		
0.31 10,000s	\$0.00	(i)
STANDARD IO - TABLE WRITE BATCH OPERATION UNITS (IN 10,000S) - GEO REDUNDANT		
0.00 GB	\$0.00	(i)
STANDARD IO - TABLE (GB) - LOCALLY REDUNDANT		
0.00 GB	\$0.00	(i)
STANDARD IO - TABLE (GB) - READ-ACCESS GEO REDUNDANT		
0.75 10,000s	\$0.00	(i)
STANDARD IO - TABLE BATCH WRITE OPERATION UNITS (IN 10,000S) - DATA MANAGEMENT		
0.00 10,000s	\$0.00	(i)
STANDARD IO - TABLE WRITE OPERATION UNITS (IN 10,000S) - DATA MANAGEMENT		

CURRENT BALANCE: **\$9.70**

DATE PURCHASED  
12/23/2017

CURRENT BILLING PERIOD  
8/23/2018 - 9/22/2018

- (i) Manage payment methods
- (i) Download usage details
- (i) Contact Microsoft Support
- (i) Edit subscription details**
- (i) Change subscription address
- (i) Partner information
- (i) Switch to another offer
- (i) Transfer subscription
- (i) Cancel subscription

5. In the SERVICE ADMINISTRATOR box, enter the email address of the new Service Administrator.

EDIT YOUR SUBSCRIPTION

Make it yours

Personalize your subscriptions to keep them organized. [Privacy & Cookies](#)

GIVE YOUR SUBSCRIPTION A FRIENDLY NAME

SERVICE ADMINISTRATOR

Save changes

[Cancel subscription](#)

6. Click the checkmark to save the change.

#### Limitations for changing the Service Administrator

There can only be one Service Administrator per Azure subscription. Changing the Service Administrator will behave differently depending on whether the Account Administrator is a Microsoft account or whether it is an Azure AD account (work or school account).

ACCOUNT ADMINISTRATOR ACCOUNT	CAN CHANGE THE SERVICE ADMINISTRATOR TO A DIFFERENT MICROSOFT ACCOUNT?	CAN CHANGE THE SERVICE ADMINISTRATOR TO AN AZURE AD ACCOUNT IN THE SAME DIRECTORY?	CAN CHANGE THE SERVICE ADMINISTRATOR TO AN AZURE AD ACCOUNT IN A DIFFERENT DIRECTORY?
Microsoft account	Yes	No	No
Azure AD account	Yes	Yes	No

If the Account Administrator is an Azure AD account, you can change the Service Administrator to an Azure AD account in the same directory, but not in a different directory. For example, abby@contoso.com can change the Service Administrator to bob@contoso.com, but cannot change the Service Administrator to john@notcontoso.com unless john@notcontoso.com has a presence in the contoso.com directory.

For more information about Microsoft accounts and Azure AD accounts, see [What is Azure Active Directory?](#).

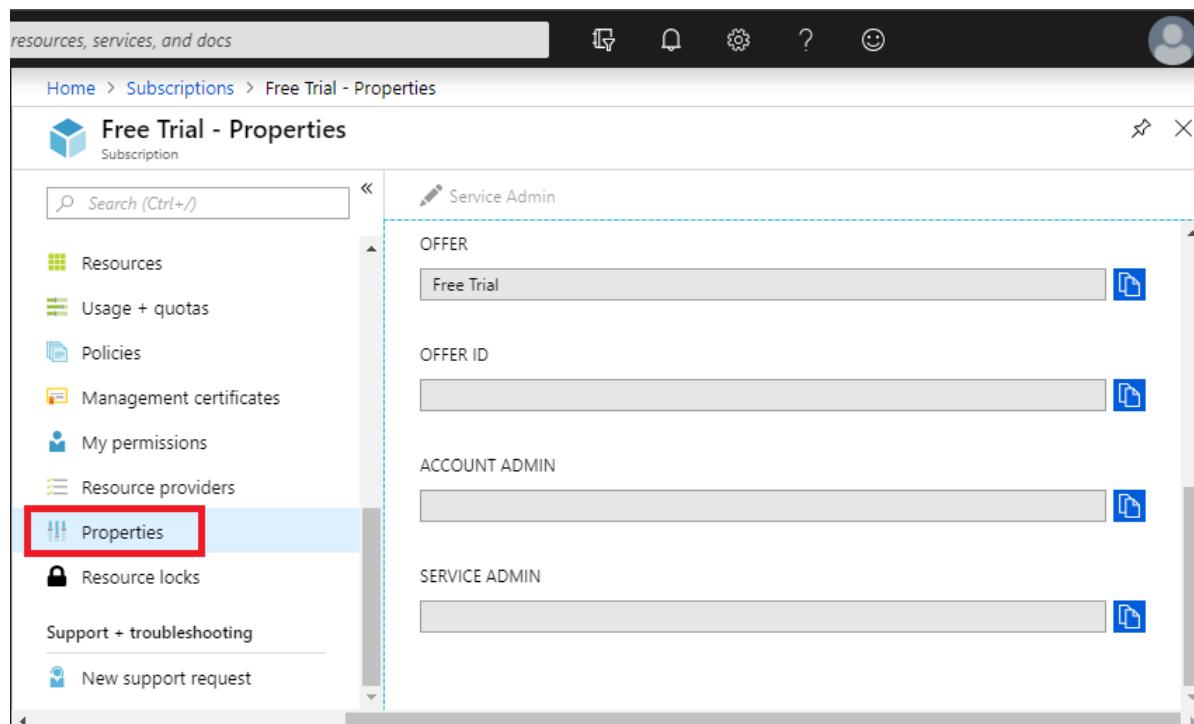
## View the Account Administrator

The Account Administrator is the user that initially signed up for the Azure subscription, and is responsible as the billing owner of the subscription. To change the Account Administrator of a subscription, see [Transfer ownership of an Azure subscription to another account](#).

Follow these steps to view the Account Administrator.

1. Sign in to the [Azure portal](#).
2. Open [Subscriptions](#) and select a subscription.
3. Click **Properties**.

The Account Administrator of the subscription is displayed in the **Account Admin** box.



## Next steps

- Understand the different roles
- Add or remove Azure role assignments using the Azure portal
- Add or change Azure subscription administrators

# Transfer an Azure subscription to a different Azure AD directory (Preview)

7/21/2020 • 13 minutes to read • [Edit Online](#)

## IMPORTANT

Following these steps to transfer a subscription to a different Azure AD directory is currently in public preview. This preview version is provided without a service level agreement, and it's not recommended for production workloads. Certain features might not be supported or might have constrained capabilities. For more information, see [Supplemental Terms of Use for Microsoft Azure Previews](#).

Organizations might have several Azure subscriptions. Each subscription is associated with a particular Azure Active Directory (Azure AD) directory. To make management easier, you might want to transfer a subscription to a different Azure AD directory. When you transfer a subscription to a different Azure AD directory, some resources are not transferred to the target directory. For example, all role assignments and custom roles in Azure role-based access control (Azure RBAC) are **permanently** deleted from the source directory and are not transferred to the target directory.

This article describes the basic steps you can follow to transfer a subscription to a different Azure AD directory and re-create some of the resources after the transfer.

## Overview

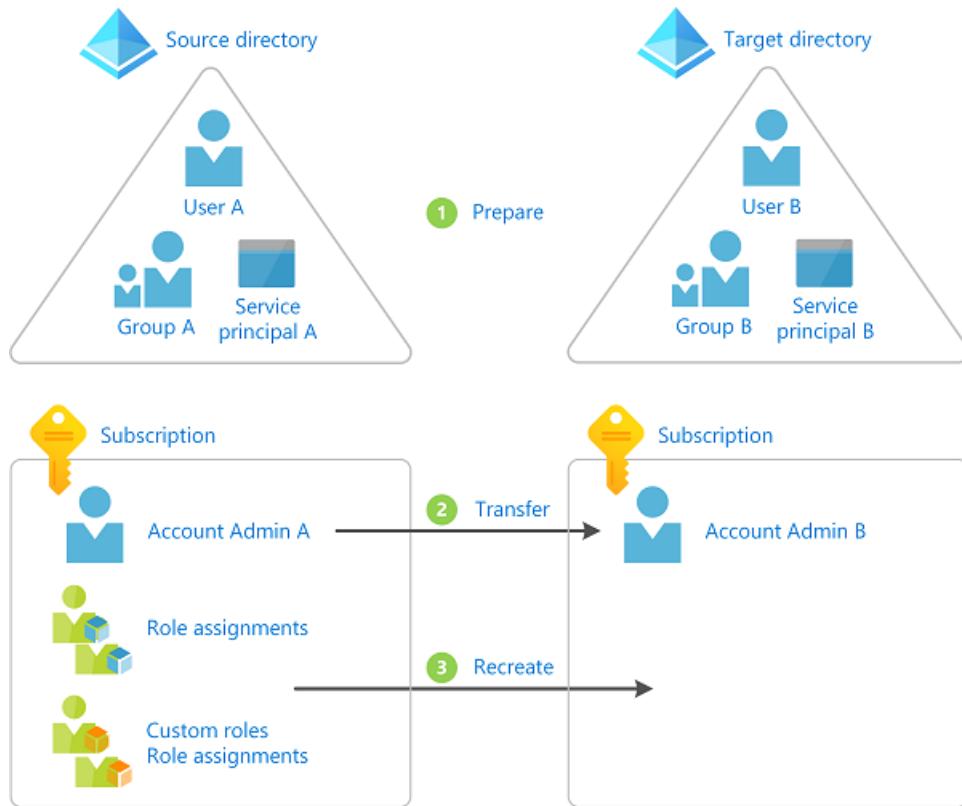
Transferring an Azure subscription to a different Azure AD directory is a complex process that must be carefully planned and executed. Many Azure services require security principals (identities) to operate normally or even manage other Azure resources. This article tries to cover most of the Azure services that depend heavily on security principals, but is not comprehensive.

## IMPORTANT

Transferring a subscription does require downtime to complete the process.

The following diagram shows the basic steps you must follow when you transfer a subscription to a different directory.

1. Prepare for the transfer
2. Transfer billing ownership of an Azure subscription to another account
3. Re-create resources in the target directory such as role assignments, custom roles, and managed identities



### Deciding whether to transfer a subscription to a different directory

The following are some reasons why you might want to transfer a subscription:

- Because of a company merger or acquisition, you want to manage an acquired subscription in your primary Azure AD directory.
- Someone in your organization created a subscription and you want to consolidate management to a particular Azure AD directory.
- You have applications that depend on a particular subscription ID or URL and it isn't easy to modify the application configuration or code.
- A portion of your business has been split into a separate company and you need to move some of your resources into a different Azure AD directory.
- You want to manage some of your resources in a different Azure AD directory for security isolation purposes.

Transferring a subscription does require downtime to complete the process. Depending on your scenario, it might be better to just re-create the resources and copy data to the target directory and subscription.

### Understand the impact of transferring a subscription

Several Azure resources have a dependency on a subscription or a directory. Depending on your situation, the following table lists the known impact of transferring a subscription. By performing the steps in this article, you can re-create some of the resources that existed prior to the subscription transfer.

#### IMPORTANT

This section lists the known Azure services or resources that depend on your subscription. Because resource types in Azure are constantly evolving, there might be additional dependencies not listed here that can cause a breaking change to your environment.

Service or Resource	Impacted	Recoverable	Are You Impacted?	What You Can Do

Service or resource	Impacted	Recoverable	Are you impacted?	What you can do
Role assignments	Yes	Yes	<a href="#">List role assignments</a>	All role assignments are permanently deleted. You must map users, groups, and service principals to corresponding objects in the target directory. You must re-create the role assignments.
Custom roles	Yes	Yes	<a href="#">List custom roles</a>	All custom roles are permanently deleted. You must re-create the custom roles and any role assignments.
System-assigned managed identities	Yes	Yes	<a href="#">List managed identities</a>	You must disable and re-enable the managed identities. You must re-create the role assignments.
User-assigned managed identities	Yes	Yes	<a href="#">List managed identities</a>	You must delete, re-create, and attach the managed identities to the appropriate resource. You must re-create the role assignments.
Azure Key Vault	Yes	Yes	<a href="#">List Key Vault access policies</a>	You must update the tenant ID associated with the key vaults. You must remove and add new access policies.
Azure SQL databases with Azure AD authentication	Yes	No	<a href="#">Check Azure SQL databases with Azure AD authentication</a>	
Azure Storage and Azure Data Lake Storage Gen2	Yes	Yes		You must re-create any ACLs.

Service or Resource	Impacted	Recoverable	Are You Impacted?	What You Can Do
Azure Data Lake Storage Gen1	Yes			You must re-create any ACLs.
Azure Files	Yes	Yes		You must re-create any ACLs.
Azure File Sync	Yes	Yes		
Azure Managed Disks	Yes	N/A		
Azure Container Services for Kubernetes	Yes	Yes		
Azure Active Directory Domain Services	Yes	No		
App registrations	Yes	Yes		

If you are using encryption at rest for a resource, such as a storage account or SQL database, that has a dependency on a key vault that is NOT in the same subscription that is being transferred, it can lead to an unrecoverable scenario. If you have this situation, you should take steps to use a different key vault or temporarily disable customer-managed keys to avoid this unrecoverable scenario.

## Prerequisites

To complete these steps, you will need:

- [Bash in Azure Cloud Shell](#) or [Azure CLI](#)
- Account Administrator of the subscription you want to transfer in the source directory
- [Owner](#) role in the target directory

## Step 1: Prepare for the transfer

### Sign in to source directory

1. Sign in to Azure as an administrator.
2. Get a list of your subscriptions with the [az account list](#) command.

```
az account list --output table
```

3. Use [az account set](#) to set the active subscription you want to transfer.

```
az account set --subscription "Marketing"
```

### Install the resource-graph extension

The resource-graph extension enables you to use the [az graph](#) command to query resources managed by Azure Resource Manager. You'll use this command in later steps.

1. Use [az extension list](#) to see if you have the *resource-graph* extension installed.

```
az extension list
```

2. If not, install the *resource-graph* extension.

```
az extension add --name resource-graph
```

## Save all role assignments

1. Use [az role assignment list](#) to list all the role assignments (including inherited role assignments).

To make it easier to review the list, you can export the output as JSON, TSV, or a table. For more information, see [List role assignments using Azure RBAC and Azure CLI](#).

```
az role assignment list --all --include-inherited --output json > roleassignments.json  
az role assignment list --all --include-inherited --output tsv > roleassignments.tsv  
az role assignment list --all --include-inherited --output table > roleassignments.txt
```

2. Save the list of role assignments.

When you transfer a subscription, all of the role assignments are **permanently deleted** so it is important to save a copy.

3. Review the list of role assignments. There might be role assignments you won't need in the target directory.

## Save custom roles

1. Use the [az role definition list](#) to list your custom roles. For more information, see [Create or update custom roles for Azure resources using Azure CLI](#).

```
az role definition list --custom-role-only true --output json --query '[].{roleName:roleName,  
roleType:roleType}'
```

2. Save each custom role that you will need in the target directory as a separate JSON file.

```
az role definition list --name <custom_role_name> > customrolename.json
```

3. Make copies of the custom role files.

4. Modify each copy to use the following format.

You'll use these files later to re-create the custom roles in the target directory.

```
{  
  "Name": "",  
  "Description": "",  
  "Actions": [],  
  "NotActions": [],  
  "DataActions": [],  
  "NotDataActions": [],  
  "AssignableScopes": []  
}
```

## Determine user, group, and service principal mappings

1. Based on your list of role assignments, determine the users, groups, and service principals you will map to in

the target directory.

You can identify the type of principal by looking at the `principalType` property in each role assignment.

2. If necessary, in the target directory, create any users, groups, or service principals you will need.

### List role assignments for managed identities

Managed identities do not get updated when a subscription is transferred to another directory. As a result, any existing system-assigned or user-assigned managed identities will be broken. After the transfer, you can re-enable any system-assigned managed identities. For user-assigned managed identities, you will have to re-create and attach them in the target directory.

1. Review the [list of Azure services that support managed identities](#) to note where you might be using managed identities.
2. Use `az ad sp list` to list your system-assigned and user-assigned managed identities.

```
az ad sp list --all --filter "servicePrincipalType eq 'ManagedIdentity'"
```

3. In the list of managed identities, determine which are system-assigned and which are user-assigned. You can use the following criteria to determine the type.

CRITERIA	MANAGED IDENTITY TYPE
<code>alternativeNames</code> property includes <code>isExplicit=False</code>	System-assigned
<code>alternativeNames</code> property does not include <code>isExplicit</code>	System-assigned
<code>alternativeNames</code> property includes <code>isExplicit=True</code>	User-assigned

You can also use `az identity list` to just list user-assigned managed identities. For more information, see [Create, list or delete a user-assigned managed identity using the Azure CLI](#).

```
az identity list
```

4. Get a list of the `objectId` values for your managed identities.

5. Search your list of role assignments to see if there are any role assignments for your managed identities.

### List key vaults

When you create a key vault, it is automatically tied to the default Azure Active Directory tenant ID for the subscription in which it is created. All access policy entries are also tied to this tenant ID. For more information, see [Moving an Azure Key Vault to another subscription](#).

#### WARNING

If you are using encryption at rest for a resource, such as a storage account or a SQL database, that has a dependency on a key vault that is NOT in the same subscription that is being transferred, it can lead to an unrecoverable scenario. If you have this situation, you should take steps to use a different key vault or temporarily disable customer-managed keys to avoid this unrecoverable scenario.

- If you have a key vault, use `az keyvault show` to list the access policies. For more information, see [Provide](#)

## Key Vault authentication with an access control policy.

```
az keyvault show --name MyKeyVault
```

## List Azure SQL databases with Azure AD authentication

- Use [az sql server ad-admin list](#) and the [az graph](#) extension to see if you are using Azure SQL databases with Azure AD authentication. For more information, see [Configure and manage Azure Active Directory authentication with SQL](#).

```
az sql server ad-admin list --ids $(az graph query -q 'resources | where type == "microsoft.sql/servers" | project id' -o tsv | cut -f1)
```

## List ACLs

1. If you are using Azure Data Lake Storage Gen1, list the ACLs that are applied to any file by using the Azure portal or PowerShell.
2. If you are using Azure Data Lake Storage Gen2, list the ACLs that are applied to any file by using the Azure portal or PowerShell.
3. If you are using Azure Files, list the ACLs that are applied to any file.

## List other known resources

1. Use [az account show](#) to get your subscription ID.

```
subscriptionId=$(az account show --query id | sed -e 's/^"//' -e 's/"$//')
```

2. Use the [az graph](#) extension to list other Azure resources with known Azure AD directory dependencies.

```
az graph query -q \  
'resources | where type != "microsoft.azureactivedirectory/b2cdirectories" | where identity <> "" or properties.tenantId <> "" or properties.encryptionSettingsCollection.enabled == true | project name, type, kind, identity, tenantId, properties.tenantId' \  
--subscriptions $subscriptionId --output table
```

## Step 2: Transfer billing ownership

In this step, you transfer the billing ownership of the subscription from the source directory to the target directory.

### WARNING

When you transfer the billing ownership of the subscription, all role assignments in the source directory are permanently deleted and cannot be restored. You cannot go back once you transfer billing ownership of the subscription. Be sure you complete the previous steps before performing this step.

1. Follow the steps in [Transfer billing ownership of an Azure subscription to another account](#). To transfer the subscription to a different Azure AD directory, you must check the **Subscription Azure AD tenant** check box.
2. Once you finish transferring ownership, return back to this article to re-create the resources in the target directory.

## Step 3: Re-create resources

## Sign in to target directory

1. In the target directory, sign in as the user that accepted the transfer request.

Only the user in the new account who accepted the transfer request will have access to manage the resources.

2. Get a list of your subscriptions with the [az account list](#) command.

```
az account list --output table
```

3. Use [az account set](#) to set the active subscription you want to use.

```
az account set --subscription "Contoso"
```

## Create custom roles

- Use [az role definition create](#) to create each custom role from the files you created earlier. For more information, see [Create or update custom roles for Azure resources using Azure CLI](#).

```
az role definition create --role-definition <role_definition>
```

## Create role assignments

- Use [az role assignment create](#) to create the role assignments for users, groups, and service principals. For more information, see [Add or remove role assignments using Azure RBAC and Azure CLI](#).

```
az role assignment create --role <role_name_or_id> --assignee <assignee> --resource-group <resource_group>
```

## Update system-assigned managed identities

1. Disable and re-enable system-assigned managed identities.

AZURE SERVICE	MORE INFORMATION
Virtual machines	<a href="#">Configure managed identities for Azure resources on an Azure VM using Azure CLI</a>
Virtual machine scale sets	<a href="#">Configure managed identities for Azure resources on a virtual machine scale set using Azure CLI</a>
Other services	<a href="#">Services that support managed identities for Azure resources</a>

2. Use [az role assignment create](#) to create the role assignments for system-assigned managed identities. For more information, see [Assign a managed identity access to a resource using Azure CLI](#).

```
az role assignment create --assignee <objectid> --role '<role_name_or_id>' --scope <scope>
```

## Update user-assigned managed identities

1. Delete, re-create, and attach user-assigned managed identities.

AZURE SERVICE	MORE INFORMATION
Virtual machines	<a href="#">Configure managed identities for Azure resources on an Azure VM using Azure CLI</a>
Virtual machine scale sets	<a href="#">Configure managed identities for Azure resources on a virtual machine scale set using Azure CLI</a>
Other services	<a href="#">Services that support managed identities for Azure resources</a> <a href="#">Create, list or delete a user-assigned managed identity using the Azure CLI</a>

2. Use `az role assignment create` to create the role assignments for user-assigned managed identities. For more information, see [Assign a managed identity access to a resource using Azure CLI](#).

```
az role assignment create --assignee <objectid> --role '<role_name_or_id>' --scope <scope>
```

## Update key vaults

This section describes the basic steps to update your key vaults. For more information, see [Moving an Azure Key Vault to another subscription](#).

1. Update the tenant ID associated with all existing key vaults in the subscription to the target directory.
2. Remove all existing access policy entries.
3. Add new access policy entries associated with the target directory.

## Update ACLs

1. If you are using Azure Data Lake Storage Gen1, assign the appropriate ACLs. For more information, see [Securing data stored in Azure Data Lake Storage Gen1](#).
2. If you are using Azure Data Lake Storage Gen2, assign the appropriate ACLs. For more information, see [Access control in Azure Data Lake Storage Gen2](#).
3. If you are using Azure Files, assign the appropriate ACLs.

## Review other security methods

Even though role assignments are removed during the transfer, users in the original owner account might continue to have access to the subscription through other security methods, including:

- Access keys for services like Storage.
- [Management certificates](#) that grant the user administrator access to subscription resources.
- Remote Access credentials for services like Azure Virtual Machines.

If your intent is to remove access from users in the source directory so that they don't have access in the target directory, you should consider rotating any credentials. Until the credentials are updated, users will continue to have access after the transfer.

1. Rotate storage account access keys. For more information, see [Manage storage account access keys](#).
2. If you are using access keys for other services such as Azure SQL Database or Azure Service Bus Messaging, rotate access keys.
3. For resources that use secrets, open the settings for the resource and update the secret.
4. For resources that use certificates, update the certificate.

## Next steps

- [Transfer billing ownership of an Azure subscription to another account](#)
- [Transfer Azure subscriptions between subscribers and CSPs](#)
- [Associate or add an Azure subscription to your Azure Active Directory tenant](#)

# Troubleshoot Azure RBAC

7/21/2020 • 10 minutes to read • [Edit Online](#)

This article answers some common questions about Azure role-based access control (Azure RBAC), so that you know what to expect when using the roles and can troubleshoot access problems.

## Azure role assignments limit

Azure supports up to 2000 role assignments per subscription. This limit includes role assignments at the subscription, resource group, and resource scopes. If you get the error message "No more role assignments can be created (code: RoleAssignmentLimitExceeded)" when you try to assign a role, try to reduce the number of role assignments in the subscription.

### NOTE

The 2000 role assignments limit per subscription is fixed and cannot be increased.

If you are getting close to this limit, here are some ways that you can reduce the number of role assignments:

- Add users to groups and assign roles to the groups instead.
- Combine multiple built-in roles with a custom role.
- Make common role assignments at a higher scope, such as subscription or management group.
- If you have Azure AD Premium P2, make role assignments eligible in [Azure AD Privileged Identity Management](#) instead of permanently assigned.
- Add an additional subscription.

To get the number of role assignments, you can view the [chart on the Access control \(IAM\) page](#) in the Azure portal. You can also use the following Azure PowerShell commands:

```
$scope = "/subscriptions/<subscriptionId>"  
$ras = Get-AzRoleAssignment -Scope $scope | Where-Object {$_.scope.StartsWith($scope)}  
$ras.Count
```

## Problems with Azure role assignments

- If you are unable to add a role assignment in the Azure portal on [Access control \(IAM\)](#) because the **Add > Add role assignment** option is disabled or because you get the permissions error "The client with object id does not have authorization to perform action", check that you are currently signed in with a user that is assigned a role that has the `Microsoft.Authorization/roleAssignments/write` permission such as [Owner](#) or [User Access Administrator](#) at the scope you are trying to assign the role.

## Problems with custom roles

- If you need steps for how to create a custom role, see the custom role tutorials using the [Azure portal](#) (currently in preview), [Azure PowerShell](#), or [Azure CLI](#).
- If you are unable to update an existing custom role, check that you are currently signed in with a user that is assigned a role that has the `Microsoft.Authorization/roleDefinition/write` permission such as [Owner](#) or [User Access Administrator](#).

- If you are unable to delete a custom role and get the error message "There are existing role assignments referencing role (code: RoleDefinitionHasAssignments)", then there are role assignments still using the custom role. Remove those role assignments and try to delete the custom role again.
- If you get the error message "Role definition limit exceeded. No more role definitions can be created (code: RoleDefinitionLimitExceeded)" when you try to create a new custom role, delete any custom roles that aren't being used. Azure supports up to 5000 custom roles in a directory. (For Azure Germany and Azure China 21Vianet, the limit is 2000 custom roles.)
- If you get an error similar to "The client has permission to perform action 'Microsoft.Authorization/roleDefinitions/write' on scope '/subscriptions/{subscriptionid}', however the linked subscription was not found" when you try to update a custom role, check whether one or more **assignable scopes** have been deleted in the directory. If the scope was deleted, then create a support ticket as there is no self-service solution available at this time.

## Custom roles and management groups

- You can only define one management group in `AssignableScopes` of a custom role. Adding a management group to `AssignableScopes` is currently in preview.
- Custom roles with `DataActions` cannot be assigned at the management group scope.
- Azure Resource Manager doesn't validate the management group's existence in the role definition's assignable scope.
- For more information about custom roles and management groups, see [Organize your resources with Azure management groups](#).

## Transferring a subscription to a different directory

- If you need steps for how to transfer a subscription to a different Azure AD directory, see [Transfer ownership of an Azure subscription to another account](#).
- If you transfer a subscription to a different Azure AD directory, all role assignments are **permanently** deleted from the source Azure AD directory and are not migrated to the target Azure AD directory. You must re-create your role assignments in the target directory. You also have to manually recreate managed identities for Azure resources. For more information, see [FAQs and known issues with managed identities](#).
- If you are an Azure AD Global Administrator and you don't have access to a subscription after it was transferred between directories, use the **Access management for Azure resources** toggle to temporarily [elevate your access](#) to get access to the subscription.

## Issues with service admins or co-admins

- If you are having issues with Service administrator or Co-administrators, see [Add or change Azure subscription administrators](#) and [Classic subscription administrator roles, Azure roles, and Azure AD roles](#).

## Access denied or permission errors

- If you get the permissions error "The client with object id does not have authorization to perform action over scope (code: AuthorizationFailed)" when you try to create a resource, check that you are currently signed in with a user that is assigned a role that has write permission to the resource at the selected scope. For example, to manage virtual machines in a resource group, you should have the **Virtual Machine Contributor** role on the resource group (or parent scope). For a list of the permissions for each built-in role, see [Azure built-in roles](#).
- If you get the permissions error "You don't have permission to create a support request" when you try to create or update a support ticket, check that you are currently signed in with a user that is assigned a role that has the `Microsoft.Support/supportTickets/write` permission, such as **Support Request Contributor**.

# Role assignments with identity not found

In the list of role assignments for the Azure portal, you might notice that the security principal (user, group, service principal, or managed identity) is listed as **Identity not found** with an **Unknown** type.

The screenshot shows the 'Role assignments' tab selected in the Azure portal's Access control (IAM) section. A single role assignment is listed:

Name	Type	Role	Scope
Storage Blob Data Contributor	Identity not found. Unable to find identity.	Unknown	Storage Blob Data Contribu... All scopes

The identity might not be found for two reasons:

- You recently invited a user when creating a role assignment
- You deleted a security principal that had a role assignment

If you recently invited a user when creating a role assignment, this security principal might still be in the replication process across regions. If so, wait a few moments and refresh the role assignments list.

However, if this security principal is not a recently invited user, it might be a deleted security principal. If you assign a role to a security principal and then you later delete that security principal without first removing the role assignment, the security principal will be listed as **Identity not found** and an **Unknown** type.

If you list this role assignment using Azure PowerShell, you might see an empty `DisplayName` and an `ObjectType` set to **Unknown**. For example, [Get-AzRoleAssignment](#) returns a role assignment that is similar to the following output:

```
RoleAssignmentId : /subscriptions/11111111-1111-1111-1111-111111111111/providers/Microsoft.Authorization/roleAssignments/22222222-2222-2222-2222-222222222222
Scope           : /subscriptions/11111111-1111-1111-1111-111111111111
DisplayName     :
SignInName     :
RoleDefinitionName : Storage Blob Data Contributor
RoleDefinitionId : ba92f5b4-2d11-453d-a403-e96b0029c9fe
ObjectId        : 33333333-3333-3333-3333-333333333333
ObjectType      : Unknown
CanDelegate    : False
```

Similarly, if you list this role assignment using Azure CLI, you might see an empty `principalName`. For example, [az role assignment list](#) returns a role assignment that is similar to the following output:

```
{
  "canDelegate": null,
  "id": "/subscriptions/11111111-1111-1111-1111-
111111111111/providers/Microsoft.Authorization/roleAssignments/22222222-2222-2222-2222-222222222222",
  "name": "22222222-2222-2222-222222222222",
  "principalId": "33333333-3333-3333-333333333333",
  "principalName": "",
  "roleDefinitionId": "/subscriptions/11111111-1111-1111-1111-
111111111111/providers/Microsoft.Authorization/roleDefinitions/ba92f5b4-2d11-453d-a403-e96b0029c9fe",
  "roleDefinitionName": "Storage Blob Data Contributor",
  "scope": "/subscriptions/11111111-1111-1111-111111111111",
  "type": "Microsoft.Authorization/roleAssignments"
}
}
```

It isn't a problem to leave these role assignments where the security principal has been deleted. If you like, you can remove these role assignments using steps that are similar to other role assignments. For information about how to remove role assignments, see [Azure portal](#), [Azure PowerShell](#), or [Azure CLI](#)

In PowerShell, if you try to remove the role assignments using the object ID and role definition name, and more than one role assignment matches your parameters, you will get the error message: "The provided information does not map to a role assignment". The following output shows an example of the error message:

```
PS C:\> Remove-AzRoleAssignment -ObjectId 33333333-3333-3333-3333-333333333333 -RoleDefinitionName "Storage
Blob Data Contributor"

Remove-AzRoleAssignment : The provided information does not map to a role assignment.
At line:1 char:1
+ Remove-AzRoleAssignment -ObjectId 33333333-3333-3333-333333333333 ...
+ ~~~~~
+ CategoryInfo          : CloseError: (:) [Remove-AzRoleAssignment], KeyNotFoundException
+ FullyQualifiedErrorMessage : Microsoft.Azure.Commands.Resources.RemoveAzureRoleAssignmentCommand
```

If you get this error message, make sure you also specify the `-Scope` or `-ResourceGroupName` parameters.

```
PS C:\> Remove-AzRoleAssignment -ObjectId 33333333-3333-3333-3333-333333333333 -RoleDefinitionName "Storage
Blob Data Contributor" - Scope /subscriptions/11111111-1111-1111-111111111111
```

## Role assignment changes are not being detected

Azure Resource Manager sometimes caches configurations and data to improve performance. When you add or remove role assignments, it can take up to 30 minutes for changes to take effect. If you are using the Azure portal, Azure PowerShell, or Azure CLI, you can force a refresh of your role assignment changes by signing out and signing in. If you are making role assignment changes with REST API calls, you can force a refresh by refreshing your access token.

If you are add or remove a role assignment at management group scope and the role has `DataActions`, the access on the data plane might not be updated for several hours. This applies only to management group scope and the data plane.

## Web app features that require write access

If you grant a user read-only access to a single web app, some features are disabled that you might not expect. The following management capabilities require **write** access to a web app (either Contributor or Owner), and aren't available in any read-only scenario.

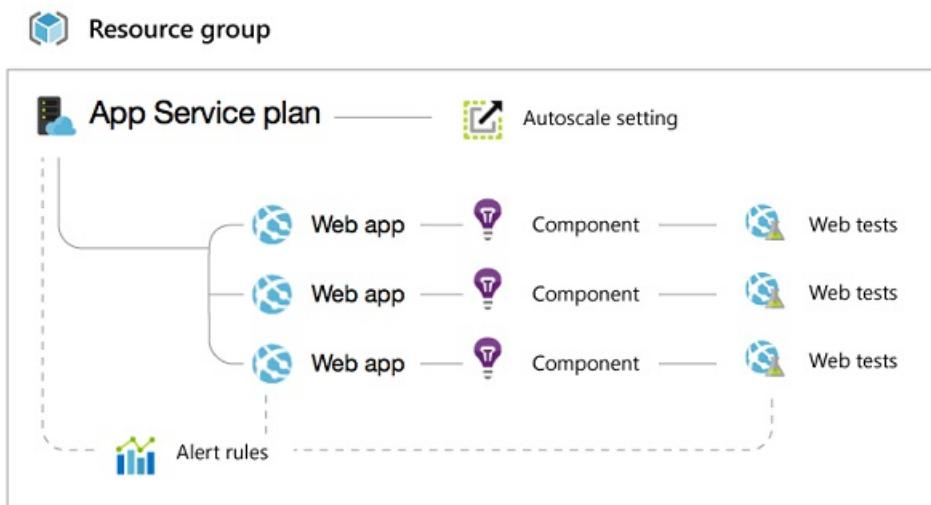
- Commands (like start, stop, etc.)

- Changing settings like general configuration, scale settings, backup settings, and monitoring settings
- Accessing publishing credentials and other secrets like app settings and connection strings
- Streaming logs
- Resource logs configuration
- Console (command prompt)
- Active and recent deployments (for local git continuous deployment)
- Estimated spend
- Web tests
- Virtual network (only visible to a reader if a virtual network has previously been configured by a user with write access).

If you can't access any of these tiles, you need to ask your administrator for Contributor access to the web app.

## Web app resources that require write access

Web apps are complicated by the presence of a few different resources that interplay. Here is a typical resource group with a couple of websites:



As a result, if you grant someone access to just the web app, much of the functionality on the website blade in the Azure portal is disabled.

These items require **write** access to the **App Service plan** that corresponds to your website:

- Viewing the web app's pricing tier (Free or Standard)
- Scale configuration (number of instances, virtual machine size, autoscale settings)
- Quotas (storage, bandwidth, CPU)

These items require **write** access to the whole **Resource group** that contains your website:

- TLS/SSL Certificates and bindings (TLS/SSL certificates can be shared between sites in the same resource group and geo-location)
- Alert rules
- Autoscale settings
- Application insights components
- Web tests

## Virtual machine features that require write access

Similar to web apps, some features on the virtual machine blade require write access to the virtual machine, or to

other resources in the resource group.

Virtual machines are related to Domain names, virtual networks, storage accounts, and alert rules.

These items require **write** access to the **Virtual machine**:

- Endpoints
- IP addresses
- Disks
- Extensions

These require **write** access to both the **Virtual machine**, and the **Resource group** (along with the Domain name) that it is in:

- Availability set
- Load balanced set
- Alert rules

If you can't access any of these tiles, ask your administrator for Contributor access to the Resource group.

## Azure Functions and write access

Some features of [Azure Functions](#) require write access. For example, if a user is assigned the [Reader](#) role, they will not be able to view the functions within a function app. The portal will display (**No access**).

The screenshot shows the Azure portal's Function Apps blade. On the left, there's a sidebar with a search bar, a dropdown for 'Pay-As-You-Go', and a 'Function Apps' section. Below that, a list includes 'robert-functionapp' (with a dropdown arrow), 'Functions (No access)' (highlighted with a red box), 'Proxies (No access)', and 'Slots (preview)'. On the right, the 'Overview' blade is open, showing 'GENERAL SETTINGS' with links to 'Function app settings', 'Application settings', 'Properties', 'Backups', and 'All settings'. There's also a 'Search features' bar at the top of the overview blade.

A reader can click the **Platform features** tab and then click **All settings** to view some settings related to a function app (similar to a web app), but they can't modify any of these settings. To access these features, you will need the [Contributor](#) role.

## Next steps

- [Troubleshoot for guest users](#)
- [Add or remove Azure role assignments using the Azure portal](#)
- [View activity logs for Azure RBAC changes](#)

# Azure built-in roles

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Azure role-based access control (Azure RBAC) has several Azure built-in roles that you can assign to users, groups, service principals, and managed identities. Role assignments are the way you control access to Azure resources. If the built-in roles don't meet the specific needs of your organization, you can create your own [Azure custom roles](#).

This article lists the Azure built-in roles, which are always evolving. To get the latest roles, use [Get-AzRoleDefinition](#) or `az role definition list`. If you are looking for administrator roles for Azure Active Directory (Azure AD), see [Administrator role permissions in Azure Active Directory](#).

The following table provides a brief description and the unique ID of each built-in role. Click the role name to see the list of `Actions`, `NotActions`, `DataActions`, and `NotDataActions` for each role. For information about what these actions mean and how they apply to the management and data planes, see [Understand Azure role definitions](#).

## All

BUILT-IN ROLE	DESCRIPTION	ID
<a href="#">General</a>		
<a href="#">Contributor</a>	Lets you manage everything except granting access to resources.	b24988ac-6180-42a0-ab88-20f7382dd24c
<a href="#">Owner</a>	Lets you manage everything, including access to resources.	8e3af657-a8ff-443c-a75c-2fe8c4bcb635
<a href="#">Reader</a>	Lets you view everything, but not make any changes.	acdd72a7-3385-48ef-bd42-f606fba81ae7
<a href="#">User Access Administrator</a>	Lets you manage user access to Azure resources.	18d7d88d-d35e-4fb5-a5c3-7773c20a72d9
<a href="#">Compute</a>		
<a href="#">Classic Virtual Machine Contributor</a>	Lets you manage classic virtual machines, but not access to them, and not the virtual network or storage account they're connected to.	d73bb868-a0df-4d4d-bd69-98a00b01fccb
<a href="#">Virtual Machine Administrator Login</a>	View Virtual Machines in the portal and login as administrator	1c0163c0-47e6-4577-8991-ea5c82e286e4
<a href="#">Virtual Machine Contributor</a>	Lets you manage virtual machines, but not access to them, and not the virtual network or storage account they're connected to.	9980e02c-c2be-4d73-94e8-173b1dc7cf3c

BUILT-IN ROLE	DESCRIPTION	ID
Virtual Machine User Login	View Virtual Machines in the portal and login as a regular user.	fb879df8-f326-4884-b1cf-06f3ad86be52
Networking		
CDN Endpoint Contributor	Can manage CDN endpoints, but can't grant access to other users.	426e0c7f-0c7e-4658-b36f-ff54d6c29b45
CDN Endpoint Reader	Can view CDN endpoints, but can't make changes.	871e35f6-b5c1-49cc-a043-bde969a0f2cd
CDN Profile Contributor	Can manage CDN profiles and their endpoints, but can't grant access to other users.	ec156ff8-a8d1-4d15-830c-5b80698ca432
CDN Profile Reader	Can view CDN profiles and their endpoints, but can't make changes.	8f96442b-4075-438f-813d-ad51ab4019af
Classic Network Contributor	Lets you manage classic networks, but not access to them.	b34d265f-36f7-4a0d-a4d4-e158ca92e90f
DNS Zone Contributor	Lets you manage DNS zones and record sets in Azure DNS, but does not let you control who has access to them.	befefa01-2a29-4197-83a8-272ff33ce314
Network Contributor	Lets you manage networks, but not access to them.	4d97b98b-1d4f-4787-a291-c67834d212e7
Private DNS Zone Contributor	Lets you manage private DNS zone resources, but not the virtual networks they are linked to.	b12aa53e-6015-4669-85d0-8515ebb3ae7f
Traffic Manager Contributor	Lets you manage Traffic Manager profiles, but does not let you control who has access to them.	a4b10055-b0c7-44c2-b00f-c7b5b3550cf7
Storage		
Avere Contributor	Can create and manage an Avere vFXT cluster.	4f8fab4f-1852-4a58-a46a-8eaf358af14a
Avere Operator	Used by the Avere vFXT cluster to manage the cluster	c025889f-8102-4ebf-b32c-fc0c6f0c6bd9
Backup Contributor	Lets you manage backup service, but can't create vaults and give access to others	5e467623-bb1f-42f4-a55d-6e525e11384b
Backup Operator	Lets you manage backup services, except removal of backup, vault creation and giving access to others	00c29273-979b-4161-815c-10b084fb9324

BUILT-IN ROLE	DESCRIPTION	ID
Backup Reader	Can view backup services, but can't make changes	a795c7a0-d4a2-40c1-ae25-d81f01202912
Classic Storage Account Contributor	Lets you manage classic storage accounts, but not access to them.	86e8f5dc-a6e9-4c67-9d15-de283e8eac25
Classic Storage Account Key Operator Service Role	Classic Storage Account Key Operators are allowed to list and regenerate keys on Classic Storage Accounts	985d6b00-f706-48f5-a6fe-d0ca12fb668d
Data Box Contributor	Lets you manage everything under Data Box Service except giving access to others.	add466c9-e687-43fc-8d98-dfcf8d720be5
Data Box Reader	Lets you manage Data Box Service except creating order or editing order details and giving access to others.	028f4ed7-e2a9-465e-a8f4-9c0fffdc027
Data Lake Analytics Developer	Lets you submit, monitor, and manage your own jobs but not create or delete Data Lake Analytics accounts.	47b7735b-770e-4598-a7da-8b91488b4c88
Reader and Data Access	Lets you view everything but will not let you delete or create a storage account or contained resource. It will also allow read/write access to all data contained in a storage account via access to storage account keys.	c12c1c16-33a1-487b-954d-41c89c60f349
Storage Account Contributor	Permits management of storage accounts. Provides access to the account key, which can be used to access data via Shared Key authorization.	17d1049b-9a84-46fb-8f53-869881c3d3ab
Storage Account Key Operator Service Role	Permits listing and regenerating storage account access keys.	81a9662b-bebf-436f-a333-f67b29880f12
Storage Blob Data Contributor	Read, write, and delete Azure Storage containers and blobs. To learn which actions are required for a given data operation, see <a href="#">Permissions for calling blob and queue data operations</a> .	ba92f5b4-2d11-453d-a403-e96b0029c9fe
Storage Blob Data Owner	Provides full access to Azure Storage blob containers and data, including assigning POSIX access control. To learn which actions are required for a given data operation, see <a href="#">Permissions for calling blob and queue data operations</a> .	b7e6dc6d-f1e8-4753-8033-0f276bb0955b

BUILT-IN ROLE	DESCRIPTION	ID
Storage Blob Data Reader	Read and list Azure Storage containers and blobs. To learn which actions are required for a given data operation, see <a href="#">Permissions for calling blob and queue data operations</a> .	2a2b9908-6ea1-4ae2-8e65-a410df84e7d1
Storage Blob Delegator	Get a user delegation key, which can then be used to create a shared access signature for a container or blob that is signed with Azure AD credentials. For more information, see <a href="#">Create a user delegation SAS</a> .	db58b8e5-c6ad-4a2a-8342-4190687cbf4a
Storage File Data SMB Share Contributor	Allows for read, write, and delete access on files/directories in Azure file shares. This role has no built-in equivalent on Windows file servers.	0c867c2a-1d8c-454a-a3db-ab2ea1bdc8bb
Storage File Data SMB Share Elevated Contributor	Allows for read, write, delete, and modify ACLs on files/directories in Azure file shares. This role is equivalent to a file share ACL of change on Windows file servers.	a7264617-510b-434b-a828-9731dc254ea7
Storage File Data SMB Share Reader	Allows for read access on files/directories in Azure file shares. This role is equivalent to a file share ACL of read on Windows file servers.	aba4ae5f-2193-4029-9191-0cb91df5e314
Storage Queue Data Contributor	Read, write, and delete Azure Storage queues and queue messages. To learn which actions are required for a given data operation, see <a href="#">Permissions for calling blob and queue data operations</a> .	974c5e8b-45b9-4653-ba55-5f855dd0fb88
Storage Queue Data Message Processor	Peek, retrieve, and delete a message from an Azure Storage queue. To learn which actions are required for a given data operation, see <a href="#">Permissions for calling blob and queue data operations</a> .	8a0f0c08-91a1-4084-bc3d-661d67233fed
Storage Queue Data Message Sender	Add messages to an Azure Storage queue. To learn which actions are required for a given data operation, see <a href="#">Permissions for calling blob and queue data operations</a> .	c6a89b2d-59bc-44d0-9896-0f6e12d7b80a
Storage Queue Data Reader	Read and list Azure Storage queues and queue messages. To learn which actions are required for a given data operation, see <a href="#">Permissions for calling blob and queue data operations</a> .	19e7f393-937e-4f77-808e-94535e297925
Web		

BUILT-IN ROLE	DESCRIPTION	ID
Azure Maps Data Reader	Grants access to read map related data from an Azure maps account.	423170ca-a8f6-4b0f-8487-9e4eb8f49bfa
Search Service Contributor	Lets you manage Search services, but not access to them.	7ca78c08-252a-4471-8644-bb5ff32d4ba0
Web Plan Contributor	Lets you manage the web plans for websites, but not access to them.	2cc479cb-7b4d-49a8-b449-8c00fd0f0a4b
Website Contributor	Lets you manage websites (not web plans), but not access to them.	de139f84-1756-47ae-9be6-808fbe84772
<b>Containers</b>		
AcrDelete	acr delete	c2f4ef07-c644-48eb-af81-4b1b4947fb11
AcrImageSigner	acr image signer	6cef56e8-d556-48e5-a04f-b8e64114680f
AcrPull	acr pull	7f951dda-4ed3-4680-a7ca-43fe172d538d
AcrPush	acr push	8311e382-0749-4cb8-b61a-304f252e45ec
AcrQuarantineReader	acr quarantine data reader	cdda3590-29a3-44f6-95f2-9f980659eb04
AcrQuarantineWriter	acr quarantine data writer	c8d4ff99-41c3-41a8-9f60-21dfdad59608
Azure Kubernetes Service Cluster Admin Role	List cluster admin credential action.	0ab0b1a8-8aac-4efd-b8c2-3ee1fb270be8
Azure Kubernetes Service Cluster User Role	List cluster user credential action.	4abbcc35-e782-43d8-92c5-2d3f1bd2253f
Azure Kubernetes Service Contributor Role	Grants access to read and write Azure Kubernetes Service clusters	ed7f3fd-7b88-4dd4-9017-9adb7ce333f8
Azure Kubernetes Service RBAC Admin	Lets you manage all resources under cluster/namespace, except update or delete resource quotas and namespaces.	3498e952-d568-435e-9b2c-8d77e338d7f7
Azure Kubernetes Service RBAC Cluster Admin	Lets you manage all resources in the cluster.	b1ff04bb-8a4e-4dc4-8eb5-8693973ce19b
Azure Kubernetes Service RBAC Reader	Lets you view all resources in cluster/namespace, except secrets.	7f6c6a51-bcf8-42ba-9220-52d62157d7db

BUILT-IN ROLE	DESCRIPTION	ID
Azure Kubernetes Service RBAC Writer	Lets you update everything in cluster/namespace, except resource quotas, namespaces, pod security policies, certificate signing requests, (cluster)roles and (cluster)role bindings.	a7ffa36f-339b-4b5c-8bdf-e2c188b2c0eb
<b>Databases</b>		
Cosmos DB Account Reader Role	Can read Azure Cosmos DB account data. See <a href="#">DocumentDB Account Contributor</a> for managing Azure Cosmos DB accounts.	fbdf93bf-df7d-467e-a4d2-9458aa1360c8
Cosmos DB Operator	Lets you manage Azure Cosmos DB accounts, but not access data in them. Prevents access to account keys and connection strings.	230815da-be43-4aae-9cb4-875f7bd000aa
CosmosBackupOperator	Can submit restore request for a Cosmos DB database or a container for an account	db7b14f2-5adf-42da-9f96-f2ee17bab5cb
DocumentDB Account Contributor	Can manage Azure Cosmos DB accounts. Azure Cosmos DB is formerly known as DocumentDB.	5bd9cd88-fe45-4216-938b-f97437e15450
Redis Cache Contributor	Lets you manage Redis caches, but not access to them.	e0f68234-74aa-48ed-b826-c38b57376e17
SQL DB Contributor	Lets you manage SQL databases, but not access to them. Also, you can't manage their security-related policies or their parent SQL servers.	9b7fa17d-e63e-47b0-bb0a-15c516ac86ec
SQL Managed Instance Contributor	Lets you manage SQL Managed Instances and required network configuration, but can't give access to others.	4939a1f6-9ae0-4e48-a1e0-f2cbe897382d
SQL Security Manager	Lets you manage the security-related policies of SQL servers and databases, but not access to them.	056cd41c-7e88-42e1-933e-88ba6a50c9c3
SQL Server Contributor	Lets you manage SQL servers and databases, but not access to them, and not their security-related policies.	6d8ee4ec-f05a-4a1d-8b00-a9b17e38b437
<b>Analytics</b>		
Azure Event Hubs Data Owner	Allows for full access to Azure Event Hubs resources.	f526a384-b230-433a-b45c-95f59c4a2dec
Azure Event Hubs Data Receiver	Allows receive access to Azure Event Hubs resources.	a638d3c7-ab3a-418d-83e6-5f17a39d4fde

BUILT-IN ROLE	DESCRIPTION	ID
Azure Event Hubs Data Sender	Allows send access to Azure Event Hubs resources.	2b629674-e913-4c01-ae53-ef4638d8f975
Data Factory Contributor	Create and manage data factories, as well as child resources within them.	673868aa-7521-48a0-acc6-0f60742d39f5
Data Purger	Can purge analytics data	150f5e0c-0603-4f03-8c7f-cf70034c4e90
HDInsight Cluster Operator	Lets you read and modify HDInsight cluster configurations.	61ed4efc-fab3-44fd-b111-e24485cc132a
HDInsight Domain Services Contributor	Can Read, Create, Modify and Delete Domain Services related operations needed for HDInsight Enterprise Security Package	8d8d5a11-05d3-4bda-a417-a08778121c7c
Log Analytics Contributor	Log Analytics Contributor can read all monitoring data and edit monitoring settings. Editing monitoring settings includes adding the VM extension to VMs; reading storage account keys to be able to configure collection of logs from Azure Storage; creating and configuring Automation accounts; adding solutions; and configuring Azure diagnostics on all Azure resources.	92aaaf0da-9dab-42b6-94a3-d43ce8d16293
Log Analytics Reader	Log Analytics Reader can view and search all monitoring data as well as and view monitoring settings, including viewing the configuration of Azure diagnostics on all Azure resources.	73c42c96-874c-492b-b04d-ab87d138a893
Blockchain		
Blockchain Member Node Access (Preview)	Allows for access to Blockchain Member nodes	31a002a1-acaf-453e-8a5b-297c9ca1ea24
AI + machine learning		
Cognitive Services Contributor	Lets you create, read, update, delete and manage keys of Cognitive Services.	25fbc0a9-bd7c-42a3-aa1a-3b75d497ee68
Cognitive Services Data Reader (Preview)	Lets you read Cognitive Services data.	b59867f0-fa02-499b-be73-45a86b5b3e1c
Cognitive Services User	Lets you read and list keys of Cognitive Services.	a97b65f3-24c7-4388-baec-2e87135dc908
Mixed reality		

BUILT-IN ROLE	DESCRIPTION	ID
Remote Rendering Administrator	Provides user with conversion, manage session, rendering and diagnostics capabilities for Azure Remote Rendering	3df8b902-2a6f-47c7-8cc5-360e9b272a7e
Remote Rendering Client	Provides user with manage session, rendering and diagnostics capabilities for Azure Remote Rendering.	d39065c4-c120-43c9-ab0a-63eed9795f0a
Spatial Anchors Account Contributor	Lets you manage spatial anchors in your account, but not delete them	8bbe83f1-e2a6-4df7-8cb4-4e04d4e5c827
Spatial Anchors Account Owner	Lets you manage spatial anchors in your account, including deleting them	70bbe301-9835-447d-afdd-19eb3167307c
Spatial Anchors Account Reader	Lets you locate and read properties of spatial anchors in your account	5d51204f-eb77-4b1c-b86a-2ec626c49413
<b>Integration</b>		
API Management Service Contributor	Can manage service and the APIs	312a565d-c81f-4fd8-895a-4e21e48d571c
API Management Service Operator Role	Can manage service but not the APIs	e022efe7-f5ba-4159-bbe4-b44f577e9b61
API Management Service Reader Role	Read-only access to service and APIs	71522526-b88f-4d52-b57f-d31fc3546d0d
App Configuration Data Owner	Allows full access to App Configuration data.	5ae67dd6-50cb-40e7-96ff-dc2bfa4b606b
App Configuration Data Reader	Allows read access to App Configuration data.	516239f1-63e1-4d78-a4de-a74fb236a071
Azure Service Bus Data Owner	Allows for full access to Azure Service Bus resources.	090c5cf7-751d-490a-894a-3ce6f1109419
Azure Service Bus Data Receiver	Allows for receive access to Azure Service Bus resources.	4f6d3b9b-027b-4f4c-9142-0e5a2a2247e0
Azure Service Bus Data Sender	Allows for send access to Azure Service Bus resources.	69a216fc-b8fb-44d8-bc22-1f3c2cd27a39
Azure Stack Registration Owner	Lets you manage Azure Stack registrations.	6f12a6df-dd06-4f3e-bcb1-ce8be600526a
EventGrid EventSubscription Contributor	Lets you manage EventGrid event subscription operations.	428e0ff0-5e57-4d9c-a221-2c70d0e0a443
EventGrid EventSubscription Reader	Lets you read EventGrid event subscriptions.	2414bbcf-6497-4faf-8c65-045460748405

BUILT-IN ROLE	DESCRIPTION	ID
FHIR Data Contributor	Role allows user or principal full access to FHIR Data	5a1fc7df-4bf1-4951-a576-89034ee01acd
FHIR Data Exporter	Role allows user or principal to read and export FHIR Data	3db33094-8700-4567-8da5-1501d4e7e843
FHIR Data Reader	Role allows user or principal to read FHIR Data	4c8d0bbc-75d3-4935-991f-5f3c56d81508
FHIR Data Writer	Role allows user or principal to read and write FHIR Data	3f88fce4-5892-4214-ae73-ba5294559913
Integration Service Environment Contributor	Lets you manage integration service environments, but not access to them.	a41e2c5b-bd99-4a07-88f4-9bf657a760b8
Integration Service Environment Developer	Allows developers to create and update workflows, integration accounts and API connections in integration service environments.	c7aa55d3-1abb-444a-a5ca-5e51e485d6ec
Intelligent Systems Account Contributor	Lets you manage Intelligent Systems accounts, but not access to them.	03a6d094-3444-4b3d-88af-7477090a9e5e
Logic App Contributor	Lets you manage logic apps, but not change access to them.	87a39d53-fc1b-424a-814c-f7e04687dc9e
Logic App Operator	Lets you read, enable, and disable logic apps, but not edit or update them.	515c2055-d9d4-4321-b1b9-bd0c9a0f79fe
Identity		
Managed Identity Contributor	Create, Read, Update, and Delete User Assigned Identity	e40ec5ca-96e0-45a2-b4ff-59039f2c2b59
Managed Identity Operator	Read and Assign User Assigned Identity	f1a07417-d97a-45cb-824c-7a7467783830
Security		
Azure Sentinel Contributor	Azure Sentinel Contributor	ab8e14d6-4a74-4a29-9ba8-549422addade
Azure Sentinel Reader	Azure Sentinel Reader	8d289c81-5878-46d4-8554-54e1e3d8b5cb
Azure Sentinel Responder	Azure Sentinel Responder	3e150937-b8fe-4cfb-8069-0eaf05ecd056
Key Vault Contributor	Lets you manage key vaults, but not access to them.	f25e0fa2-a7c8-4377-a976-54943a77a395

BUILT-IN ROLE	DESCRIPTION	ID
Security Admin	View and update permissions for Security Center. Same permissions as the Security Reader role and can also update the security policy and dismiss alerts and recommendations.	fb1c8493-542b-48eb-b624-b4c8fea62acd
Security Assessment Contributor	Lets you push assessments to Security Center	612c2aa1-cb24-443b-ac28-3ab7272de6f5
Security Manager (Legacy)	This is a legacy role. Please use Security Admin instead.	e3d13bf0-dd5a-482e-ba6b-9b8433878d10
Security Reader	View permissions for Security Center. Can view recommendations, alerts, a security policy, and security states, but cannot make changes.	39bc4728-0917-49c7-9d2c-d95423bc2eb4
DevOps		
DevTest Labs User	Lets you connect, start, restart, and shutdown your virtual machines in your Azure DevTest Labs.	76283e04-6283-4c54-8f91-bcf1374a3c64
Lab Creator	Lets you create new labs under your Azure Lab Accounts.	b97fb8bc-a8b2-4522-a38b-dd33c7e65ead
Monitor		
Application Insights Component Contributor	Can manage Application Insights components	ae349356-3a1b-4a5e-921d-050484c6347e
Application Insights Snapshot Debugger	Gives user permission to view and download debug snapshots collected with the Application Insights Snapshot Debugger. Note that these permissions are not included in the Owner or Contributor roles. When giving users the Application Insights Snapshot Debugger role, you must grant the role directly to the user. The role is not recognized when it is added to a custom role.	08954f03-6346-4c2e-81c0-ec3a5cfac23b
Monitoring Contributor	Can read all monitoring data and edit monitoring settings. See also <a href="#">Get started with roles, permissions, and security with Azure Monitor</a> .	749f88d5-cbae-40b8-bcfc-e573ddc772fa
Monitoring Metrics Publisher	Enables publishing metrics against Azure resources	3913510d-42f4-4e42-8a64-420c390055eb
Monitoring Reader	Can read all monitoring data (metrics, logs, etc.). See also <a href="#">Get started with roles, permissions, and security with Azure Monitor</a> .	43d0d8ad-25c7-4714-9337-8ba259a9fe05

BUILT-IN ROLE	DESCRIPTION	ID
Workbook Contributor	Can save shared workbooks.	e8ddcd69-c73f-4f9f-9844-4100522f16ad
Workbook Reader	Can read workbooks.	b279062a-9be3-42a0-92ae-8b3cf002ec4d
Management + governance		
Automation Job Operator	Create and Manage Jobs using Automation Runbooks.	4fe576fe-1146-4730-92eb-48519fa6bf9f
Automation Operator	Automation Operators are able to start, stop, suspend, and resume jobs	d3881f73-407a-4167-8283-e981cbba0404
Automation Runbook Operator	Read Runbook properties - to be able to create Jobs of the runbook.	5fb5aef8-1081-4b8e-bb16-9d5d0385bab5
Azure Connected Machine Onboarding	Can onboard Azure Connected Machines.	b64e21ea-ac4e-4cdf-9dc9-5b892992bee7
Azure Connected Machine Resource Administrator	Can read, write, delete and re-onboard Azure Connected Machines.	cd570a14-e51a-42ad-bac8-baf67325302
Billing Reader	Allows read access to billing data	fa23ad8b-c56e-40d8-ac0c-ce449e1d2c64
Blueprint Contributor	Can manage blueprint definitions, but not assign them.	41077137-e803-4205-871c-5a86e6a753b4
Blueprint Operator	Can assign existing published blueprints, but cannot create new blueprints. Note that this only works if the assignment is done with a user-assigned managed identity.	437d2ced-4a38-4302-8479-ed2bcb43d090
Cost Management Contributor	Can view costs and manage cost configuration (e.g. budgets, exports)	434105ed-43f6-45c7-a02f-909b2ba83430
Cost Management Reader	Can view cost data and configuration (e.g. budgets, exports)	72fafb9e-0641-4937-9268-a91bfd8191a3
Hierarchy Settings Administrator	Allows users to edit and delete Hierarchy Settings	350f8d15-c687-4448-8ae1-157740a3936d
Managed Application Contributor Role	Allows for creating managed application resources.	641177b8-a67a-45b9-a033-47bc880bb21e
Managed Application Operator Role	Lets you read and perform actions on Managed Application resources	c7393b34-138c-406f-901b-d8cf2b17e6ae
Managed Applications Reader	Lets you read resources in a managed app and request JIT access.	b9331d33-8a36-4f8c-b097-4f54124fdb44

BUILT-IN ROLE	DESCRIPTION	ID
<a href="#">Managed Services Registration assignment Delete Role</a>	Managed Services Registration Assignment Delete Role allows the managing tenant users to delete the registration assignment assigned to their tenant.	91c1777a-f3dc-4fae-b103-61d183457e46
<a href="#">Management Group Contributor</a>	Management Group Contributor Role	5d58bcaf-24a5-4b20-bdb6-eed9f69fbe4c
<a href="#">Management Group Reader</a>	Management Group Reader Role	ac63b705-f282-497d-ac71-919bf39d939d
<a href="#">New Relic APM Account Contributor</a>	Lets you manage New Relic Application Performance Management accounts and applications, but not access to them.	5d28c62d-5b37-4476-8438-e587778df237
<a href="#">Policy Insights Data Writer (Preview)</a>	Allows read access to resource policies and write access to resource component policy events.	66bb4e9e-b016-4a94-8249-4c0511c2be84
<a href="#">Resource Policy Contributor</a>	Users with rights to create/modify resource policy, create support ticket and read resources/hierarchy.	36243c78-bf99-498c-9df9-86d9f8d28608
<a href="#">Site Recovery Contributor</a>	Lets you manage Site Recovery service except vault creation and role assignment	6670b86e-a3f7-4917-ac9b-5d6ab1be4567
<a href="#">Site Recovery Operator</a>	Lets you failover and fallback but not perform other Site Recovery management operations	494ae006-db33-4328-bf46-533a6560a3ca
<a href="#">Site Recovery Reader</a>	Lets you view Site Recovery status but not perform other management operations	dbaa88c4-0c30-4179-9fb3-46319faa6149
<a href="#">Support Request Contributor</a>	Lets you create and manage Support requests	cf33db0-3dd1-45e3-aa9d-cdbdf3b6f24e
<a href="#">Tag Contributor</a>	Lets you manage tags on entities, without providing access to the entities themselves.	4a9ae827-6dc8-4573-8ac7-8239d42aa03f
<b>Other</b>		
<a href="#">BizTalk Contributor</a>	Lets you manage BizTalk services, but not access to them.	5e3c6656-6cfa-4708-81fe-0de47ac73342
<a href="#">Desktop Virtualization User</a>	Allows user to use the applications in an application group.	1d18fff3-a72a-46b5-b4a9-0b38a3cd7e63
<a href="#">Scheduler Job Collections Contributor</a>	Lets you manage Scheduler job collections, but not access to them.	188a0f2f-5c9e-469b-ae67-2aa5ce574b94

# General

## Contributor

Lets you manage everything except granting access to resources. [Learn more](#)

ACTIONS	DESCRIPTION
*	Create and manage resources of all types
<b>NotActions</b>	
<a href="#">Microsoft.Authorization/*/Delete</a>	Delete roles, policy assignments, policy definitions and policy set definitions
<a href="#">Microsoft.Authorization/*/Write</a>	Create roles, role assignments, policy assignments, policy definitions and policy set definitions
<a href="#">Microsoft.Authorization/elevateAccess/Action</a>	Grants the caller User Access Administrator access at the tenant scope
<a href="#">Microsoft.Blueprint/blueprintAssignments/write</a>	Create or update any blueprint assignments
<a href="#">Microsoft.Blueprint/blueprintAssignments/delete</a>	Delete any blueprint assignments
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage everything except access to resources.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/b24988ac-6180-42a0-ab88-20f7382dd24c",
  "name": "b24988ac-6180-42a0-ab88-20f7382dd24c",
  "permissions": [
    {
      "actions": [
        "*"
      ],
      "notActions": [
        "Microsoft.Authorization/*/Delete",
        "Microsoft.Authorization/*/Write",
        "Microsoft.Authorization/elevateAccess/Action",
        "Microsoft.Blueprint/blueprintAssignments/write",
        "Microsoft.Blueprint/blueprintAssignments/delete"
      ],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Owner

Lets you manage everything, including access to resources. [Learn more](#)

ACTIONS	DESCRIPTION
*	Create and manage resources of all types
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage everything, including access to resources.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/8e3af657-a8ff-443c-a75c-2fe8c4bcb635",
  "name": "8e3af657-a8ff-443c-a75c-2fe8c4bcb635",
  "permissions": [
    {
      "actions": [
        "*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Owner",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Reader

Lets you view everything, but not make any changes. [Learn more](#)

ACTIONS	DESCRIPTION
<code>*/read</code>	Read resources of all types, except secrets.
<b>NotActions</b>	
<code>none</code>	
<b>DataActions</b>	
<code>none</code>	
<b>NotDataActions</b>	
<code>none</code>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you view everything, but not make any changes.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/acdd72a7-3385-48ef-bd42-f606fba81ae7",
  "name": "acdd72a7-3385-48ef-bd42-f606fba81ae7",
  "permissions": [
    {
      "actions": [
        "*/*/read"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Reader",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## User Access Administrator

Lets you manage user access to Azure resources. [Learn more](#)

ACTIONS	DESCRIPTION
*/read	Read resources of all types, except secrets.
Microsoft.Authorization/*	Manage authorization
Microsoft.Support/*	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage user access to Azure resources.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/18d7d88d-d35e-4fb5-a5c3-7773c20a72d9",
  "name": "18d7d88d-d35e-4fb5-a5c3-7773c20a72d9",
  "permissions": [
    {
      "actions": [
        "*/*read",
        "Microsoft.Authorization/*",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "User Access Administrator",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Compute

### Classic Virtual Machine Contributor

Lets you manage classic virtual machines, but not access to them, and not the virtual network or storage account they're connected to.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.ClassicCompute/domainNames/*</a>	Create and manage classic compute domain names
<a href="#">Microsoft.ClassicCompute/virtualMachines/*</a>	Create and manage virtual machines
<a href="#">Microsoft.ClassicNetwork/networkSecurityGroups/join/acti on</a>	
<a href="#">Microsoft.ClassicNetwork/reservedIps/link/action</a>	Link a reserved Ip
<a href="#">Microsoft.ClassicNetwork/reservedIps/read</a>	Gets the reserved Ips
<a href="#">Microsoft.ClassicNetwork/virtualNetworks/join/action</a>	Joins the virtual network.
<a href="#">Microsoft.ClassicNetwork/virtualNetworks/read</a>	Get the virtual network.
<a href="#">Microsoft.ClassicStorage/storageAccounts/disks/read</a>	Returns the storage account disk.
<a href="#">Microsoft.ClassicStorage/storageAccounts/images/read</a>	Returns the storage account image. (Deprecated. Use 'Microsoft.ClassicStorage/storageAccounts/vmImages')
<a href="#">Microsoft.ClassicStorage/storageAccounts/listKeys/action</a>	Lists the access keys for the storage accounts.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.ClassicStorage/storageAccounts/read</a>	Return the storage account with the given account.
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.ResourceHealth/availabilityStatuses/read</a>	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage classic virtual machines, but not access to them, and not the virtual network or storage account they're connected to.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/d73bb868-a0df-4d4d-bd69-98a00b01fccb",
  "name": "d73bb868-a0df-4d4d-bd69-98a00b01fccb",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.ClassicCompute/domainNames/*",
        "Microsoft.ClassicCompute/virtualMachines/*",
        "Microsoft.ClassicNetwork/networkSecurityGroups/join/action",
        "Microsoft.ClassicNetwork/reservedIps/link/action",
        "Microsoft.ClassicNetwork/reservedIps/read",
        "Microsoft.ClassicNetwork/virtualNetworks/join/action",
        "Microsoft.ClassicNetwork/virtualNetworks/read",
        "Microsoft.ClassicStorage/storageAccounts/disks/read",
        "Microsoft.ClassicStorage/storageAccounts/images/read",
        "Microsoft.ClassicStorage/storageAccounts/listKeys/action",
        "Microsoft.ClassicStorage/storageAccounts/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.ResourceHealth/availabilityStatuses/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Classic Virtual Machine Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Virtual Machine Administrator Login

View Virtual Machines in the portal and login as administrator [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Network/publicIPAddresses/read</a>	Gets a public ip address definition.
<a href="#">Microsoft.Network/virtualNetworks/read</a>	Get the virtual network definition
<a href="#">Microsoft.Network/loadBalancers/read</a>	Gets a load balancer definition
<a href="#">Microsoft.Network/networkInterfaces/read</a>	Gets a network interface definition.
<a href="#">Microsoft.Compute/virtualMachines/*/read</a>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Compute/virtualMachines/login/action</a>	Log in to a virtual machine as a regular user
<a href="#">Microsoft.Compute/virtualMachines/loginAsAdmin/action</a>	Log in to a virtual machine with Windows administrator or Linux root user privileges
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "View Virtual Machines in the portal and login as administrator",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/1c0163c0-47e6-4577-8991-ea5c82e286e4",
  "name": "1c0163c0-47e6-4577-8991-ea5c82e286e4",
  "permissions": [
    {
      "actions": [
        "Microsoft.Network/publicIPAddresses/read",
        "Microsoft.Network/virtualNetworks/read",
        "Microsoft.Network/loadBalancers/read",
        "Microsoft.Network/networkInterfaces/read",
        "Microsoft.Compute/virtualMachines/*/read"
      ],
      "notActions": [],
      "dataActions": [
        "Microsoft.Compute/virtualMachines/login/action",
        "Microsoft.Compute/virtualMachines/loginAsAdmin/action"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Virtual Machine Administrator Login",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Virtual Machine Contributor

Lets you manage virtual machines, but not access to them, and not the virtual network or storage account they're connected to. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Compute/availabilitySets/*</a>	Create and manage compute availability sets
<a href="#">Microsoft.Compute/locations/*</a>	Create and manage compute locations
<a href="#">Microsoft.Compute/virtualMachines/*</a>	Create and manage virtual machines
<a href="#">Microsoft.Compute/virtualMachineScaleSets/*</a>	Create and manage virtual machine scale sets

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Compute/disks/write</a>	Creates a new Disk or updates an existing one
<a href="#">Microsoft.Compute/disks/read</a>	Get the properties of a Disk
<a href="#">Microsoft.Compute/disks/delete</a>	Deletes the Disk
<a href="#">Microsoft.DevTestLab/schedules/*</a>	
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.Network/applicationGateways/backendAddressPools/join/action</a>	Joins an application gateway backend address pool. Not Alertable.
<a href="#">Microsoft.Network/loadBalancers/backendAddressPools/join/action</a>	Joins a load balancer backend address pool. Not Alertable.
<a href="#">Microsoft.Network/loadBalancers/inboundNatPools/join/action</a>	Joins a load balancer inbound NAT pool. Not alertable.
<a href="#">Microsoft.Network/loadBalancers/inboundNatRules/join/action</a>	Joins a load balancer inbound nat rule. Not Alertable.
<a href="#">Microsoft.Network/loadBalancers/probes/join/action</a>	Allows using probes of a load balancer. For example, with this permission healthProbe property of VM scale set can reference the probe. Not alertable.
<a href="#">Microsoft.Network/loadBalancers/read</a>	Gets a load balancer definition
<a href="#">Microsoft.Network/locations/*</a>	Create and manage network locations
<a href="#">Microsoft.Network/networkInterfaces/*</a>	Create and manage network interfaces
<a href="#">Microsoft.Network/networkSecurityGroups/join/action</a>	Joins a network security group. Not Alertable.
<a href="#">Microsoft.Network/networkSecurityGroups/read</a>	Gets a network security group definition
<a href="#">Microsoft.Network/publicIPAddresses/join/action</a>	Joins a public ip address. Not Alertable.
<a href="#">Microsoft.Network/publicIPAddresses/read</a>	Gets a public ip address definition.
<a href="#">Microsoft.Network/virtualNetworks/read</a>	Get the virtual network definition
<a href="#">Microsoft.Network/virtualNetworks/subnets/join/action</a>	Joins a virtual network. Not Alertable.
<a href="#">Microsoft.RecoveryServices/locations/*</a>	
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/backupProtectionIntent/write</a>	Create a backup Protection Intent
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/protectContainer/protectedItems/*/read</a>	

ACTIONS	DESCRIPTION
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/protectio nContainers/protectedItems/read</a>	Returns object details of the Protected Item
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/protectio nContainers/protectedItems/write</a>	Create a backup Protected Item
<a href="#">Microsoft.RecoveryServices/Vaults/backupPolicies/read</a>	Returns all Protection Policies
<a href="#">Microsoft.RecoveryServices/Vaults/backupPolicies/write</a>	Creates Protection Policy
<a href="#">Microsoft.RecoveryServices/Vaults/read</a>	The Get Vault operation gets an object representing the Azure resource of type 'vault'
<a href="#">Microsoft.RecoveryServices/Vaults/usages/read</a>	Returns usage details for a Recovery Services Vault.
<a href="#">Microsoft.RecoveryServices/Vaults/write</a>	Create Vault operation creates an Azure resource of type 'vault'
<a href="#">Microsoft.ResourceHealth/availabilityStatuses/read</a>	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.SqlVirtualMachine/*</a>	
<a href="#">Microsoft.Storage/storageAccounts/listKeys/action</a>	Returns the access keys for the specified storage account.
<a href="#">Microsoft.Storage/storageAccounts/read</a>	Returns the list of storage accounts or gets the properties for the specified storage account.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage virtual machines, but not access to them, and not the virtual network or storage account they're connected to.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/9980e02c-c2be-4d73-94e8-173b1dc7cf3c",
  "name": "9980e02c-c2be-4d73-94e8-173b1dc7cf3c",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Compute/availabilitySets/*",
        "Microsoft.Compute/locations/*",
        "Microsoft.Compute/virtualMachines/*",
        "Microsoft.Compute/virtualMachineScaleSets/*",
        "Microsoft.Compute/disks/write",
        "Microsoft.Compute/disks/read",
        "Microsoft.Compute/disks/delete",
        "Microsoft.DevTestLab/schedules/*",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Network/applicationGateways/backendAddressPools/join/action",
        "Microsoft.Network/loadBalancers/backendAddressPools/join/action",
        "Microsoft.Network/loadBalancers/inboundNatPools/join/action",
        "Microsoft.Network/loadBalancers/inboundNatRules/join/action",
        "Microsoft.Network/loadBalancers/probes/join/action",
        "Microsoft.Network/loadBalancers/read",
        "Microsoft.Network/locations/*",
        "Microsoft.Network/networkInterfaces/*",
        "Microsoft.Network/networkSecurityGroups/join/action",
        "Microsoft.Network/networkSecurityGroups/read",
        "Microsoft.Network/publicIPAddresses/join/action",
        "Microsoft.Network/publicIPAddresses/read",
        "Microsoft.Network/virtualNetworks/read",
        "Microsoft.Network/virtualNetworks/subnets/join/action",
        "Microsoft.RecoveryServices/locations/*",
        "Microsoft.RecoveryServices/Vaults/backupFabrics/backupProtectionIntent/write",
        "Microsoft.RecoveryServices/Vaults/backupFabrics/protectionContainers/protectedItems/*/read",
        "Microsoft.RecoveryServices/Vaults/backupFabrics/protectionContainers/protectedItems/read",
        "Microsoft.RecoveryServices/Vaults/backupFabrics/protectionContainers/protectedItems/write",
        "Microsoft.RecoveryServices/Vaults/backupPolicies/read",
        "Microsoft.RecoveryServices/Vaults/backupPolicies/write",
        "Microsoft.RecoveryServices/Vaults/read",
        "Microsoft.RecoveryServices/Vaults/usages/read",
        "Microsoft.RecoveryServices/Vaults/write",
        "Microsoft.ResourceHealth/availabilityStatuses/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.SqlVirtualMachine/*",
        "Microsoft.Storage/storageAccounts/listKeys/action",
        "Microsoft.Storage/storageAccounts/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Virtual Machine Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Virtual Machine User Login

View Virtual Machines in the portal and login as a regular user. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Network/publicIPAddresses/read</a>	Gets a public ip address definition.
<a href="#">Microsoft.Network/virtualNetworks/read</a>	Get the virtual network definition
<a href="#">Microsoft.Network/loadBalancers/read</a>	Gets a load balancer definition
<a href="#">Microsoft.Network/networkInterfaces/read</a>	Gets a network interface definition.
<a href="#">Microsoft.Compute/virtualMachines/*/read</a>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.Compute/virtualMachines/login/action</a>	Log in to a virtual machine as a regular user
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "View Virtual Machines in the portal and login as a regular user.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/fb879df8-f326-4884-b1cf-06f3ad86be52",
  "name": "fb879df8-f326-4884-b1cf-06f3ad86be52",
  "permissions": [
    {
      "actions": [
        "Microsoft.Network/publicIPAddresses/read",
        "Microsoft.Network/virtualNetworks/read",
        "Microsoft.Network/loadBalancers/read",
        "Microsoft.Network/networkInterfaces/read",
        "Microsoft.Compute/virtualMachines/*/read"
      ],
      "notActions": [],
      "dataActions": [
        "Microsoft.Compute/virtualMachines/login/action"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Virtual Machine User Login",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Networking

### CDN Endpoint Contributor

Can manage CDN endpoints, but can't grant access to other users.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization</a> /*/read	Read roles and role assignments
<a href="#">Microsoft.Cdn</a> /edgenodes/read	
<a href="#">Microsoft.Cdn</a> /operationresults/*	
<a href="#">Microsoft.Cdn</a> /profiles/endpoints/*	
<a href="#">Microsoft.Insights</a> /alertRules/*	Create and manage a classic metric alert
<a href="#">Microsoft.Resources</a> /deployments/*	Create and manage a deployment
<a href="#">Microsoft.Resources</a> /subscriptions/resourceGroups/read	Gets or lists resource groups.
<a href="#">Microsoft.Support</a> /*	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Can manage CDN endpoints, but can't grant access to other users.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/426e0c7f-0c7e-4658-b36f-ff54d6c29b45",
  "name": "426e0c7f-0c7e-4658-b36f-ff54d6c29b45",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Cdn/edgenodes/read",
        "Microsoft.Cdn/operationresults/*",
        "Microsoft.Cdn/profiles/endpoints/*",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "CDN Endpoint Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## CDN Endpoint Reader

Can view CDN endpoints, but can't make changes.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization</a> /*/read	Read roles and role assignments
<a href="#">Microsoft.Cdn</a> /edgenodes/read	
<a href="#">Microsoft.Cdn</a> /operationresults/*	
<a href="#">Microsoft.Cdn</a> /profiles/endpoints/*/read	
<a href="#">Microsoft.Insights</a> /alertRules/*	Create and manage a classic metric alert
<a href="#">Microsoft.Resources</a> /deployments/*	Create and manage a deployment
<a href="#">Microsoft.Resources</a> /subscriptions/resourceGroups/read	Gets or lists resource groups.
<a href="#">Microsoft.Support</a> /*	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	

ACTIONS	DESCRIPTION
<b>NotDataActions</b>	
<i>none</i>	

<pre>{   "assignableScopes": [     "/"   ],   "description": "Can view CDN endpoints, but can't make changes.",   "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/871e35f6-b5c1-49cc-a043-bde969a0f2cd",   "name": "871e35f6-b5c1-49cc-a043-bde969a0f2cd",   "permissions": [     {       "actions": [         "Microsoft.Authorization/*/read",         "Microsoft.Cdn/edgenodes/read",         "Microsoft.Cdn/operationresults/*",         "Microsoft.Cdn/profiles/endpoints/*/read",         "Microsoft.Insights/alertRules/*",         "Microsoft.Resources/deployments/*",         "Microsoft.Resources/subscriptions/resourceGroups/read",         "Microsoft.Support/*"       ],       "notActions": [],       "dataActions": [],       "notDataActions": []     }   ],   "roleName": "CDN Endpoint Reader",   "roleType": "BuiltInRole",   "type": "Microsoft.Authorization/roleDefinitions" }</pre>	
---	--

## CDN Profile Contributor

Can manage CDN profiles and their endpoints, but can't grant access to other users. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization</a> /*/read	Read roles and role assignments
<a href="#">Microsoft.Cdn</a> /edgenodes/read	
<a href="#">Microsoft.Cdn</a> /operationresults/*	
<a href="#">Microsoft.Cdn</a> /profiles/*	
<a href="#">Microsoft.Insights</a> /alertRules/*	Create and manage a classic metric alert
<a href="#">Microsoft.Resources</a> /deployments/*	Create and manage a deployment
<a href="#">Microsoft.Resources</a> /subscriptions/resourceGroups/read	Gets or lists resource groups.
<a href="#">Microsoft.Support</a> /*	Create and update a support ticket

ACTIONS	DESCRIPTION
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Can manage CDN profiles and their endpoints, but can't grant access to other users.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/ec156ff8-a8d1-4d15-830c-5b80698ca432",
  "name": "ec156ff8-a8d1-4d15-830c-5b80698ca432",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Cdn/edgenodes/read",
        "Microsoft.Cdn/operationresults/*",
        "Microsoft.Cdn/profiles/*",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "CDN Profile Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## CDN Profile Reader

Can view CDN profiles and their endpoints, but can't make changes.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Cdn/edgenodes/read</a>	
<a href="#">Microsoft.Cdn/operationresults/*</a>	
<a href="#">Microsoft.Cdn/profiles/*/read</a>	

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Can view CDN profiles and their endpoints, but can't make changes.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/8f96442b-4075-438f-813d-ad51ab4019af",
  "name": "8f96442b-4075-438f-813d-ad51ab4019af",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Cdn/edgenodes/read",
        "Microsoft.Cdn/operationresults/*",
        "Microsoft.Cdn/profiles/*/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "CDN Profile Reader",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Classic Network Contributor

Lets you manage classic networks, but not access to them. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.ClassicNetwork/*</a>	Create and manage classic networks
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.ResourceHealth/availabilityStatuses/read</a>	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage classic networks, but not access to them.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/b34d265f-36f7-4a0d-a4d4-e158ca92e90f",
  "name": "b34d265f-36f7-4a0d-a4d4-e158ca92e90f",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.ClassicNetwork/*",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.ResourceHealth/availabilityStatuses/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Classic Network Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## DNS Zone Contributor

Lets you manage DNS zones and record sets in Azure DNS, but does not let you control who has access to them. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.Network/dnsZones/*</a>	Create and manage DNS zones and records
<a href="#">Microsoft.ResourceHealth/availabilityStatuses/read</a>	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage DNS zones and record sets in Azure DNS, but does not let you control who has access to them.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/befefa01-2a29-4197-83a8-272ff33ce314",
  "name": "befefa01-2a29-4197-83a8-272ff33ce314",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Network/dnsZones/*",
        "Microsoft.ResourceHealth/availabilityStatuses/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "DNS Zone Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Network Contributor

Lets you manage networks, but not access to them.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization</a> /*/read	Read roles and role assignments
<a href="#">Microsoft.Insights</a> /alertRules/*	Create and manage a classic metric alert
<a href="#">Microsoft.Network</a> /*	Create and manage networks
<a href="#">Microsoft.ResourceHealth</a> /availabilityStatuses/read	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources</a> /deployments/*	Create and manage a deployment
<a href="#">Microsoft.Resources</a> /subscriptions/resourceGroups/read	Gets or lists resource groups.
<a href="#">Microsoft.Support</a> /*	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	

ACTIONS	DESCRIPTION
<b>NotDataActions</b>	
<i>none</i>	

<pre>{   "assignableScopes": [     "/"   ],   "description": "Lets you manage networks, but not access to them.",   "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/4d97b98b-1d4f-4787-a291-c67834d212e7",   "name": "4d97b98b-1d4f-4787-a291-c67834d212e7",   "permissions": [     {       "actions": [         "Microsoft.Authorization/*/read",         "Microsoft.Insights/alertRules/*",         "Microsoft.Network/*",         "Microsoft.ResourceHealth/availabilityStatuses/read",         "Microsoft.Resources/deployments/*",         "Microsoft.Resources/subscriptions/resourceGroups/read",         "Microsoft.Support/*"       ],       "notActions": [],       "dataActions": [],       "notDataActions": []     }   ],   "roleName": "Network Contributor",   "roleType": "BuiltInRole",   "type": "Microsoft.Authorization/roleDefinitions" }</pre>	
---	--

## Private DNS Zone Contributor

Lets you manage private DNS zone resources, but not the virtual networks they are linked to. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<a href="#">Microsoft.Network/privateDnsZones/*</a>	
<a href="#">Microsoft.Network/privateDnsOperationResults/*</a>	
<a href="#">Microsoft.Network/privateDnsOperationStatuses/*</a>	
<a href="#">Microsoft.Network/virtualNetworks/read</a>	Get the virtual network definition
<a href="#">Microsoft.Network/virtualNetworks/join/action</a>	Joins a virtual network. Not Alertable.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage private DNS zone resources, but not the virtual networks they are linked to.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/b12aa53e-6015-4669-85d0-8515ebb3ae7f",
  "name": "b12aa53e-6015-4669-85d0-8515ebb3ae7f",
  "permissions": [
    {
      "actions": [
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*",
        "Microsoft.Network/privateDnsZones/*",
        "Microsoft.Network/privateDnsOperationResults/*",
        "Microsoft.Network/privateDnsOperationStatuses/*",
        "Microsoft.Network/virtualNetworks/read",
        "Microsoft.Network/virtualNetworks/join/action",
        "Microsoft.Authorization/*/read"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Private DNS Zone Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Traffic Manager Contributor

Lets you manage Traffic Manager profiles, but does not let you control who has access to them.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Network/trafficManagerProfiles/*</a>	
<a href="#">Microsoft.ResourceHealth/availabilityStatuses/read</a>	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage Traffic Manager profiles, but does not let you control who has access to them.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/a4b10055-b0c7-44c2-b00f-c7b5b3550cf7",
  "name": "a4b10055-b0c7-44c2-b00f-c7b5b3550cf7",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Network/trafficManagerProfiles/*",
        "Microsoft.ResourceHealth/availabilityStatuses/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Traffic Manager Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Storage

### Avere Contributor

Can create and manage an Avere vFXT cluster. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization</a> /*/read	Read roles and role assignments
<a href="#">Microsoft.Compute</a> /*/read	
<a href="#">Microsoft.Compute</a> /availabilitySets/*	
<a href="#">Microsoft.Compute</a> /proximityPlacementGroups/*	
<a href="#">Microsoft.Compute</a> /virtualMachines/*	
<a href="#">Microsoft.Compute</a> /disks/*	
<a href="#">Microsoft.Network</a> /*/read	
<a href="#">Microsoft.Network</a> /networkInterfaces/*	
<a href="#">Microsoft.Network</a> /virtualNetworks/read	Get the virtual network definition
<a href="#">Microsoft.Network</a> /virtualNetworks/subnets/read	Gets a virtual network subnet definition
<a href="#">Microsoft.Network</a> /virtualNetworks/subnets/join/action	Joins a virtual network. Not Alertable.
<a href="#">Microsoft.Network</a> /virtualNetworks/subnets/joinViaServiceEndpoint/action	Joins resource such as storage account or SQL database to a subnet. Not alertable.
<a href="#">Microsoft.Network</a> /networkSecurityGroups/join/action	Joins a network security group. Not Alertable.
<a href="#">Microsoft.Resources</a> /deployments/*	Create and manage a deployment
<a href="#">Microsoft.Insights</a> /alertRules/*	Create and manage a classic metric alert
<a href="#">Microsoft.Resources</a> /subscriptions/resourceGroups/read	Gets or lists resource groups.
<a href="#">Microsoft.Storage</a> /*/read	
<a href="#">Microsoft.Storage</a> /storageAccounts/*	Create and manage storage accounts
<a href="#">Microsoft.Support</a> /*	Create and update a support ticket
<a href="#">Microsoft.Resources</a> /subscriptions/resourceGroups/resources/read	Gets the resources for the resource group.
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Storage/storageAccounts/blobServices/containers/blobs/delete</a>	Returns the result of deleting a blob
<a href="#">Microsoft.Storage/storageAccounts/blobServices/containers/blobs/read</a>	Returns a blob or a list of blobs
<a href="#">Microsoft.Storage/storageAccounts/blobServices/containers/blobs/write</a>	Returns the result of writing a blob
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Can create and manage an Avere vFXT cluster.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/4f8fab4f-1852-4a58-a46a-8eaf358af14a",
  "name": "4f8fab4f-1852-4a58-a46a-8eaf358af14a",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Compute/*/read",
        "Microsoft.Compute/availabilitySets/*",
        "Microsoft.Compute/proximityPlacementGroups/*",
        "Microsoft.Compute/virtualMachines/*",
        "Microsoft.Compute/disks/*",
        "Microsoft.Network/*/read",
        "Microsoft.Network/networkInterfaces/*",
        "Microsoft.Network/virtualNetworks/read",
        "Microsoft.Network/virtualNetworks/subnets/read",
        "Microsoft.Network/virtualNetworks/subnets/join/action",
        "Microsoft.Network/virtualNetworks/subnets/joinViaServiceEndpoint/action",
        "Microsoft.Network/networkSecurityGroups/join/action",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Storage/*/read",
        "Microsoft.Storage/storageAccounts/*",
        "Microsoft.Support/*",
        "Microsoft.Resources/subscriptions/resourceGroups/resources/read"
      ],
      "notActions": [],
      "dataActions": [
        "Microsoft.Storage/storageAccounts/blobServices/containers/blobs/delete",
        "Microsoft.Storage/storageAccounts/blobServices/containers/blobs/read",
        "Microsoft.Storage/storageAccounts/blobServices/containers/blobs/write"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Avere Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Avere Operator

Used by the Avere vFXT cluster to manage the cluster [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Compute/virtualMachines/read</a>	Get the properties of a virtual machine
<a href="#">Microsoft.Network/networkInterfaces/read</a>	Gets a network interface definition.
<a href="#">Microsoft.Network/networkInterfaces/write</a>	Creates a network interface or updates an existing network interface.
<a href="#">Microsoft.Network/virtualNetworks/read</a>	Get the virtual network definition
<a href="#">Microsoft.Network/virtualNetworks/subnets/read</a>	Gets a virtual network subnet definition
<a href="#">Microsoft.Network/virtualNetworks/subnets/join/action</a>	Joins a virtual network. Not Alertable.
<a href="#">Microsoft.Network/networkSecurityGroups/join/action</a>	Joins a network security group. Not Alertable.
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Storage/storageAccounts/blobServices/containers/delete</a>	Returns the result of deleting a container
<a href="#">Microsoft.Storage/storageAccounts/blobServices/containers/read</a>	Returns list of containers
<a href="#">Microsoft.Storage/storageAccounts/blobServices/containers/write</a>	Returns the result of put blob container
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.Storage/storageAccounts/blobServices/containers/blobs/delete</a>	Returns the result of deleting a blob
<a href="#">Microsoft.Storage/storageAccounts/blobServices/containers/blobs/read</a>	Returns a blob or a list of blobs
<a href="#">Microsoft.Storage/storageAccounts/blobServices/containers/blobs/write</a>	Returns the result of writing a blob
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Used by the Avere vFXT cluster to manage the cluster",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/c025889f-8102-4ebf-b32c-fc0c6f0c6bd9",
  "name": "c025889f-8102-4ebf-b32c-fc0c6f0c6bd9",
  "permissions": [
    {
      "actions": [
        "Microsoft.Compute/virtualMachines/read",
        "Microsoft.Network/networkInterfaces/read",
        "Microsoft.Network/networkInterfaces/write",
        "Microsoft.Network/virtualNetworks/read",
        "Microsoft.Network/virtualNetworks/subnets/read",
        "Microsoft.Network/virtualNetworks/subnets/join/action",
        "Microsoft.Network/networkSecurityGroups/join/action",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Storage/storageAccounts/blobServices/containers/delete",
        "Microsoft.Storage/storageAccounts/blobServices/containers/read",
        "Microsoft.Storage/storageAccounts/blobServices/containers/write"
      ],
      "notActions": [],
      "dataActions": [
        "Microsoft.Storage/storageAccounts/blobServices/containers/blobs/delete",
        "Microsoft.Storage/storageAccounts/blobServices/containers/blobs/read",
        "Microsoft.Storage/storageAccounts/blobServices/containers/blobs/write"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Avere Operator",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Backup Contributor

Lets you manage backup service, but can't create vaults and give access to others [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization</a> /*/read	Read roles and role assignments
<a href="#">Microsoft.Network</a> /virtualNetworks/read	Get the virtual network definition
<a href="#">Microsoft.RecoveryServices</a> /locations/*	
<a href="#">Microsoft.RecoveryServices</a> /Vaults/backupFabrics/operationResults/*	Manage results of operation on backup management
<a href="#">Microsoft.RecoveryServices</a> /Vaults/backupFabrics/protectiveContainers/*	Create and manage backup containers inside backup fabrics of Recovery Services vault
<a href="#">Microsoft.RecoveryServices</a> /Vaults/backupFabrics/refreshContainers/action	Refreshes the container list
<a href="#">Microsoft.RecoveryServices</a> /Vaults/backupJobs/*	Create and manage backup jobs

ACTIONS	DESCRIPTION
<a href="#">Microsoft.RecoveryServices/Vaults/backupJobsExport/action</a>	Export Jobs
<a href="#">Microsoft.RecoveryServices/Vaults/backupOperationResults/*</a>	Create and manage Results of backup management operations
<a href="#">Microsoft.RecoveryServices/Vaults/backupPolicies/*</a>	Create and manage backup policies
<a href="#">Microsoft.RecoveryServices/Vaults/backupProtectableItems/*</a>	Create and manage items which can be backed up
<a href="#">Microsoft.RecoveryServices/Vaults/backupProtectedItems/*</a>	Create and manage backed up items
<a href="#">Microsoft.RecoveryServices/Vaults/backupProtectionContainers/*</a>	Create and manage containers holding backup items
<a href="#">Microsoft.RecoveryServices/Vaults/backupSecurityPIN/*</a>	
<a href="#">Microsoft.RecoveryServices/Vaults/backupUsageSummaries/read</a>	Returns summaries for Protected Items and Protected Servers for a Recovery Services .
<a href="#">Microsoft.RecoveryServices/Vaults/certificates/*</a>	Create and manage certificates related to backup in Recovery Services vault
<a href="#">Microsoft.RecoveryServices/Vaults/extendedInformation/*</a>	Create and manage extended info related to vault
<a href="#">Microsoft.RecoveryServices/Vaults/monitoringAlerts/read</a>	Gets the alerts for the Recovery services vault.
<a href="#">Microsoft.RecoveryServices/Vaults/monitoringConfigurations/*</a>	
<a href="#">Microsoft.RecoveryServices/Vaults/read</a>	The Get Vault operation gets an object representing the Azure resource of type 'vault'
<a href="#">Microsoft.RecoveryServices/Vaults/registeredIdentities/*</a>	Create and manage registered identities
<a href="#">Microsoft.RecoveryServices/Vaults/usages/*</a>	Create and manage usage of Recovery Services vault
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Storage/storageAccounts/read</a>	Returns the list of storage accounts or gets the properties for the specified storage account.
<a href="#">Microsoft.RecoveryServices/Vaults/backupstorageconfig/*</a>	
<a href="#">Microsoft.RecoveryServices/Vaults/backupconfig/*</a>	
<a href="#">Microsoft.RecoveryServices/Vaults/backupValidateOperation/action</a>	Validate Operation on Protected Item

ACTIONS	DESCRIPTION
<a href="#">Microsoft.RecoveryServices/Vaults/write</a>	Create Vault operation creates an Azure resource of type 'vault'
<a href="#">Microsoft.RecoveryServices/Vaults/backupOperations/read</a>	Returns Backup Operation Status for Recovery Services Vault.
<a href="#">Microsoft.RecoveryServices/Vaults/backupEngines/read</a>	Returns all the backup management servers registered with vault.
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/backupProtectionIntent/*</a>	
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/protectableContainers/read</a>	Get all protectable containers
<a href="#">Microsoft.RecoveryServices/locations/backupStatus/action</a>	Check Backup Status for Recovery Services Vaults
<a href="#">Microsoft.RecoveryServices/locations/backupPreValidateProtection/action</a>	
<a href="#">Microsoft.RecoveryServices/locations/backupValidateFeatures/action</a>	Validate Features
<a href="#">Microsoft.RecoveryServices/Vaults/monitoringAlerts/write</a>	Resolves the alert.
<a href="#">Microsoft.RecoveryServices/operations/read</a>	Operation returns the list of Operations for a Resource Provider
<a href="#">Microsoft.RecoveryServices/locations/operationStatus/read</a>	Gets Operation Status for a given Operation
<a href="#">Microsoft.RecoveryServices/Vaults/backupProtectionIntents/read</a>	List all backup Protection Intents
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage backup service, but can't create vaults and give access to others",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/5e467623-
bb1f-42f4-a55d-6e525e11384b",
  "name": "5e467623-bb1f-42f4-a55d-6e525e11384b",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Network/virtualNetworks/read",
        "Microsoft.RecoveryServices/locations/*",
        "Microsoft.RecoveryServices/Vaults/backupFabrics/operationResults/*",
        "Microsoft.RecoveryServices/Vaults/backupFabrics/protectionContainers/*",
        "Microsoft.RecoveryServices/Vaults/backupFabrics/refreshContainers/action",
        "Microsoft.RecoveryServices/Vaults/backupJobs/*",
        "Microsoft.RecoveryServices/Vaults/backupJobsExport/action",
        "Microsoft.RecoveryServices/Vaults/backupOperationResults/*",
        "Microsoft.RecoveryServices/Vaults/backupPolicies/*",
        "Microsoft.RecoveryServices/Vaults/backupProtectableItems/*",
        "Microsoft.RecoveryServices/Vaults/backupProtectedItems/*",
        "Microsoft.RecoveryServices/Vaults/backupProtectionContainers/*",
        "Microsoft.RecoveryServices/Vaults/backupSecurityPIN/*",
        "Microsoft.RecoveryServices/Vaults/backupUsageSummaries/read",
        "Microsoft.RecoveryServices/Vaults/certificates/*",
        "Microsoft.RecoveryServices/Vaults/extendedInformation/*",
        "Microsoft.RecoveryServices/Vaults/monitoringAlerts/read",
        "Microsoft.RecoveryServices/Vaults/monitoringConfigurations/*",
        "Microsoft.RecoveryServices/Vaults/read",
        "Microsoft.RecoveryServices/Vaults/registeredIdentities/*",
        "Microsoft.RecoveryServices/Vaults/usages/*",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Storage/storageAccounts/read",
        "Microsoft.RecoveryServices/Vaults/backupstorageconfig/*",
        "Microsoft.RecoveryServices/Vaults/backupconfig/*",
        "Microsoft.RecoveryServices/Vaults/backupValidateOperation/action",
        "Microsoft.RecoveryServices/Vaults/write",
        "Microsoft.RecoveryServices/Vaults/backupOperations/read",
        "Microsoft.RecoveryServices/Vaults/backupEngines/read",
        "Microsoft.RecoveryServices/Vaults/backupFabrics/backupProtectionIntent/*",
        "Microsoft.RecoveryServices/Vaults/backupFabrics/protectableContainers/read",
        "Microsoft.RecoveryServices/locations/backupStatus/action",
        "Microsoft.RecoveryServices/locations/backupPreValidateProtection/action",
        "Microsoft.RecoveryServices/locations/backupValidateFeatures/action",
        "Microsoft.RecoveryServices/Vaults/monitoringAlerts/write",
        "Microsoft.RecoveryServices/operations/read",
        "Microsoft.RecoveryServices/locations/operationStatus/read",
        "Microsoft.RecoveryServices/Vaults/backupProtectionIntents/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Backup Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
}
```

## Backup Operator

Lets you manage backup services, except removal of backup, vault creation and giving access to others [Learn](#)

[more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Network/virtualNetworks/read</a>	Get the virtual network definition
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/operationResults/read</a>	Returns status of the operation
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/protectiveContainers/operationResults/read</a>	Gets result of Operation performed on Protection Container.
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/protectiveContainers/protectedItems/backup/action</a>	Performs Backup for Protected Item.
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/protectiveContainers/protectedItems/operationResults/read</a>	Gets Result of Operation Performed on Protected Items.
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/protectiveContainers/protectedItems/operationsStatus/read</a>	Returns the status of Operation performed on Protected Items.
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/protectiveContainers/protectedItems/read</a>	Returns object details of the Protected Item
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/protectiveContainers/protectedItems/recoveryPoints/provisionInstantItemRecovery/action</a>	Provision Instant Item Recovery for Protected Item
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/protectiveContainers/protectedItems/recoveryPoints/read</a>	Get Recovery Points for Protected Items.
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/protectiveContainers/protectedItems/recoveryPoints/restore/action</a>	Restore Recovery Points for Protected Items.
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/protectiveContainers/protectedItems/recoveryPoints/revokeInstantItemRecovery/action</a>	Revoke Instant Item Recovery for Protected Item
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/protectiveContainers/protectedItems/write</a>	Create a backup Protected Item
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/protectiveContainers/read</a>	Returns all registered containers
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/refreshContainers/action</a>	Refreshes the container list
<a href="#">Microsoft.RecoveryServices/Vaults/backupJobs/*</a>	Create and manage backup jobs
<a href="#">Microsoft.RecoveryServices/Vaults/backupJobsExport/action</a>	Export Jobs
<a href="#">Microsoft.RecoveryServices/Vaults/backupOperationResults/*</a>	Create and manage Results of backup management operations

ACTIONS	DESCRIPTION
<a href="#">Microsoft.RecoveryServices/Vaults/backupPolicies/operationResults/read</a>	Get Results of Policy Operation.
<a href="#">Microsoft.RecoveryServices/Vaults/backupPolicies/read</a>	Returns all Protection Policies
<a href="#">Microsoft.RecoveryServices/Vaults/backupProtectableItems/*</a>	Create and manage items which can be backed up
<a href="#">Microsoft.RecoveryServices/Vaults/backupProtectedItems/read</a>	Returns the list of all Protected Items.
<a href="#">Microsoft.RecoveryServices/Vaults/backupProtectionContainers/read</a>	Returns all containers belonging to the subscription
<a href="#">Microsoft.RecoveryServices/Vaults/backupUsageSummaries/read</a>	Returns summaries for Protected Items and Protected Servers for a Recovery Services .
<a href="#">Microsoft.RecoveryServices/Vaults/certificates/write</a>	The Update Resource Certificate operation updates the resource/vault credential certificate.
<a href="#">Microsoft.RecoveryServices/Vaults/extendedInformation/read</a>	The Get Extended Info operation gets an object's Extended Info representing the Azure resource of type ?vault?
<a href="#">Microsoft.RecoveryServices/Vaults/extendedInformation/write</a>	The Get Extended Info operation gets an object's Extended Info representing the Azure resource of type ?vault?
<a href="#">Microsoft.RecoveryServices/Vaults/monitoringAlerts/read</a>	Gets the alerts for the Recovery services vault.
<a href="#">Microsoft.RecoveryServices/Vaults/monitoringConfigurations/*</a>	
<a href="#">Microsoft.RecoveryServices/Vaults/read</a>	The Get Vault operation gets an object representing the Azure resource of type 'vault'
<a href="#">Microsoft.RecoveryServices/Vaults/registeredIdentities/operationResults/read</a>	The Get Operation Results operation can be used get the operation status and result for the asynchronously submitted operation
<a href="#">Microsoft.RecoveryServices/Vaults/registeredIdentities/read</a>	The Get Containers operation can be used get the containers registered for a resource.
<a href="#">Microsoft.RecoveryServices/Vaults/registeredIdentities/write</a>	The Register Service Container operation can be used to register a container with Recovery Service.
<a href="#">Microsoft.RecoveryServices/Vaults/usages/read</a>	Returns usage details for a Recovery Services Vault.
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Storage/storageAccounts/read</a>	Returns the list of storage accounts or gets the properties for the specified storage account.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.RecoveryServices/Vaults/backupstorageconfig/*</a>	
<a href="#">Microsoft.RecoveryServices/Vaults/backupValidateOperation/action</a>	Validate Operation on Protected Item
<a href="#">Microsoft.RecoveryServices/Vaults/backupOperations/read</a>	Returns Backup Operation Status for Recovery Services Vault.
<a href="#">Microsoft.RecoveryServices/Vaults/backupPolicies/operations/read</a>	Get Status of Policy Operation.
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/protectibleContainers/write</a>	Creates a registered container
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/protectibleContainers/inquire/action</a>	Do inquiry for workloads within a container
<a href="#">Microsoft.RecoveryServices/Vaults/backupEngines/read</a>	Returns all the backup management servers registered with vault.
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/backupProtectionIntent/write</a>	Create a backup Protection Intent
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/backupProtectionIntent/read</a>	Get a backup Protection Intent
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/protectableContainers/read</a>	Get all protectable containers
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/protectibleContainers/items/read</a>	Get all items in a container
<a href="#">Microsoft.RecoveryServices/locations/backupStatus/action</a>	Check Backup Status for Recovery Services Vaults
<a href="#">Microsoft.RecoveryServices/locations/backupPreValidateProtection/action</a>	
<a href="#">Microsoft.RecoveryServices/locations/backupValidateFeatures/action</a>	Validate Features
<a href="#">Microsoft.RecoveryServices/Vaults/monitoringAlerts/write</a>	Resolves the alert.
<a href="#">Microsoft.RecoveryServices/operations/read</a>	Operation returns the list of Operations for a Resource Provider
<a href="#">Microsoft.RecoveryServices/locations/operationStatus/read</a>	Gets Operation Status for a given Operation
<a href="#">Microsoft.RecoveryServices/Vaults/backupProtectionIntents/read</a>	List all backup Protection Intents
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	

ACTIONS	DESCRIPTION
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage backup services, except removal of backup, vault creation and giving access to others",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/00c29273-979b-4161-815c-10b084fb9324",
  "name": "00c29273-979b-4161-815c-10b084fb9324",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Network/virtualNetworks/read",
        "Microsoft.RecoveryServices/Vaults/backupFabrics/operationResults/read",
        "Microsoft.RecoveryServices/Vaults/backupFabrics/protectionContainers/operationResults/read",

        "Microsoft.RecoveryServices/Vaults/backupFabrics/protectionContainers/protectedItems/backup/action",

        "Microsoft.RecoveryServices/Vaults/backupFabrics/protectionContainers/protectedItems/operationResults/read",

        "Microsoft.RecoveryServices/Vaults/backupFabrics/protectionContainers/protectedItems/operationsStatus/read",
        "Microsoft.RecoveryServices/Vaults/backupFabrics/protectionContainers/protectedItems/read",

        "Microsoft.RecoveryServices/Vaults/backupFabrics/protectionContainers/protectedItems/recoveryPoints/provisionInstantItemRecovery/action",

        "Microsoft.RecoveryServices/Vaults/backupFabrics/protectionContainers/protectedItems/recoveryPoints/read",

        "Microsoft.RecoveryServices/Vaults/backupFabrics/protectionContainers/protectedItems/recoveryPoints/restore/action",

        "Microsoft.RecoveryServices/Vaults/backupFabrics/protectionContainers/protectedItems/recoveryPoints/revokeInstantItemRecovery/action",
        "Microsoft.RecoveryServices/Vaults/backupFabrics/protectionContainers/protectedItems/write",
        "Microsoft.RecoveryServices/Vaults/backupFabrics/protectionContainers/read",
        "Microsoft.RecoveryServices/Vaults/backupFabrics/refreshContainers/action",
        "Microsoft.RecoveryServices/Vaults/backupJobs/*",
        "Microsoft.RecoveryServices/Vaults/backupJobsExport/action",
        "Microsoft.RecoveryServices/Vaults/backupOperationResults/*",
        "Microsoft.RecoveryServices/Vaults/backupPolicies/operationResults/read",
        "Microsoft.RecoveryServices/Vaults/backupPolicies/read",
        "Microsoft.RecoveryServices/Vaults/backupProtectableItems/*",
        "Microsoft.RecoveryServices/Vaults/backupProtectedItems/read",
        "Microsoft.RecoveryServices/Vaults/backupProtectionContainers/read",
        "Microsoft.RecoveryServices/Vaults/backupUsageSummaries/read",
        "Microsoft.RecoveryServices/Vaults/certificates/write",
        "Microsoft.RecoveryServices/Vaults/extendedInformation/read",
        "Microsoft.RecoveryServices/Vaults/extendedInformation/write",
        "Microsoft.RecoveryServices/Vaults/extendedInformation/write"
      ]
    }
  ]
}
```

```

    "Microsoft.RecoveryServices/Vaults/monitoringAlerts/read",
    "Microsoft.RecoveryServices/Vaults/monitoringConfigurations/*",
    "Microsoft.RecoveryServices/Vaults/read",
    "Microsoft.RecoveryServices/Vaults/registeredIdentities/operationResults/read",
    "Microsoft.RecoveryServices/Vaults/registeredIdentities/read",
    "Microsoft.RecoveryServices/Vaults/registeredIdentities/write",
    "Microsoft.RecoveryServices/Vaults/usages/read",
    "Microsoft.Resources/deployments/*",
    "Microsoft.Resources/subscriptions/resourceGroups/read",
    "Microsoft.Storage/storageAccounts/read",
    "Microsoft.RecoveryServices/Vaults/backupStorageConfig/*",
    "Microsoft.RecoveryServices/Vaults/backupValidateOperation/action",
    "Microsoft.RecoveryServices/Vaults/backupOperations/read",
    "Microsoft.RecoveryServices/Vaults/backupPolicies/operations/read",
    "Microsoft.RecoveryServices/Vaults/backupFabrics/protectionContainers/write",
    "Microsoft.RecoveryServices/Vaults/backupFabrics/protectionContainers/inquire/action",
    "Microsoft.RecoveryServices/Vaults/backupEngines/read",
    "Microsoft.RecoveryServices/Vaults/backupFabrics/backupProtectionIntent/write",
    "Microsoft.RecoveryServices/Vaults/backupFabrics/backupProtectionIntent/read",
    "Microsoft.RecoveryServices/Vaults/backupFabrics/protectableContainers/read",
    "Microsoft.RecoveryServices/Vaults/backupFabrics/protectionContainers/items/read",
    "Microsoft.RecoveryServices/locations/backupStatus/action",
    "Microsoft.RecoveryServices/locations/backupPreValidateProtection/action",
    "Microsoft.RecoveryServices/locations/backupValidateFeatures/action",
    "Microsoft.RecoveryServices/Vaults/monitoringAlerts/write",
    "Microsoft.RecoveryServices/operations/read",
    "Microsoft.RecoveryServices/locations/operationStatus/read",
    "Microsoft.RecoveryServices/Vaults/backupProtectionIntents/read",
    "Microsoft.Support/*"
],
"notActions": [],
"dataActions": [],
"notDataActions": []
}
],
"roleName": "Backup Operator",
"roleType": "BuiltInRole",
"type": "Microsoft.Authorization/roleDefinitions"
}

```

## Backup Reader

Can view backup services, but can't make changes [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.RecoveryServices/locations/allocatedStamp/read</a>	GetAllocatedStamp is internal operation used by service
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/operationResults/read</a>	Returns status of the operation
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/protectionContainers/operationResults/read</a>	Gets result of Operation performed on Protection Container.
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/protectionContainers/protectedItems/operationResults/read</a>	Gets Result of Operation Performed on Protected Items.
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/protectionContainers/protectedItems/operationsStatus/read</a>	Returns the status of Operation performed on Protected Items.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/protectio nContainers/protectedItems/read</a>	Returns object details of the Protected Item
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/protectio nContainers/protectedItems/recoveryPoints/read</a>	Get Recovery Points for Protected Items.
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/protectio nContainers/read</a>	Returns all registered containers
<a href="#">Microsoft.RecoveryServices/Vaults/backupJobs/operationR esults/read</a>	Returns the Result of Job Operation.
<a href="#">Microsoft.RecoveryServices/Vaults/backupJobs/read</a>	Returns all Job Objects
<a href="#">Microsoft.RecoveryServices/Vaults/backupJobsExport/actio n</a>	Export Jobs
<a href="#">Microsoft.RecoveryServices/Vaults/backupOperationResults /read</a>	Returns Backup Operation Result for Recovery Services Vault.
<a href="#">Microsoft.RecoveryServices/Vaults/backupPolicies/operatio nResults/read</a>	Get Results of Policy Operation.
<a href="#">Microsoft.RecoveryServices/Vaults/backupPolicies/read</a>	Returns all Protection Policies
<a href="#">Microsoft.RecoveryServices/Vaults/backupProtectedItems/r ead</a>	Returns the list of all Protected Items.
<a href="#">Microsoft.RecoveryServices/Vaults/backupProtectionContai ners/read</a>	Returns all containers belonging to the subscription
<a href="#">Microsoft.RecoveryServices/Vaults/backupUsageSummarie s/read</a>	Returns summaries for Protected Items and Protected Servers for a Recovery Services .
<a href="#">Microsoft.RecoveryServices/Vaults/extendedInformation/re ad</a>	The Get Extended Info operation gets an object's Extended Info representing the Azure resource of type ?vault?
<a href="#">Microsoft.RecoveryServices/Vaults/monitoringAlerts/read</a>	Gets the alerts for the Recovery services vault.
<a href="#">Microsoft.RecoveryServices/Vaults/read</a>	The Get Vault operation gets an object representing the Azure resource of type 'vault'
<a href="#">Microsoft.RecoveryServices/Vaults/registeredIdentities/ope rationResults/read</a>	The Get Operation Results operation can be used get the operation status and result for the asynchronously submitted operation
<a href="#">Microsoft.RecoveryServices/Vaults/registeredIdentities/rea d</a>	The Get Containers operation can be used get the containers registered for a resource.
<a href="#">Microsoft.RecoveryServices/Vaults/backupstorageconfig/re ad</a>	Returns Storage Configuration for Recovery Services Vault.
<a href="#">Microsoft.RecoveryServices/Vaults/backupconfig/read</a>	Returns Configuration for Recovery Services Vault.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.RecoveryServices/Vaults/backupOperations/read</a>	Returns Backup Operation Status for Recovery Services Vault.
<a href="#">Microsoft.RecoveryServices/Vaults/backupPolicies/operations/read</a>	Get Status of Policy Operation.
<a href="#">Microsoft.RecoveryServices/Vaults/backupEngines/read</a>	Returns all the backup management servers registered with vault.
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/backupProtectionIntent/read</a>	Get a backup Protection Intent
<a href="#">Microsoft.RecoveryServices/Vaults/backupFabrics/protectiveContainers/items/read</a>	Get all items in a container
<a href="#">Microsoft.RecoveryServices/locations/backupStatus/action</a>	Check Backup Status for Recovery Services Vaults
<a href="#">Microsoft.RecoveryServices/Vaults/monitoringConfigurations/*</a>	
<a href="#">Microsoft.RecoveryServices/Vaults/monitoringAlerts/write</a>	Resolves the alert.
<a href="#">Microsoft.RecoveryServices/operations/read</a>	Operation returns the list of Operations for a Resource Provider
<a href="#">Microsoft.RecoveryServices/locations/operationStatus/read</a>	Gets Operation Status for a given Operation
<a href="#">Microsoft.RecoveryServices/Vaults/backupProtectionIntents/read</a>	List all backup Protection Intents
<a href="#">Microsoft.RecoveryServices/Vaults/usages/read</a>	Returns usage details for a Recovery Services Vault.
<a href="#">Microsoft.RecoveryServices/locations/backupValidateFeatures/action</a>	Validate Features
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{  
    "assignableScopes": [  
        "/"  
    ],  
    "description": "Can view backup services, but can't make changes",  
    "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/a795c7a0-d4a2-40c1-ae25-d81f01202912",  
    "name": "a795c7a0-d4a2-40c1-ae25-d81f01202912",  
    "permissions": [  
        {  
            "actions": [  
                "Microsoft.Authorization/*/read",  
                "Microsoft.RecoveryServices/locations/allocatedStamp/read",  
                "Microsoft.RecoveryServices/Vaults/backupFabrics/operationResults/read",  
                "Microsoft.RecoveryServices/Vaults/backupFabrics/protectionContainers/operationResults/read",  
  
                "Microsoft.RecoveryServices/Vaults/backupFabrics/protectionContainers/protectedItems/operationResults/read",  
  
                "Microsoft.RecoveryServices/Vaults/backupFabrics/protectionContainers/protectedItems/operationsStatus/read",  
                "Microsoft.RecoveryServices/Vaults/backupFabrics/protectionContainers/protectedItems/read",  
  
                "Microsoft.RecoveryServices/Vaults/backupFabrics/protectionContainers/recoveryPoints/read",  
                "Microsoft.RecoveryServices/Vaults/backupFabrics/protectionContainers/read",  
                "Microsoft.RecoveryServices/Vaults/backupJobs/operationResults/read",  
                "Microsoft.RecoveryServices/Vaults/backupJobs/read",  
                "Microsoft.RecoveryServices/Vaults/backupJobsExport/action",  
                "Microsoft.RecoveryServices/Vaults/backupOperationResults/read",  
                "Microsoft.RecoveryServices/Vaults/backupPolicies/operationResults/read",  
                "Microsoft.RecoveryServices/Vaults/backupPolicies/read",  
                "Microsoft.RecoveryServices/Vaults/backupProtectedItems/read",  
                "Microsoft.RecoveryServices/Vaults/backupProtectionContainers/read",  
                "Microsoft.RecoveryServices/Vaults/backupUsageSummaries/read",  
                "Microsoft.RecoveryServices/Vaults/extendedInformation/read",  
                "Microsoft.RecoveryServices/Vaults/monitoringAlerts/read",  
                "Microsoft.RecoveryServices/Vaults/read",  
                "Microsoft.RecoveryServices/Vaults/registeredIdentities/operationResults/read",  
                "Microsoft.RecoveryServices/Vaults/registeredIdentities/read",  
                "Microsoft.RecoveryServices/Vaults/backupstorageconfig/read",  
                "Microsoft.RecoveryServices/Vaults/backupconfig/read",  
                "Microsoft.RecoveryServices/Vaults/backupOperations/read",  
                "Microsoft.RecoveryServices/Vaults/backupPolicies/operations/read",  
                "Microsoft.RecoveryServices/Vaults/backupEngines/read",  
                "Microsoft.RecoveryServices/Vaults/backupFabrics/backupProtectionIntent/read",  
                "Microsoft.RecoveryServices/Vaults/backupFabrics/protectionContainers/items/read",  
                "Microsoft.RecoveryServices/locations/backupStatus/action",  
                "Microsoft.RecoveryServices/Vaults/monitoringConfigurations/*",  
                "Microsoft.RecoveryServices/Vaults/monitoringAlerts/write",  
                "Microsoft.RecoveryServices/operations/read",  
                "Microsoft.RecoveryServices/locations/operationStatus/read",  
                "Microsoft.RecoveryServices/Vaults/backupProtectionIntents/read",  
                "Microsoft.RecoveryServices/Vaults/usages/read",  
                "Microsoft.RecoveryServices/locations/backupValidateFeatures/action"  
            ],  
            "notActions": [],  
            "dataActions": [],  
            "notDataActions": []  
        }  
    ],  
    "roleName": "Backup Reader",  
    "roleType": "BuiltInRole",  
    "type": "Microsoft.Authorization/roleDefinitions"  
}
```

## Classic Storage Account Contributor

Lets you manage classic storage accounts, but not access to them.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization</a> /*/read	Read roles and role assignments
<a href="#">Microsoft.ClassicStorage</a> /storageAccounts/*	Create and manage storage accounts
<a href="#">Microsoft.Insights</a> /alertRules/*	Create and manage a classic metric alert
<a href="#">Microsoft.ResourceHealth</a> /availabilityStatuses/read	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources</a> /deployments/*	Create and manage a deployment
<a href="#">Microsoft.Resources</a> /subscriptions/resourceGroups/read	Gets or lists resource groups.
<a href="#">Microsoft.Support</a> /*	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage classic storage accounts, but not access to them.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/86e8f5dc-a6e9-4c67-9d15-de283e8eac25",
  "name": "86e8f5dc-a6e9-4c67-9d15-de283e8eac25",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.ClassicStorage/storageAccounts/*",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.ResourceHealth/availabilityStatuses/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Classic Storage Account Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Classic Storage Account Key Operator Service Role

Classic Storage Account Key Operators are allowed to list and regenerate keys on Classic Storage Accounts

[Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.ClassicStorage</a> /storageAccounts/listkeys/action	Lists the access keys for the storage accounts.
<a href="#">Microsoft.ClassicStorage</a> /storageAccounts/regeneratekey/action	Regenerates the existing access keys for the storage account.
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Classic Storage Account Key Operators are allowed to list and regenerate keys on Classic Storage Accounts",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/985d6b00-f706-48f5-a6fe-d0ca12fb668d",
  "name": "985d6b00-f706-48f5-a6fe-d0ca12fb668d",
  "permissions": [
    {
      "actions": [
        "Microsoft.ClassicStorage/storageAccounts/listkeys/action",
        "Microsoft.ClassicStorage/storageAccounts/regeneratekey/action"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Classic Storage Account Key Operator Service Role",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Data Box Contributor

Lets you manage everything under Data Box Service except giving access to others. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.ResourceHealth/availabilityStatuses/read</a>	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<a href="#">Microsoft.Databox/*</a>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage everything under Data Box Service except giving access to others.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/add466c9-e687-43fc-8d98-dfcf8d720be5",
  "name": "add466c9-e687-43fc-8d98-dfcf8d720be5",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.ResourceHealth/availabilityStatuses/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*",
        "Microsoft.Databox/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Data Box Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Data Box Reader

Lets you manage Data Box Service except creating order or editing order details and giving access to others.

[Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization</a> /*/read	Read roles and role assignments
<a href="#">Microsoft.Databox</a> /*/read	
<a href="#">Microsoft.Databox</a> /jobs/listsecrets/action	
<a href="#">Microsoft.Databox</a> /jobs/listcredentials/action	Lists the unencrypted credentials related to the order.
<a href="#">Microsoft.Databox</a> /locations/availableSkus/action	This method returns the list of available skus.
<a href="#">Microsoft.Databox</a> /locations/validateInputs/action	This method does all type of validations.
<a href="#">Microsoft.Databox</a> /locations/regionConfiguration/action	This method returns the configurations for the region.
<a href="#">Microsoft.Databox</a> /locations/validateAddress/action	Validates the shipping address and provides alternate addresses if any.
<a href="#">Microsoft.ResourceHealth</a> /availabilityStatuses/read	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Support</a> /*	Create and update a support ticket
<b>NotActions</b>	

ACTIONS	DESCRIPTION
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage Data Box Service except creating order or editing order details and giving access to others.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/028f4ed7-e2a9-465e-a8f4-9c0ffdfdc027",
  "name": "028f4ed7-e2a9-465e-a8f4-9c0ffdfdc027",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Databox/*/read",
        "Microsoft.Databox/jobs/listsecrets/action",
        "Microsoft.Databox/jobs/listcredentials/action",
        "Microsoft.Databox/locations/availableSkus/action",
        "Microsoft.Databox/locations/validateInputs/action",
        "Microsoft.Databox/locations/regionConfiguration/action",
        "Microsoft.Databox/locations/validateAddress/action",
        "Microsoft.ResourceHealth/availabilityStatuses/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Data Box Reader",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Data Lake Analytics Developer

Lets you submit, monitor, and manage your own jobs but not create or delete Data Lake Analytics accounts.

[Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization</a> /*/read	Read roles and role assignments
Microsoft.BigAnalytics/accounts/*	
<a href="#">Microsoft.DataLakeAnalytics</a> /accounts/*	
<a href="#">Microsoft.Insights</a> /alertRules/*	Create and manage a classic metric alert

ACTIONS	DESCRIPTION
<a href="#">Microsoft.ResourceHealth/availabilityStatuses/read</a>	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<a href="#">Microsoft.BigAnalytics/accounts/Delete</a>	
<a href="#">Microsoft.BigAnalytics/accounts/TakeOwnership/action</a>	
<a href="#">Microsoft.BigAnalytics/accounts/Write</a>	
<a href="#">Microsoft.DataLakeAnalytics/accounts/Delete</a>	Delete a DataLakeAnalytics account.
<a href="#">Microsoft.DataLakeAnalytics/accounts/TakeOwnership/acti on</a>	Grant permissions to cancel jobs submitted by other users.
<a href="#">Microsoft.DataLakeAnalytics/accounts/Write</a>	Create or update a DataLakeAnalytics account.
<a href="#">Microsoft.DataLakeAnalytics/accounts/dataLakeStoreAccou nts/Write</a>	Create or update a linked DataLakeStore account of a DataLakeAnalytics account.
<a href="#">Microsoft.DataLakeAnalytics/accounts/dataLakeStoreAccou nts/Delete</a>	Unlink a DataLakeStore account from a DataLakeAnalytics account.
<a href="#">Microsoft.DataLakeAnalytics/accounts/storageAccounts/W rite</a>	Create or update a linked Storage account of a DataLakeAnalytics account.
<a href="#">Microsoft.DataLakeAnalytics/accounts/storageAccounts/De letे</a>	Unlink a Storage account from a DataLakeAnalytics account.
<a href="#">Microsoft.DataLakeAnalytics/accounts/firewallRules/Write</a>	Create or update a firewall rule.
<a href="#">Microsoft.DataLakeAnalytics/accounts/firewallRules/Delete</a>	Delete a firewall rule.
<a href="#">Microsoft.DataLakeAnalytics/accounts/computePolicies/Wri te</a>	Create or update a compute policy.
<a href="#">Microsoft.DataLakeAnalytics/accounts/computePolicies/Del ete</a>	Delete a compute policy.
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	

ACTIONS	DESCRIPTION
<i>none</i>	
<pre>{   "assignableScopes": [     "/"   ],   "description": "Lets you submit, monitor, and manage your own jobs but not create or delete Data Lake Analytics accounts.",   "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/47b7735b-770e-4598-a7da-8b91488b4c88",   "name": "47b7735b-770e-4598-a7da-8b91488b4c88",   "permissions": [     {       "actions": [         "Microsoft.Authorization/*/read",         "Microsoft.BigAnalytics/accounts/*",         "Microsoft.DataLakeAnalytics/accounts/*",         "Microsoft.Insights/alertRules/*",         "Microsoft.ResourceHealth/availabilityStatuses/read",         "Microsoft.Resources/deployments/*",         "Microsoft.Resources/subscriptions/resourceGroups/read",         "Microsoft.Support/*"       ],       "notActions": [         "Microsoft.BigAnalytics/accounts/Delete",         "Microsoft.BigAnalytics/accounts/TakeOwnership/action",         "Microsoft.BigAnalytics/accounts/Write",         "Microsoft.DataLakeAnalytics/accounts/Delete",         "Microsoft.DataLakeAnalytics/accounts/TakeOwnership/action",         "Microsoft.DataLakeAnalytics/accounts/Write",         "Microsoft.DataLakeAnalytics/accounts/dataLakeStoreAccounts/Write",         "Microsoft.DataLakeAnalytics/accounts/dataLakeStoreAccounts/Delete",         "Microsoft.DataLakeAnalytics/accounts/storageAccounts/Write",         "Microsoft.DataLakeAnalytics/accounts/storageAccounts/Delete",         "Microsoft.DataLakeAnalytics/accounts/firewallRules/Write",         "Microsoft.DataLakeAnalytics/accounts/firewallRules/Delete",         "Microsoft.DataLakeAnalytics/accounts/computePolicies/Write",         "Microsoft.DataLakeAnalytics/accounts/computePolicies/Delete"       ],       "dataActions": [],       "notDataActions": []     }   ],   "roleName": "Data Lake Analytics Developer",   "roleType": "BuiltInRole",   "type": "Microsoft.Authorization/roleDefinitions" }</pre>	

## Reader and Data Access

Lets you view everything but will not let you delete or create a storage account or contained resource. It will also allow read/write access to all data contained in a storage account via access to storage account keys.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Storage/storageAccounts/listKeys/action</a>	Returns the access keys for the specified storage account.
<a href="#">Microsoft.Storage/storageAccounts/ListAccountSas/action</a>	Returns the Account SAS token for the specified storage account.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Storage/storageAccounts/read</a>	Returns the list of storage accounts or gets the properties for the specified storage account.
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you view everything but will not let you delete or create a storage account or contained resource. It will also allow read/write access to all data contained in a storage account via access to storage account keys.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/c12c1c16-33a1-487b-954d-41c89c60f349",
  "name": "c12c1c16-33a1-487b-954d-41c89c60f349",
  "permissions": [
    {
      "actions": [
        "Microsoft.Storage/storageAccounts/listKeys/action",
        "Microsoft.Storage/storageAccounts/ListAccountSas/action",
        "Microsoft.Storage/storageAccounts/read"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Reader and Data Access",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Storage Account Contributor

Permits management of storage accounts. Provides access to the account key, which can be used to access data via Shared Key authorization. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.Insights/diagnosticSettings/*</a>	Creates, updates, or reads the diagnostic setting for Analysis Server

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Network/virtualNetworks/subnets/joinViaServiceEndpoint/action</a>	Joins resource such as storage account or SQL database to a subnet. Not alertable.
<a href="#">Microsoft.ResourceHealth/availabilityStatuses/read</a>	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Storage/storageAccounts/*</a>	Create and manage storage accounts
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage storage accounts, including accessing storage account keys which provide full access to storage account data.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/17d1049b-9a84-46fb-8f53-869881c3d3ab",
  "name": "17d1049b-9a84-46fb-8f53-869881c3d3ab",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Insights/diagnosticSettings/*",
        "Microsoft.Network/virtualNetworks/subnets/joinViaServiceEndpoint/action",
        "Microsoft.ResourceHealth/availabilityStatuses/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Storage/storageAccounts/*",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Storage Account Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Storage Account Key Operator Service Role

Permits listing and regenerating storage account access keys. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Storage</a> /storageAccounts/listkeys/action	Returns the access keys for the specified storage account.
<a href="#">Microsoft.Storage</a> /storageAccounts/regeneratekey/action	Regenerates the access keys for the specified storage account.
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Storage Account Key Operators are allowed to list and regenerate keys on Storage Accounts",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/81a9662b-bebf-436f-a333-f67b29880f12",
  "name": "81a9662b-bebf-436f-a333-f67b29880f12",
  "permissions": [
    {
      "actions": [
        "Microsoft.Storage/storageAccounts/listkeys/action",
        "Microsoft.Storage/storageAccounts/regeneratekey/action"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Storage Account Key Operator Service Role",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Storage Blob Data Contributor

Read, write, and delete Azure Storage containers and blobs. To learn which actions are required for a given data operation, see [Permissions for calling blob and queue data operations](#). [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Storage/storageAccounts/blobServices/container s/delete</a>	Delete a container.
<a href="#">Microsoft.Storage/storageAccounts/blobServices/container s/read</a>	Return a container or a list of containers.
<a href="#">Microsoft.Storage/storageAccounts/blobServices/container s/write</a>	Modify a container's metadata or properties.
<a href="#">Microsoft.Storage/storageAccounts/blobServices/generate UserDelegationKey/action</a>	Returns a user delegation key for the Blob service.
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.Storage/storageAccounts/blobServices/container s/blobs/delete</a>	Delete a blob.
<a href="#">Microsoft.Storage/storageAccounts/blobServices/container s/blobs/read</a>	Return a blob or a list of blobs.
<a href="#">Microsoft.Storage/storageAccounts/blobServices/container s/blobs/move/action</a>	Moves the blob from one path to another

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Storage/storageAccounts/blobServices/container s/blobs/write</a>	Write to a blob.
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Allows for read, write and delete access to Azure Storage blob containers and data",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/ba92f5b4-2d11-453d-a403-e96b0029c9fe",
  "name": "ba92f5b4-2d11-453d-a403-e96b0029c9fe",
  "permissions": [
    {
      "actions": [
        "Microsoft.Storage/storageAccounts/blobServices/containers/delete",
        "Microsoft.Storage/storageAccounts/blobServices/containers/read",
        "Microsoft.Storage/storageAccounts/blobServices/containers/write",
        "Microsoft.Storage/storageAccounts/blobServices/generateUserDelegationKey/action"
      ],
      "notActions": [],
      "dataActions": [
        "Microsoft.Storage/storageAccounts/blobServices/containers/blobs/delete",
        "Microsoft.Storage/storageAccounts/blobServices/containers/blobs/read",
        "Microsoft.Storage/storageAccounts/blobServices/containers/blobs/move/action",
        "Microsoft.Storage/storageAccounts/blobServices/containers/blobs/write"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Storage Blob Data Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Storage Blob Data Owner

Provides full access to Azure Storage blob containers and data, including assigning POSIX access control. To learn which actions are required for a given data operation, see [Permissions for calling blob and queue data operations](#). [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Storage/storageAccounts/blobServices/container s/*</a>	Full permissions on containers.
<a href="#">Microsoft.Storage/storageAccounts/blobServices/generate UserDelegationKey/action</a>	Returns a user delegation key for the Blob service.
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Storage/storageAccounts/blobServices/container s/blobs/*</a>	Full permissions on blobs.
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Allows for full access to Azure Storage blob containers and data, including assigning POSIX access control.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/b7e6dc6d-f1e8-4753-8033-0f276bb0955b",
  "name": "b7e6dc6d-f1e8-4753-8033-0f276bb0955b",
  "permissions": [
    {
      "actions": [
        "Microsoft.Storage/storageAccounts/blobServices/containers/*",
        "Microsoft.Storage/storageAccounts/blobServices/generateUserDelegationKey/action"
      ],
      "notActions": [],
      "dataActions": [
        "Microsoft.Storage/storageAccounts/blobServices/containers/blobs/*"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Storage Blob Data Owner",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Storage Blob Data Reader

Read and list Azure Storage containers and blobs. To learn which actions are required for a given data operation, see [Permissions for calling blob and queue data operations](#). [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Storage/storageAccounts/blobServices/container s/read</a>	Return a container or a list of containers.
<a href="#">Microsoft.Storage/storageAccounts/blobServices/generate UserDelegationKey/action</a>	Returns a user delegation key for the Blob service.
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.Storage/storageAccounts/blobServices/container s/blobs/read</a>	Return a blob or a list of blobs.

ACTIONS	DESCRIPTION
<b>NotDataActions</b>	
<i>none</i>	

<pre>{   "assignableScopes": [     "/"   ],   "description": "Allows for read access to Azure Storage blob containers and data",   "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/2a2b9908-6ea1-4ae2-8e65-a410df84e7d1",   "name": "2a2b9908-6ea1-4ae2-8e65-a410df84e7d1",   "permissions": [     {       "actions": [         "Microsoft.Storage/storageAccounts/blobServices/containers/read",         "Microsoft.Storage/storageAccounts/blobServices/generateUserDelegationKey/action"       ],       "notActions": [],       "dataActions": [         "Microsoft.Storage/storageAccounts/blobServices/containers/blobs/read"       ],       "notDataActions": []     }   ],   "roleName": "Storage Blob Data Reader",   "roleType": "BuiltInRole",   "type": "Microsoft.Authorization/roleDefinitions" }</pre>	
---	--

## Storage Blob Delegator

Get a user delegation key, which can then be used to create a shared access signature for a container or blob that is signed with Azure AD credentials. For more information, see [Create a user delegation SAS. Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Storage/storageAccounts/blobServices/generateUserDelegationKey/action</a>	Returns a user delegation key for the Blob service.
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Allows for generation of a user delegation key which can be used to sign SAS tokens",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/db58b8e5-c6ad-4a2a-8342-4190687cbf4a",
  "name": "db58b8e5-c6ad-4a2a-8342-4190687cbf4a",
  "permissions": [
    {
      "actions": [
        "Microsoft.Storage/storageAccounts/blobServices/generateUserDelegationKey/action"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Storage Blob Delegator",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

### Storage File Data SMB Share Contributor

Allows for read, write, and delete access on files/directories in Azure file shares. This role has no built-in equivalent on Windows file servers. [Learn more](#)

ACTIONS	DESCRIPTION
<i>none</i>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.Storage</a> /storageAccounts/fileServices/fileshares/files/read	Returns a file/folder or a list of files/folders.
<a href="#">Microsoft.Storage</a> /storageAccounts/fileServices/fileshares/files/write	Returns the result of writing a file or creating a folder.
<a href="#">Microsoft.Storage</a> /storageAccounts/fileServices/fileshares/files/delete	Returns the result of deleting a file/folder.
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Allows for read, write, and delete access in Azure Storage file shares over SMB",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/0c867c2a-1d8c-454a-a3db-ab2ea1bdc8bb",
  "name": "0c867c2a-1d8c-454a-a3db-ab2ea1bdc8bb",
  "permissions": [
    {
      "actions": [],
      "notActions": [],
      "dataActions": [
        "Microsoft.Storage/storageAccounts/fileServices/fileshares/files/read",
        "Microsoft.Storage/storageAccounts/fileServices/fileshares/files/write",
        "Microsoft.Storage/storageAccounts/fileServices/fileshares/files/delete"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Storage File Data SMB Share Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

### Storage File Data SMB Share Elevated Contributor

Allows for read, write, delete, and modify ACLs on files/directories in Azure file shares. This role is equivalent to a file share ACL of change on Windows file servers. [Learn more](#)

ACTIONS	DESCRIPTION
<i>none</i>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.Storage/storageAccounts/fileServices/fileshares/files/read</a>	Returns a file/folder or a list of files/folders.
<a href="#">Microsoft.Storage/storageAccounts/fileServices/fileshares/files/write</a>	Returns the result of writing a file or creating a folder.
<a href="#">Microsoft.Storage/storageAccounts/fileServices/fileshares/files/delete</a>	Returns the result of deleting a file/folder.
<a href="#">Microsoft.Storage/storageAccounts/fileServices/fileshares/files/modifyPermissions/action</a>	Returns the result of modifying permission on a file/folder.
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Allows for read, write, delete and modify NTFS permission access in Azure Storage file shares over SMB",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/a7264617-510b-434b-a828-9731dc254ea7",
  "name": "a7264617-510b-434b-a828-9731dc254ea7",
  "permissions": [
    {
      "actions": [],
      "notActions": [],
      "dataActions": [
        "Microsoft.Storage/storageAccounts/fileServices/fileshares/files/read",
        "Microsoft.Storage/storageAccounts/fileServices/fileshares/files/write",
        "Microsoft.Storage/storageAccounts/fileServices/fileshares/files/delete",
        "Microsoft.Storage/storageAccounts/fileServices/fileshares/files/modifyPermissions/action"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Storage File Data SMB Share Elevated Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Storage File Data SMB Share Reader

Allows for read access on files/directories in Azure file shares. This role is equivalent to a file share ACL of read on Windows file servers. [Learn more](#)

ACTIONS	DESCRIPTION
<i>none</i>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.Storage</a> /storageAccounts/fileServices/fileshares/files/read	Returns a file/folder or a list of files/folders.
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Allows for read access to Azure File Share over SMB",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/aba4ae5f-2193-4029-9191-0cb91df5e314",
  "name": "aba4ae5f-2193-4029-9191-0cb91df5e314",
  "permissions": [
    {
      "actions": [],
      "notActions": [],
      "dataActions": [
        "Microsoft.Storage/storageAccounts/fileServices/fileshares/files/read"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Storage File Data SMB Share Reader",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Storage Queue Data Contributor

Read, write, and delete Azure Storage queues and queue messages. To learn which actions are required for a given data operation, see [Permissions for calling blob and queue data operations](#). [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Storage</a> /storageAccounts/queueServices/queues/delete	Delete a queue.
<a href="#">Microsoft.Storage</a> /storageAccounts/queueServices/queues/read	Return a queue or a list of queues.
<a href="#">Microsoft.Storage</a> /storageAccounts/queueServices/queues/write	Modify queue metadata or properties.
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.Storage</a> /storageAccounts/queueServices/queues/messages/delete	Delete one or more messages from a queue.
<a href="#">Microsoft.Storage</a> /storageAccounts/queueServices/queues/messages/read	Peek or retrieve one or more messages from a queue.
<a href="#">Microsoft.Storage</a> /storageAccounts/queueServices/queues/messages/write	Add a message to a queue.
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Allows for read, write, and delete access to Azure Storage queues and queue messages",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/974c5e8b-45b9-4653-ba55-5f855dd0fb88",
  "name": "974c5e8b-45b9-4653-ba55-5f855dd0fb88",
  "permissions": [
    {
      "actions": [
        "Microsoft.Storage/storageAccounts/queueServices/queues/delete",
        "Microsoft.Storage/storageAccounts/queueServices/queues/read",
        "Microsoft.Storage/storageAccounts/queueServices/queues/write"
      ],
      "notActions": [],
      "dataActions": [
        "Microsoft.Storage/storageAccounts/queueServices/queues/messages/delete",
        "Microsoft.Storage/storageAccounts/queueServices/queues/messages/read",
        "Microsoft.Storage/storageAccounts/queueServices/queues/messages/write"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Storage Queue Data Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Storage Queue Data Message Processor

Peek, retrieve, and delete a message from an Azure Storage queue. To learn which actions are required for a given data operation, see [Permissions for calling blob and queue data operations](#). [Learn more](#)

ACTIONS	DESCRIPTION
<i>none</i>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.Storage/storageAccounts/queueServices/queues/messages/read</a>	Peek a message.
<a href="#">Microsoft.Storage/storageAccounts/queueServices/queues/messages/process/action</a>	Retrieve and delete a message.
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Allows for peek, receive, and delete access to Azure Storage queue messages",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/8a0f0c08-91a1-4084-bc3d-661d67233fed",
  "name": "8a0f0c08-91a1-4084-bc3d-661d67233fed",
  "permissions": [
    {
      "actions": [],
      "notActions": [],
      "dataActions": [
        "Microsoft.Storage/storageAccounts/queueServices/queues/messages/read",
        "Microsoft.Storage/storageAccounts/queueServices/queues/messages/process/action"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Storage Queue Data Message Processor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Storage Queue Data Message Sender

Add messages to an Azure Storage queue. To learn which actions are required for a given data operation, see [Permissions for calling blob and queue data operations](#). [Learn more](#)

ACTIONS	DESCRIPTION
<i>none</i>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.Storage</a> /storageAccounts/queueServices/queues/messages/add/action	Add a message to a queue.
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Allows for sending of Azure Storage queue messages",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/c6a89b2d-59bc-44d0-9896-0f6e12d7b80a",
  "name": "c6a89b2d-59bc-44d0-9896-0f6e12d7b80a",
  "permissions": [
    {
      "actions": [],
      "notActions": [],
      "dataActions": [
        "Microsoft.Storage/storageAccounts/queueServices/queues/messages/add/action"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Storage Queue Data Message Sender",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Storage Queue Data Reader

Read and list Azure Storage queues and queue messages. To learn which actions are required for a given data operation, see [Permissions for calling blob and queue data operations](#). [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Storage</a> /storageAccounts/queueServices/queues/read	Returns a queue or a list of queues.
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.Storage</a> /storageAccounts/queueServices/queues/messages/read	Peek or retrieve one or more messages from a queue.
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Allows for read access to Azure Storage queues and queue messages",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/19e7f393-937e-4f77-808e-94535e297925",
  "name": "19e7f393-937e-4f77-808e-94535e297925",
  "permissions": [
    {
      "actions": [
        "Microsoft.Storage/storageAccounts/queueServices/queues/read"
      ],
      "notActions": [],
      "dataActions": [
        "Microsoft.Storage/storageAccounts/queueServices/queues/messages/read"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Storage Queue Data Reader",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Web

### Azure Maps Data Reader

Grants access to read map related data from an Azure maps account.

ACTIONS	DESCRIPTION
<i>none</i>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">MicrosoftMaps/accounts/*/read</a>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Grants access to read map related data from an Azure maps account.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/423170ca-a8f6-4b0f-8487-9e4eb8f49bfa",
  "name": "423170ca-a8f6-4b0f-8487-9e4eb8f49bfa",
  "permissions": [
    {
      "actions": [],
      "notActions": [],
      "dataActions": [
        "Microsoft.Maps/accounts/*/read"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Azure Maps Data Reader",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Search Service Contributor

Lets you manage Search services, but not access to them. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization</a> /*/read	Read roles and role assignments
<a href="#">Microsoft.Insights</a> /alertRules/*	Create and manage a classic metric alert
<a href="#">Microsoft.ResourceHealth</a> /availabilityStatuses/read	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources</a> /deployments/*	Create and manage a deployment
<a href="#">Microsoft.Resources</a> /subscriptions/resourceGroups/read	Gets or lists resource groups.
<a href="#">Microsoft.Search</a> /searchServices/*	Create and manage search services
<a href="#">Microsoft.Support</a> /*	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage Search services, but not access to them.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/7ca78c08-252a-4471-8644-bb5ff32d4ba0",
  "name": "7ca78c08-252a-4471-8644-bb5ff32d4ba0",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.ResourceHealth/availabilityStatuses/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Search/searchServices/*",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Search Service Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Web Plan Contributor

Lets you manage the web plans for websites, but not access to them.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization</a> /*/read	Read roles and role assignments
<a href="#">Microsoft.Insights</a> /alertRules/*	Create and manage a classic metric alert
<a href="#">Microsoft.ResourceHealth</a> /availabilityStatuses/read	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources</a> /deployments/*	Create and manage a deployment
<a href="#">Microsoft.Resources</a> /subscriptions/resourceGroups/read	Gets or lists resource groups.
<a href="#">Microsoft.Support</a> /*	Create and update a support ticket
<a href="#">Microsoft.Web</a> /serverFarms/*	Create and manage server farms
<a href="#">Microsoft.Web</a> /hostingEnvironments/Join/Action	Joins an App Service Environment
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	

ACTIONS	DESCRIPTION
<b>NotDataActions</b>	
<i>none</i>	

<pre>{   "assignableScopes": [     "/"   ],   "description": "Lets you manage the web plans for websites, but not access to them.",   "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/2cc479cb-7b4d-49a8-b449-8c00fd0f0a4b",   "name": "2cc479cb-7b4d-49a8-b449-8c00fd0f0a4b",   "permissions": [     {       "actions": [         "Microsoft.Authorization/*/read",         "Microsoft.Insights/alertRules/*",         "Microsoft.ResourceHealth/availabilityStatuses/read",         "Microsoft.Resources/deployments/*",         "Microsoft.Resources/subscriptions/resourceGroups/read",         "Microsoft.Support/*",         "Microsoft.Web/serverFarms/*",         "Microsoft.Web/hostingEnvironments/Join/Action"       ],       "notActions": [],       "dataActions": [],       "notDataActions": []     }   ],   "roleName": "Web Plan Contributor",   "roleType": "BuiltInRole",   "type": "Microsoft.Authorization/roleDefinitions" }</pre>	
---	--

## Website Contributor

Lets you manage websites (not web plans), but not access to them.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization</a> /*/read	Read roles and role assignments
<a href="#">Microsoft.Insights</a> /alertRules/*	Create and manage a classic metric alert
<a href="#">Microsoft.Insights</a> /components/*	Create and manage Insights components
<a href="#">Microsoft.ResourceHealth</a> /availabilityStatuses/read	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources</a> /deployments/*	Create and manage a deployment
<a href="#">Microsoft.Resources</a> /subscriptions/resourceGroups/read	Gets or lists resource groups.
<a href="#">Microsoft.Support</a> /*	Create and update a support ticket
<a href="#">Microsoft.Web</a> /certificates/*	Create and manage website certificates

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Web/listSitesAssignedToHostName/read</a>	Get names of sites assigned to hostname.
<a href="#">Microsoft.Web/serverFarms/join/action</a>	Joins an App Service Plan
<a href="#">Microsoft.Web/serverFarms/read</a>	Get the properties on an App Service Plan
<a href="#">Microsoft.Web/sites/*</a>	Create and manage websites (site creation also requires write permissions to the associated App Service Plan)
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage websites (not web plans), but not access to them.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/de139f84-1756-47ae-9be6-808fbbe84772",
  "name": "de139f84-1756-47ae-9be6-808fbbe84772",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Insights/components/*",
        "Microsoft.ResourceHealth/availabilityStatuses/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*",
        "Microsoft.Web/certificates/*",
        "Microsoft.Web/listSitesAssignedToHostName/read",
        "Microsoft.Web/serverFarms/join/action",
        "Microsoft.Web/serverFarms/read",
        "Microsoft.Web/sites/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Website Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Containers

## AcrDelete

acr delete [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.ContainerRegistry/registries/artifacts/delete</a>	Delete artifact in a container registry.
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "acr delete",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/c2f4ef07-
c644-48eb-af81-4b1b4947fb11",
  "name": "c2f4ef07-c644-48eb-af81-4b1b4947fb11",
  "permissions": [
    {
      "actions": [
        "Microsoft.ContainerRegistry/registries/artifacts/delete"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "AcrDelete",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## AcrImageSigner

acr image signer [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.ContainerRegistry/registries/sign/write</a>	Push/Pull content trust metadata for a container registry.
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	

ACTIONS	DESCRIPTION
<b>NotDataActions</b>	
<i>none</i>	

<pre>{   "assignableScopes": [     "/"   ],   "description": "acr image signer",   "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/6cef56e8-d556-48e5-a04f-b8e64114680f",   "name": "6cef56e8-d556-48e5-a04f-b8e64114680f",   "permissions": [     {       "actions": [         "Microsoft.ContainerRegistry/registries/sign/write"       ],       "notActions": [],       "dataActions": [],       "notDataActions": []     }   ],   "roleName": "AcrImageSigner",   "roleType": "BuiltInRole",   "type": "Microsoft.Authorization/roleDefinitions" }</pre>	
---	--

## AcrPull

acr pull [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.ContainerRegistry/registries/pull/read</a>	Pull or Get images from a container registry.
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "acr pull",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/7f951dda-4ed3-4680-a7ca-43fe172d538d",
  "name": "7f951dda-4ed3-4680-a7ca-43fe172d538d",
  "permissions": [
    {
      "actions": [
        "Microsoft.ContainerRegistry/registries/pull/read"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "AcrPull",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## AcrPush

acr push [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.ContainerRegistry/registries/pull/read</a>	Pull or Get images from a container registry.
<a href="#">Microsoft.ContainerRegistry/registries/push/write</a>	Push or Write images to a container registry.
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "acr push",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/8311e382-0749-4cb8-b61a-304f252e45ec",
  "name": "8311e382-0749-4cb8-b61a-304f252e45ec",
  "permissions": [
    {
      "actions": [
        "Microsoft.ContainerRegistry/registries/pull/read",
        "Microsoft.ContainerRegistry/registries/push/write"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "AcrPush",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## AcrQuarantineReader

acr quarantine data reader

ACTIONS	DESCRIPTION
<a href="#">Microsoft.ContainerRegistry/registries/quarantine/read</a>	Pull or Get quarantined images from container registry
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "acr quarantine data reader",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/cdda3590-29a3-44f6-95f2-9f980659eb04",
  "name": "cdda3590-29a3-44f6-95f2-9f980659eb04",
  "permissions": [
    {
      "actions": [
        "Microsoft.ContainerRegistry/registries/quarantine/read"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "AcrQuarantineReader",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## AcrQuarantineWriter

acr quarantine data writer

ACTIONS	DESCRIPTION
<a href="#">Microsoft.ContainerRegistry/registries/quarantine/read</a>	Pull or Get quarantined images from container registry
<a href="#">Microsoft.ContainerRegistry/registries/quarantine/write</a>	Write/Modify quarantine state of quarantined images
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "acr quarantine data writer",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/c8d4ff99-41c3-41a8-9f60-21dfdad59608",
  "name": "c8d4ff99-41c3-41a8-9f60-21dfdad59608",
  "permissions": [
    {
      "actions": [
        "Microsoft.ContainerRegistry/registries/quarantine/read",
        "Microsoft.ContainerRegistry/registries/quarantine/write"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "AcrQuarantineWriter",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Azure Kubernetes Service Cluster Admin Role

List cluster admin credential action. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.ContainerService/managedClusters/listClusterAdminCredential/action</a>	List the clusterAdmin credential of a managed cluster
<a href="#">Microsoft.ContainerService/managedClusters/accessProfiles/listCredential/action</a>	Get a managed cluster access profile by role name using list credential
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "List cluster admin credential action.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/0ab0b1a8-8aac-4efd-b8c2-3ee1fb270be8",
  "name": "0ab0b1a8-8aac-4efd-b8c2-3ee1fb270be8",
  "permissions": [
    {
      "actions": [
        "Microsoft.ContainerService/managedClusters/listClusterAdminCredential/action",
        "Microsoft.ContainerService/managedClusters/accessProfiles/listCredential/action"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Azure Kubernetes Service Cluster Admin Role",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Azure Kubernetes Service Cluster User Role

List cluster user credential action. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.ContainerService/managedClusters/listClusterUserCredential/action</a>	List the clusterUser credential of a managed cluster
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "List cluster user credential action.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/4abbcc35-e782-43d8-92c5-2d3f1bd2253f",
  "name": "4abbcc35-e782-43d8-92c5-2d3f1bd2253f",
  "permissions": [
    {
      "actions": [
        "Microsoft.ContainerService/managedClusters/listClusterUserCredential/action"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Azure Kubernetes Service Cluster User Role",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Azure Kubernetes Service Contributor Role

Grants access to read and write Azure Kubernetes Service clusters

ACTIONS	DESCRIPTION
<a href="#">Microsoft.ContainerService/managedClusters/read</a>	Get a managed cluster
<a href="#">Microsoft.ContainerService/managedClusters/write</a>	Creates a new managed cluster or updates an existing one
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Grants access to read and write Azure Kubernetes Service clusters",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/ed7f3fbdb-7b88-4dd4-9017-9adb7ce333f8",
  "name": "ed7f3fbdb-7b88-4dd4-9017-9adb7ce333f8",
  "permissions": [
    {
      "actions": [
        "Microsoft.ContainerService/managedClusters/read",
        "Microsoft.ContainerService/managedClusters/write",
        "Microsoft.Resources/deployments/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Azure Kubernetes Service Contributor Role",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Azure Kubernetes Service RBAC Admin

Lets you manage all resources under cluster/namespace, except update or delete resource quotas and namespaces. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.Resources/deployments/write</a>	Creates or updates an deployment.
<a href="#">Microsoft.Resources/subscriptions/operationresults/read</a>	Get the subscription operation results.
<a href="#">Microsoft.Resources/subscriptions/read</a>	Gets the list of subscriptions.
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<a href="#">Microsoft.ContainerService/managedClusters/listClusterUserCredential/action</a>	List the clusterUser credential of a managed cluster
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.ContainerService/managedClusters/*</a>	
<b>NotDataActions</b>	

ACTIONS	DESCRIPTION
<a href="#">Microsoft.ContainerService/managedClusters/resourcequotas/write</a>	Writes resourcequotas
<a href="#">Microsoft.ContainerService/managedClusters/resourcequotas/delete</a>	Deletes resourcequotas
<a href="#">Microsoft.ContainerService/managedClusters/namespaces/write</a>	Writes namespaces
<a href="#">Microsoft.ContainerService/managedClusters/namespaces/delete</a>	Deletes namespaces

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage all resources under cluster/namespace, except update or delete resource quotas and namespaces.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/3498e952-d568-435e-9b2c-8d77e338d7f7",
  "name": "3498e952-d568-435e-9b2c-8d77e338d7f7",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Resources/deployments/write",
        "Microsoft.Resources/subscriptions/operationresults/read",
        "Microsoft.Resources/subscriptions/read",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*",
        "Microsoft.ContainerService/managedClusters/listClusterUserCredential/action"
      ],
      "notActions": [],
      "dataActions": [
        "Microsoft.ContainerService/managedClusters/*"
      ],
      "notDataActions": [
        "Microsoft.ContainerService/managedClusters/resourcequotas/write",
        "Microsoft.ContainerService/managedClusters/resourcequotas/delete",
        "Microsoft.ContainerService/managedClusters/namespaces/write",
        "Microsoft.ContainerService/managedClusters/namespaces/delete"
      ]
    }
  ],
  "roleName": "Azure Kubernetes Service RBAC Admin",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Azure Kubernetes Service RBAC Cluster Admin

Lets you manage all resources in the cluster. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Resources/deployments/write</a>	Creates or updates an deployment.
<a href="#">Microsoft.Resources/subscriptions/operationresults/read</a>	Get the subscription operation results.
<a href="#">Microsoft.Resources/subscriptions/read</a>	Gets the list of subscriptions.
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<a href="#">Microsoft.ContainerService/managedClusters/listClusterUserCredential/action</a>	List the clusterUser credential of a managed cluster
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.ContainerService/managedClusters/*</a>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage all resources in the cluster.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/b1ff04bb-8a4e-4dc4-8eb5-8693973ce19b",
  "name": "b1ff04bb-8a4e-4dc4-8eb5-8693973ce19b",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Resources/deployments/write",
        "Microsoft.Resources/subscriptions/operationresults/read",
        "Microsoft.Resources/subscriptions/read",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*",
        "Microsoft.ContainerService/managedClusters/listClusterUserCredential/action"
      ],
      "notActions": [],
      "dataActions": [
        "Microsoft.ContainerService/managedClusters/*"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Azure Kubernetes Service RBAC Cluster Admin",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Azure Kubernetes Service RBAC Reader

Lets you view all resources in cluster/namespace, except secrets. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.Resources/deployments/write</a>	Creates or updates an deployment.
<a href="#">Microsoft.Resources/subscriptions/operationresults/read</a>	Get the subscription operation results.
<a href="#">Microsoft.Resources/subscriptions/read</a>	Gets the list of subscriptions.
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<a href="#">Microsoft.ContainerService/managedClusters/listClusterUserCredential/action</a>	List the clusterUser credential of a managed cluster
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.ContainerService/managedClusters/*/read</a>	
<b>NotDataActions</b>	
<a href="#">Microsoft.ContainerService/managedClusters/rbac.authorization.k8s.io/*/read</a>	
<a href="#">Microsoft.ContainerService/managedClusters/rbac.authorization.k8s.io/*/write</a>	
<a href="#">Microsoft.ContainerService/managedClusters/secrets/*</a>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you view all resources in cluster/namespace, except secrets.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/7f6c6a51-bcf8-42ba-9220-52d62157d7db",
  "name": "7f6c6a51-bcf8-42ba-9220-52d62157d7db",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Resources/deployments/write",
        "Microsoft.Resources/subscriptions/operationresults/read",
        "Microsoft.Resources/subscriptions/read",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*",
        "Microsoft.ContainerService/managedClusters/listClusterUserCredential/action"
      ],
      "notActions": [],
      "dataActions": [
        "Microsoft.ContainerService/managedClusters/*/read"
      ],
      "notDataActions": [
        "Microsoft.ContainerService/managedClusters/rbac.authorization.k8s.io/*/read",
        "Microsoft.ContainerService/managedClusters/rbac.authorization.k8s.io/*/write",
        "Microsoft.ContainerService/managedClusters/secrets/*"
      ]
    }
  ],
  "roleName": "Azure Kubernetes Service RBAC Reader",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Azure Kubernetes Service RBAC Writer

Lets you update everything in cluster/namespace, except resource quotas, namespaces, pod security policies, certificate signing requests, (cluster)roles and (cluster)role bindings. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization</a> /*/read	Read roles and role assignments
<a href="#">Microsoft.Insights</a> /alertRules/*	Create and manage a classic metric alert
<a href="#">Microsoft.Resources</a> /deployments/write	Creates or updates an deployment.
<a href="#">Microsoft.Resources</a> /subscriptions/operationresults/read	Get the subscription operation results.
<a href="#">Microsoft.Resources</a> /subscriptions/read	Gets the list of subscriptions.
<a href="#">Microsoft.Resources</a> /subscriptions/resourceGroups/read	Gets or lists resource groups.
<a href="#">Microsoft.Support</a> /*	Create and update a support ticket
<a href="#">Microsoft.ContainerService</a> /managedClusters/listClusterUserCredential/action	List the clusterUser credential of a managed cluster

ACTIONS	DESCRIPTION
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.ContainerService</a> /managedClusters/*/read	
<a href="#">Microsoft.ContainerService</a> /managedClusters/*/write	
<b>NotDataActions</b>	
<a href="#">Microsoft.ContainerService</a> /managedClusters/rbac.authorization.k8s.io/*/read	
<a href="#">Microsoft.ContainerService</a> /managedClusters/rbac.authorization.k8s.io/*/write	
<a href="#">Microsoft.ContainerService</a> /managedClusters/namespaces/write	Writes namespaces
<a href="#">Microsoft.ContainerService</a> /managedClusters/resourcequotas/write	Writes resourcequotas
<a href="#">Microsoft.ContainerService</a> /managedClusters/certificates.k8s.io/certificatesigningrequests/write	Writes certificatesigningrequests
<a href="#">Microsoft.ContainerService</a> /managedClusters/policy/podsecuritypolicies/write	Writes podsecuritypolicies

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you update everything in cluster/namespace, except resource quotas, namespaces, pod security policies, certificate signing requests, (cluster)roles and (cluster)role bindings.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/a7ffa36f-339b-4b5c-8bdf-e2c188b2c0eb",
  "name": "a7ffa36f-339b-4b5c-8bdf-e2c188b2c0eb",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Resources/deployments/write",
        "Microsoft.Resources/subscriptions/operationresults/read",
        "Microsoft.Resources/subscriptions/read",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*",
        "Microsoft.ContainerService/managedClusters/listClusterUserCredential/action"
      ],
      "notActions": [],
      "dataActions": [
        "Microsoft.ContainerService/managedClusters/*/read",
        "Microsoft.ContainerService/managedClusters/*/write"
      ],
      "notDataActions": [
        "Microsoft.ContainerService/managedClusters/rbac.authorization.k8s.io/*/read",
        "Microsoft.ContainerService/managedClusters/rbac.authorization.k8s.io/*/write",
        "Microsoft.ContainerService/managedClusters/namespaces/write",
        "Microsoft.ContainerService/managedClusters/resourcequotas/write",
        "Microsoft.ContainerService/managedClusters/certificates.k8s.io/certificatesigningrequests/write",
        "Microsoft.ContainerService/managedClusters/policy/podsecuritypolicies/write"
      ]
    }
  ],
  "roleName": "Azure Kubernetes Service RBAC Writer",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Databases

### Cosmos DB Account Reader Role

Can read Azure Cosmos DB account data. See [DocumentDB Account Contributor](#) for managing Azure Cosmos DB accounts. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.DocumentDB/*/read</a>	Read any collection
<a href="#">Microsoft.DocumentDB/databaseAccounts/readonlykeys/action</a>	Reads the database account readonly keys.
<a href="#">Microsoft.Insights/MetricDefinitions/read</a>	Read metric definitions
<a href="#">Microsoft.Insights/Metrics/read</a>	Read metrics

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Can read Azure Cosmos DB Accounts data",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/fbdf93bf-df7d-467e-a4d2-9458aa1360c8",
  "name": "fbdf93bf-df7d-467e-a4d2-9458aa1360c8",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.DocumentDB/*/read",
        "Microsoft.DocumentDB/databaseAccounts/readonlykeys/action",
        "Microsoft.Insights/MetricDefinitions/read",
        "Microsoft.Insights/Metrics/read",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Cosmos DB Account Reader Role",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Cosmos DB Operator

Lets you manage Azure Cosmos DB accounts, but not access data in them. Prevents access to account keys and connection strings. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.DocumentDb/databaseAccounts/*</a>	
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization</a> /*/read	Read roles and role assignments
<a href="#">Microsoft.ResourceHealth</a> /availabilityStatuses/read	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources</a> /deployments/*	Create and manage a deployment
<a href="#">Microsoft.Resources</a> /subscriptions/resourceGroups/read	Gets or lists resource groups.
<a href="#">Microsoft.Support</a> /*	Create and update a support ticket
<a href="#">Microsoft.Network</a> /virtualNetworks/subnets/joinViaServiceEndpoint/action	Joins resource such as storage account or SQL database to a subnet. Not alertable.
<b>NotActions</b>	
<a href="#">Microsoft.DocumentDB</a> /databaseAccounts/readonlyKeys/*	
<a href="#">Microsoft.DocumentDB</a> /databaseAccounts/regenerateKey/*	
<a href="#">Microsoft.DocumentDB</a> /databaseAccounts/listKeys/*	
<a href="#">Microsoft.DocumentDB</a> /databaseAccounts/listConnectionStrings/*	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage Azure Cosmos DB accounts, but not access data in them. Prevents access to account keys and connection strings.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/230815da-be43-4aae-9cb4-875f7bd000aa",
  "name": "230815da-be43-4aae-9cb4-875f7bd000aa",
  "permissions": [
    {
      "actions": [
        "Microsoft.DocumentDb/databaseAccounts/*",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Authorization/*/read",
        "Microsoft.ResourceHealth/availabilityStatuses/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*",
        "Microsoft.Network/virtualNetworks/subnets/joinViaServiceEndpoint/action"
      ],
      "notActions": [
        "Microsoft.DocumentDB/databaseAccounts/readonlyKeys/*",
        "Microsoft.DocumentDB/databaseAccounts/regenerateKey/*",
        "Microsoft.DocumentDB/databaseAccounts/listKeys/*",
        "Microsoft.DocumentDB/databaseAccounts/listConnectionStrings/*"
      ],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Cosmos DB Operator",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## CosmosBackupOperator

Can submit restore request for a Cosmos DB database or a container for an account [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.DocumentDB/databaseAccounts/backup/action</a>	Submit a request to configure backup
<a href="#">Microsoft.DocumentDB/databaseAccounts/restore/action</a>	Submit a restore request
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Can submit restore request for a Cosmos DB database or a container for an account",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/db7b14f2-5adf-42da-9f96-f2ee17bab5cb",
  "name": "db7b14f2-5adf-42da-9f96-f2ee17bab5cb",
  "permissions": [
    {
      "actions": [
        "Microsoft.DocumentDB/databaseAccounts/backup/action",
        "Microsoft.DocumentDB/databaseAccounts/restore/action"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "CosmosBackupOperator",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## DocumentDB Account Contributor

Can manage Azure Cosmos DB accounts. Azure Cosmos DB is formerly known as DocumentDB. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.DocumentDb/databaseAccounts/*</a>	Create and manage Azure Cosmos DB accounts
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.ResourceHealth/availabilityStatuses/read</a>	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<a href="#">Microsoft.Network/virtualNetworks/subnets/joinViaServiceEndpoint/action</a>	Joins resource such as storage account or SQL database to a subnet. Not alertable.
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	

ACTIONS	DESCRIPTION
<i>none</i>	
<pre>{   "assignableScopes": [     "/"   ],   "description": "Lets you manage DocumentDB accounts, but not access to them.",   "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/5bd9cd88-fe45-4216-938b-f97437e15450",   "name": "5bd9cd88-fe45-4216-938b-f97437e15450",   "permissions": [     {       "actions": [         "Microsoft.Authorization/*/read",         "Microsoft.DocumentDb/databaseAccounts/*",         "Microsoft.Insights/alertRules/*",         "Microsoft.ResourceHealth/availabilityStatuses/read",         "Microsoft.Resources/deployments/*",         "Microsoft.Resources/subscriptions/resourceGroups/read",         "Microsoft.Support/*",         "Microsoft.Network/virtualNetworks/subnets/joinViaServiceEndpoint/action"       ],       "notActions": [],       "dataActions": [],       "notDataActions": []     }   ],   "roleName": "DocumentDB Account Contributor",   "roleType": "BuiltInRole",   "type": "Microsoft.Authorization/roleDefinitions" }</pre>	

## Redis Cache Contributor

Lets you manage Redis caches, but not access to them.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Cache/register/action</a>	Registers the 'Microsoft.Cache' resource provider with a subscription
<a href="#">Microsoft.Cache/redis/*</a>	Create and manage Redis caches
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.ResourceHealth/availabilityStatuses/read</a>	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	

ACTIONS	DESCRIPTION
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage Redis caches, but not access to them.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/e0f68234-74aa-48ed-b826-c38b57376e17",
  "name": "e0f68234-74aa-48ed-b826-c38b57376e17",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Cache/register/action",
        "Microsoft.Cache/redis/*",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.ResourceHealth/availabilityStatuses/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Redis Cache Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## SQL DB Contributor

Lets you manage SQL databases, but not access to them. Also, you can't manage their security-related policies or their parent SQL servers. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization</a> /*/read	Read roles and role assignments
<a href="#">Microsoft.Insights</a> /alertRules/*	Create and manage a classic metric alert
<a href="#">Microsoft.ResourceHealth</a> /availabilityStatuses/read	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources</a> /deployments/*	Create and manage a deployment

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Sql/locations/*/read</a>	
<a href="#">Microsoft.Sql/servers/databases/*</a>	Create and manage SQL databases
<a href="#">Microsoft.Sql/servers/read</a>	Return the list of servers or gets the properties for the specified server.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<a href="#">Microsoft.Insights/metrics/read</a>	Read metrics
<a href="#">Microsoft.Insights/metricDefinitions/read</a>	Read metric definitions
<b>NotActions</b>	
<a href="#">Microsoft.Sql/managedInstances/databases/currentSensitivityLabels/*</a>	
<a href="#">Microsoft.Sql/managedInstances/databases/recommendedSensitivityLabels/*</a>	
<a href="#">Microsoft.Sql/managedInstances/databases/schemas/tables/columns/sensitivityLabels/*</a>	
<a href="#">Microsoft.Sql/managedInstances/databases/securityAlertPolicies/*</a>	
<a href="#">Microsoft.Sql/managedInstances/databases/sensitivityLabels/*</a>	
<a href="#">Microsoft.Sql/managedInstances/databases/vulnerabilityAssessments/*</a>	
<a href="#">Microsoft.Sql/managedInstances/securityAlertPolicies/*</a>	
<a href="#">Microsoft.Sql/managedInstances/vulnerabilityAssessments/*</a>	
<a href="#">Microsoft.Sql/servers/databases/auditingPolicies/*</a>	Edit audit policies
<a href="#">Microsoft.Sql/servers/databases/auditingSettings/*</a>	Edit audit settings
<a href="#">Microsoft.Sql/servers/databases/auditRecords/read</a>	Retrieve the database blob audit records
<a href="#">Microsoft.Sql/servers/databases/connectionPolicies/*</a>	Edit connection policies
<a href="#">Microsoft.Sql/servers/databases/currentSensitivityLabels/*</a>	
<a href="#">Microsoft.Sql/servers/databases/dataMaskingPolicies/*</a>	Edit data masking policies

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Sql/servers/databases/extendedAuditingSettings/*</a>	
<a href="#">Microsoft.Sql/servers/databases/recommendedSensitivityLabels/*</a>	
<a href="#">Microsoft.Sql/servers/databases/schemas/tables/columns/sensitivityLabels/*</a>	
<a href="#">Microsoft.Sql/servers/databases/securityAlertPolicies/*</a>	Edit security alert policies
<a href="#">Microsoft.Sql/servers/databases/securityMetrics/*</a>	Edit security metrics
<a href="#">Microsoft.Sql/servers/databases/sensitivityLabels/*</a>	
<a href="#">Microsoft.Sql/servers/databases/vulnerabilityAssessments/*</a>	
<a href="#">Microsoft.Sql/servers/databases/vulnerabilityAssessmentScans/*</a>	
<a href="#">Microsoft.Sql/servers/databases/vulnerabilityAssessmentSettings/*</a>	
<a href="#">Microsoft.Sql/servers/vulnerabilityAssessments/*</a>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage SQL databases, but not access to them. Also, you can't manage their security-related policies or their parent SQL servers.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/9b7fa17d-e63e-47b0-bb0a-15c516ac86ec",
  "name": "9b7fa17d-e63e-47b0-bb0a-15c516ac86ec",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.ResourceHealth/availabilityStatuses/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Sql/locations/*/read",
        "Microsoft.Sql/servers/databases/*",
        "Microsoft.Sql/servers/read",
        "Microsoft.Support/*",
        "Microsoft.Insights/metrics/read",
        "Microsoft.Insights/metricDefinitions/read"
      ],
      "notActions": [
        "Microsoft.Sql/managedInstances/databases/currentSensitivityLabels/*",
        "Microsoft.Sql/managedInstances/databases/recommendedSensitivityLabels/*",
        "Microsoft.Sql/managedInstances/databases/schemas/tables/columns/sensitivityLabels/*",
        "Microsoft.Sql/managedInstances/databases/securityAlertPolicies/*",
        "Microsoft.Sql/managedInstances/databases/sensitivityLabels/*",
        "Microsoft.Sql/managedInstances/databases/vulnerabilityAssessments/*",
        "Microsoft.Sql/managedInstances/securityAlertPolicies/*",
        "Microsoft.Sql/managedInstances/vulnerabilityAssessments/*",
        "Microsoft.Sql/servers/databases/auditingPolicies/*",
        "Microsoft.Sql/servers/databases/auditingSettings/*",
        "Microsoft.Sql/servers/databases/auditRecords/read",
        "Microsoft.Sql/servers/databases/connectionPolicies/*",
        "Microsoft.Sql/servers/databases/currentSensitivityLabels/*",
        "Microsoft.Sql/servers/databases/dataMaskingPolicies/*",
        "Microsoft.Sql/servers/databases/extendedAuditingSettings/*",
        "Microsoft.Sql/servers/databases/recommendedSensitivityLabels/*",
        "Microsoft.Sql/servers/databases/schemas/tables/columns/sensitivityLabels/*",
        "Microsoft.Sql/servers/databases/securityAlertPolicies/*",
        "Microsoft.Sql/servers/databases/securityMetrics/*",
        "Microsoft.Sql/servers/databases/sensitivityLabels/*",
        "Microsoft.Sql/servers/databases/vulnerabilityAssessments/*",
        "Microsoft.Sql/servers/databases/vulnerabilityAssessmentScans/*",
        "Microsoft.Sql/servers/databases/vulnerabilityAssessmentSettings/*",
        "Microsoft.Sql/servers/vulnerabilityAssessments/*"
      ],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "SQL DB Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## SQL Managed Instance Contributor

Lets you manage SQL Managed Instances and required network configuration, but can't give access to others.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.ResourceHealth/availabilityStatuses/read</a>	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Network/networkSecurityGroups/*</a>	
<a href="#">Microsoft.Network/routeTables/*</a>	
<a href="#">Microsoft.Sql/locations/*/read</a>	
<a href="#">Microsoft.Sql/locations/instanceFailoverGroups/*</a>	
<a href="#">Microsoft.Sql/managedInstances/*</a>	
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<a href="#">Microsoft.Network/virtualNetworks/subnets/*</a>	
<a href="#">Microsoft.Network/virtualNetworks/*</a>	
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.Insights/metrics/read</a>	Read metrics
<a href="#">Microsoft.Insights/metricDefinitions/read</a>	Read metric definitions
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage SQL Managed Instances and required network configuration, but can't give access to others.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/4939a1f6-9ae0-4e48-a1e0-f2cbe897382d",
  "name": "4939a1f6-9ae0-4e48-a1e0-f2cbe897382d",
  "permissions": [
    {
      "actions": [
        "Microsoft.ResourceHealth/availabilityStatuses/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Network/networkSecurityGroups/*",
        "Microsoft.Network/routeTables/*",
        "Microsoft.Sql/locations/*/read",
        "Microsoft.Sql/locations/instanceFailoverGroups/*",
        "Microsoft.Sql/managedInstances/*",
        "Microsoft.Support/*",
        "Microsoft.Network/virtualNetworks/subnets/*",
        "Microsoft.Network/virtualNetworks/*",
        "Microsoft.Authorization/*/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Insights/metrics/read",
        "Microsoft.Insights/metricDefinitions/read"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "SQL Managed Instance Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## SQL Security Manager

Lets you manage the security-related policies of SQL servers and databases, but not access to them. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.Network/virtualNetworks/subnets/joinViaServiceEndpoint/action</a>	Joins resource such as storage account or SQL database to a subnet. Not alertable.
<a href="#">Microsoft.ResourceHealth/availabilityStatuses/read</a>	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Sql/managedInstances/databases/currentSensitivityLabels/*</a>	

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Sql/managedInstances/databases/recommendedSensitivityLabels/*</a>	
<a href="#">Microsoft.Sql/managedInstances/databases/schemas/columns/sensitivityLabels/*</a>	
<a href="#">Microsoft.Sql/managedInstances/databases/securityAlertPolicies/*</a>	
<a href="#">Microsoft.Sql/managedInstances/databases/sensitivityLabels/*</a>	
<a href="#">Microsoft.Sql/managedInstances/databases/vulnerabilityAssessments/*</a>	
<a href="#">Microsoft.Sql/managedInstances/securityAlertPolicies/*</a>	
<a href="#">Microsoft.Sql/managedInstances/databases/transparentDataEncryption/*</a>	
<a href="#">Microsoft.Sql/managedInstances/vulnerabilityAssessments/*</a>	
<a href="#">Microsoft.Sql/servers/auditingPolicies/*</a>	Create and manage SQL server auditing policies
<a href="#">Microsoft.Sql/servers/auditingSettings/*</a>	Create and manage SQL server auditing setting
<a href="#">Microsoft.Sql/servers/extendedAuditingSettings/read</a>	Retrieve details of the extended server blob auditing policy configured on a given server
<a href="#">Microsoft.Sql/servers/databases/auditingPolicies/*</a>	Create and manage SQL server database auditing policies
<a href="#">Microsoft.Sql/servers/databases/auditingSettings/*</a>	Create and manage SQL server database auditing settings
<a href="#">Microsoft.Sql/servers/databases/auditRecords/read</a>	Retrieve the database blob audit records
<a href="#">Microsoft.Sql/servers/databases/connectionPolicies/*</a>	Create and manage SQL server database connection policies
<a href="#">Microsoft.Sql/servers/databases/currentSensitivityLabels/*</a>	
<a href="#">Microsoft.Sql/servers/databases/dataMaskingPolicies/*</a>	Create and manage SQL server database data masking policies
<a href="#">Microsoft.Sql/servers/databases/extendedAuditingSettings/read</a>	Retrieve details of the extended blob auditing policy configured on a given database
<a href="#">Microsoft.Sql/servers/databases/read</a>	Return the list of databases or gets the properties for the specified database.
<a href="#">Microsoft.Sql/servers/databases/recommendedSensitivityLabels/*</a>	

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Sql/servers/databases/schemas/read</a>	Get a database schema.
<a href="#">Microsoft.Sql/servers/databases/schemas/tables/columns/read</a>	Get a database column.
<a href="#">Microsoft.Sql/servers/databases/schemas/tables/columns/sensitivityLabels/*</a>	
<a href="#">Microsoft.Sql/servers/databases/schemas/tables/read</a>	Get a database table.
<a href="#">Microsoft.Sql/servers/databases/securityAlertPolicies/*</a>	Create and manage SQL server database security alert policies
<a href="#">Microsoft.Sql/servers/databases/securityMetrics/*</a>	Create and manage SQL server database security metrics
<a href="#">Microsoft.Sql/servers/databases/sensitivityLabels/*</a>	
<a href="#">Microsoft.Sql/servers/databases/transparentDataEncryption/*</a>	
<a href="#">Microsoft.Sql/servers/databases/vulnerabilityAssessments/*</a>	
<a href="#">Microsoft.Sql/servers/databases/vulnerabilityAssessmentScans/*</a>	
<a href="#">Microsoft.Sql/servers/databases/vulnerabilityAssessmentSettings/*</a>	
<a href="#">Microsoft.Sql/servers/firewallRules/*</a>	
<a href="#">Microsoft.Sql/servers/read</a>	Return the list of servers or gets the properties for the specified server.
<a href="#">Microsoft.Sql/servers/securityAlertPolicies/*</a>	Create and manage SQL server security alert policies
<a href="#">Microsoft.Sql/servers/vulnerabilityAssessments/*</a>	
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{  
    "assignableScopes": [  
        "/"  
    ],  
    "description": "Lets you manage the security-related policies of SQL servers and databases, but not access to them.",  
    "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/056cd41c-7e88-42e1-933e-88ba6a50c9c3",  
    "name": "056cd41c-7e88-42e1-933e-88ba6a50c9c3",  
    "permissions": [  
        {  
            "actions": [  
                "Microsoft.Authorization/*/read",  
                "Microsoft.Insights/alertRules/*",  
                "Microsoft.Network/virtualNetworks/subnets/joinViaServiceEndpoint/action",  
                "Microsoft.ResourceHealth/availabilityStatuses/read",  
                "Microsoft.Resources/deployments/*",  
                "Microsoft.Resources/subscriptions/resourceGroups/read",  
                "Microsoft.Sql/managedInstances/databases/currentSensitivityLabels/*",  
                "Microsoft.Sql/managedInstances/databases/recommendedSensitivityLabels/*",  
                "Microsoft.Sql/managedInstances/databases/schemas/columns/sensitivityLabels/*",  
                "Microsoft.Sql/managedInstances/databases/securityAlertPolicies/*",  
                "Microsoft.Sql/managedInstances/databases/sensitivityLabels/*",  
                "Microsoft.Sql/managedInstances/databases/vulnerabilityAssessments/*",  
                "Microsoft.Sql/managedInstances/securityAlertPolicies/*",  
                "Microsoft.Sql/managedInstances/databases/transparentDataEncryption/*",  
                "Microsoft.Sql/managedInstances/vulnerabilityAssessments/*",  
                "Microsoft.Sql/servers/auditingPolicies/*",  
                "Microsoft.Sql/servers/auditingSettings/*",  
                "Microsoft.Sql/servers/extendedAuditingSettings/read",  
                "Microsoft.Sql/servers/databases/auditingPolicies/*",  
                "Microsoft.Sql/servers/databases/auditingSettings/*",  
                "Microsoft.Sql/servers/databases/auditRecords/read",  
                "Microsoft.Sql/servers/databases/connectionPolicies/*",  
                "Microsoft.Sql/servers/databases/currentSensitivityLabels/*",  
                "Microsoft.Sql/servers/databases/dataMaskingPolicies/*",  
                "Microsoft.Sql/servers/databases/extendedAuditingSettings/read",  
                "Microsoft.Sql/servers/databases/read",  
                "Microsoft.Sql/servers/databases/recommendedSensitivityLabels/*",  
                "Microsoft.Sql/servers/databases/schemas/read",  
                "Microsoft.Sql/servers/databases/schemas/tables/columns/read",  
                "Microsoft.Sql/servers/databases/schemas/tables/columns/sensitivityLabels/*",  
                "Microsoft.Sql/servers/databases/schemas/tables/read",  
                "Microsoft.Sql/servers/databases/securityAlertPolicies/*",  
                "Microsoft.Sql/servers/databases/securityMetrics/*",  
                "Microsoft.Sql/servers/databases/sensitivityLabels/*",  
                "Microsoft.Sql/servers/databases/transparentDataEncryption/*",  
                "Microsoft.Sql/servers/databases/vulnerabilityAssessments/*",  
                "Microsoft.Sql/servers/databases/vulnerabilityAssessmentScans/*",  
                "Microsoft.Sql/servers/databases/vulnerabilityAssessmentSettings/*",  
                "Microsoft.Sql/servers/firewallRules/*",  
                "Microsoft.Sql/servers/read",  
                "Microsoft.Sql/servers/securityAlertPolicies/*",  
                "Microsoft.Sql/servers/vulnerabilityAssessments/*",  
                "Microsoft.Support/*"  
            ],  
            "notActions": [],  
            "dataActions": [],  
            "notDataActions": []  
        }  
    ],  
    "roleName": "SQL Security Manager",  
    "roleType": "BuiltInRole",  
    "type": "Microsoft.Authorization/roleDefinitions"  
}
```

## SQL Server Contributor

Lets you manage SQL servers and databases, but not access to them, and not their security-related policies.

[Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.ResourceHealth/availabilityStatuses/read</a>	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Sql/locations/*/read</a>	
<a href="#">Microsoft.Sql/servers/*</a>	Create and manage SQL servers
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<a href="#">Microsoft.Insights/metrics/read</a>	Read metrics
<a href="#">Microsoft.Insights/metricDefinitions/read</a>	Read metric definitions
<b>NotActions</b>	
<a href="#">Microsoft.Sql/managedInstances/databases/currentSensitivityLabels/*</a>	
<a href="#">Microsoft.Sql/managedInstances/databases/recommendedSensitivityLabels/*</a>	
<a href="#">Microsoft.Sql/managedInstances/databases/schemas/tables/columns/sensitivityLabels/*</a>	
<a href="#">Microsoft.Sql/managedInstances/databases/securityAlertPolicies/*</a>	
<a href="#">Microsoft.Sql/managedInstances/databases/sensitivityLabels/*</a>	
<a href="#">Microsoft.Sql/managedInstances/databases/vulnerabilityAssessments/*</a>	
<a href="#">Microsoft.Sql/managedInstances/securityAlertPolicies/*</a>	
<a href="#">Microsoft.Sql/managedInstances/vulnerabilityAssessments/*</a>	
<a href="#">Microsoft.Sql/servers/auditingPolicies/*</a>	Edit SQL server auditing policies

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Sql/servers/auditingSettings/*</a>	Edit SQL server auditing settings
<a href="#">Microsoft.Sql/servers/databases/auditingPolicies/*</a>	Edit SQL server database auditing policies
<a href="#">Microsoft.Sql/servers/databases/auditingSettings/*</a>	Edit SQL server database auditing settings
<a href="#">Microsoft.Sql/servers/databases/auditRecords/read</a>	Retrieve the database blob audit records
<a href="#">Microsoft.Sql/servers/databases/connectionPolicies/*</a>	Edit SQL server database connection policies
<a href="#">Microsoft.Sql/servers/databases/currentSensitivityLabels/*</a>	
<a href="#">Microsoft.Sql/servers/databases/dataMaskingPolicies/*</a>	Edit SQL server database data masking policies
<a href="#">Microsoft.Sql/servers/databases/extendedAuditingSettings/*</a>	
<a href="#">Microsoft.Sql/servers/databases/recommendedSensitivityLabels/*</a>	
<a href="#">Microsoft.Sql/servers/databases/schemas/tables/columns/sensitivityLabels/*</a>	
<a href="#">Microsoft.Sql/servers/databases/securityAlertPolicies/*</a>	Edit SQL server database security alert policies
<a href="#">Microsoft.Sql/servers/databases/securityMetrics/*</a>	Edit SQL server database security metrics
<a href="#">Microsoft.Sql/servers/databases/sensitivityLabels/*</a>	
<a href="#">Microsoft.Sql/servers/databases/vulnerabilityAssessments/*</a>	
<a href="#">Microsoft.Sql/servers/databases/vulnerabilityAssessmentScans/*</a>	
<a href="#">Microsoft.Sql/servers/databases/vulnerabilityAssessmentSettings/*</a>	
<a href="#">Microsoft.Sql/servers/extendedAuditingSettings/*</a>	
<a href="#">Microsoft.Sql/servers/securityAlertPolicies/*</a>	Edit SQL server security alert policies
<a href="#">Microsoft.Sql/servers/vulnerabilityAssessments/*</a>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage SQL servers and databases, but not access to them, and not their security -related policies.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/6d8ee4ec-f05a-4a1d-8b00-a9b17e38b437",
  "name": "6d8ee4ec-f05a-4a1d-8b00-a9b17e38b437",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.ResourceHealth/availabilityStatuses/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Sql/locations/*/read",
        "Microsoft.Sql/servers/*",
        "Microsoft.Support/*",
        "Microsoft.Insights/metrics/read",
        "Microsoft.Insights/metricDefinitions/read"
      ],
      "notActions": [
        "Microsoft.Sql/managedInstances/databases/currentSensitivityLabels/*",
        "Microsoft.Sql/managedInstances/databases/recommendedSensitivityLabels/*",
        "Microsoft.Sql/managedInstances/databases/schemas/tables/columns/sensitivityLabels/*",
        "Microsoft.Sql/managedInstances/databases/securityAlertPolicies/*",
        "Microsoft.Sql/managedInstances/databases/sensitivityLabels/*",
        "Microsoft.Sql/managedInstances/databases/vulnerabilityAssessments/*",
        "Microsoft.Sql/managedInstances/securityAlertPolicies/*",
        "Microsoft.Sql/managedInstances/vulnerabilityAssessments/*",
        "Microsoft.Sql/servers/auditingPolicies/*",
        "Microsoft.Sql/servers/auditingSettings/*",
        "Microsoft.Sql/servers/databases/auditingPolicies/*",
        "Microsoft.Sql/servers/databases/auditingSettings/*",
        "Microsoft.Sql/servers/databases/auditRecords/read",
        "Microsoft.Sql/servers/databases/connectionPolicies/*",
        "Microsoft.Sql/servers/databases/currentSensitivityLabels/*",
        "Microsoft.Sql/servers/databases/dataMaskingPolicies/*",
        "Microsoft.Sql/servers/databases/extendedAuditingSettings/*",
        "Microsoft.Sql/servers/databases/recommendedSensitivityLabels/*",
        "Microsoft.Sql/servers/databases/schemas/tables/columns/sensitivityLabels/*",
        "Microsoft.Sql/servers/databases/securityAlertPolicies/*",
        "Microsoft.Sql/servers/databases/securityMetrics/*",
        "Microsoft.Sql/servers/databases/sensitivityLabels/*",
        "Microsoft.Sql/servers/databases/vulnerabilityAssessments/*",
        "Microsoft.Sql/servers/databases/vulnerabilityAssessmentScans/*",
        "Microsoft.Sql/servers/databases/vulnerabilityAssessmentSettings/*",
        "Microsoft.Sql/servers/extendedAuditingSettings/*",
        "Microsoft.Sql/servers/securityAlertPolicies/*",
        "Microsoft.Sql/servers/vulnerabilityAssessments/*"
      ],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "SQL Server Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
}
```

## Analytics

Allows for full access to Azure Event Hubs resources. [Learn more](#)

ACTIONS	DESCRIPTION
<code>Microsoft.EventHub/*</code>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<code>Microsoft.EventHub/*</code>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Allows for full access to Azure Event Hubs resources.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/f526a384-
b230-433a-b45c-95f59c4a2dec",
  "name": "f526a384-b230-433a-b45c-95f59c4a2dec",
  "permissions": [
    {
      "actions": [
        "Microsoft.EventHub/*"
      ],
      "notActions": [],
      "dataActions": [
        "Microsoft.EventHub/*"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Azure Event Hubs Data Owner",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Azure Event Hubs Data Receiver

Allows receive access to Azure Event Hubs resources. [Learn more](#)

ACTIONS	DESCRIPTION
<code>Microsoft.EventHub/*/eventhubs/consumergroups/read</code>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<code>Microsoft.EventHub/*/receive/action</code>	

ACTIONS	DESCRIPTION
<b>NotDataActions</b>	
<i>none</i>	

<pre>{   "assignableScopes": [     "/"   ],   "description": "Allows receive access to Azure Event Hubs resources.",   "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/a638d3c7-ab3a-418d-83e6-5f17a39d4fde",   "name": "a638d3c7-ab3a-418d-83e6-5f17a39d4fde",   "permissions": [     {       "actions": [         "Microsoft.EventHub/*/eventhubs/consumergroups/read"       ],       "notActions": [],       "dataActions": [         "Microsoft.EventHub/*/receive/action"       ],       "notDataActions": []     }   ],   "roleName": "Azure Event Hubs Data Receiver",   "roleType": "BuiltInRole",   "type": "Microsoft.Authorization/roleDefinitions" }</pre>	
---	--

## Azure Event Hubs Data Sender

Allows send access to Azure Event Hubs resources. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.EventHub/*/eventhubs/read</a>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.EventHub/*/send/action</a>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Allows send access to Azure Event Hubs resources.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/2b629674-e913-4c01-ae53-ef4638d8f975",
  "name": "2b629674-e913-4c01-ae53-ef4638d8f975",
  "permissions": [
    {
      "actions": [
        "Microsoft.EventHub/*/eventhubs/read"
      ],
      "notActions": [],
      "dataActions": [
        "Microsoft.EventHub/*/send/action"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Azure Event Hubs Data Sender",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Data Factory Contributor

Create and manage data factories, as well as child resources within them. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.DataFactory/dataFactories/*</a>	Create and manage data factories, and child resources within them.
<a href="#">Microsoft.DataFactory/factories/*</a>	Create and manage data factories, and child resources within them.
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.ResourceHealth/availabilityStatuses/read</a>	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<a href="#">Microsoft.EventGrid/eventSubscriptions/write</a>	Create or update an eventSubscription
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	

ACTIONS	DESCRIPTION
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Create and manage data factories, as well as child resources within them.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/673868aa-7521-48a0-acc6-0f60742d39f5",
  "name": "673868aa-7521-48a0-acc6-0f60742d39f5",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.DataFactory/dataFactories/*",
        "Microsoft.DataFactory/factories/*",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.ResourceHealth/availabilityStatuses/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*",
        "Microsoft.EventGrid/eventSubscriptions/write"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Data Factory Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Data Purger

Can purge analytics data [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Insights/components/*/read</a>	
<a href="#">Microsoft.Insights/components/purge/action</a>	Purging data from Application Insights
<a href="#">Microsoft.OperationalInsights/workspaces/*/read</a>	View log analytics data
<a href="#">Microsoft.OperationalInsights/workspaces/purge/action</a>	Delete specified data from workspace
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	

ACTIONS	DESCRIPTION
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Can purge analytics data",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/150f5e0c-0603-4f03-8c7f-cf70034c4e90",
  "name": "150f5e0c-0603-4f03-8c7f-cf70034c4e90",
  "permissions": [
    {
      "actions": [
        "Microsoft.Insights/components/*/read",
        "Microsoft.Insights/components/purge/action",
        "Microsoft.OperationalInsights/workspaces/*/read",
        "Microsoft.OperationalInsights/workspaces/purge/action"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Data Purger",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## HDInsight Cluster Operator

Lets you read and modify HDInsight cluster configurations. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.HDInsight</a> /*/read	
<a href="#">Microsoft.HDInsight/clusters/getGatewaySettings/action</a>	Get gateway settings for HDInsight Cluster
<a href="#">Microsoft.HDInsight/clusters/updateGatewaySettings/actio</a> n	Update gateway settings for HDInsight Cluster
<a href="#">Microsoft.HDInsight/clusters/configurations/*</a>	
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Resources/deployments/operations/read</a>	Gets or lists deployment operations.
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket

ACTIONS	DESCRIPTION
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you read and modify HDInsight cluster configurations.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/61ed4efc-fab3-44fd-b111-e24485cc132a",
  "name": "61ed4efc-fab3-44fd-b111-e24485cc132a",
  "permissions": [
    {
      "actions": [
        "Microsoft.HDInsight/*/read",
        "Microsoft.HDInsight/clusters/getGatewaySettings/action",
        "Microsoft.HDInsight/clusters/updateGatewaySettings/action",
        "Microsoft.HDInsight/clusters/configurations/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Resources/deployments/operations/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Authorization/*/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "HDInsight Cluster Operator",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## HDInsight Domain Services Contributor

Can Read, Create, Modify and Delete Domain Services related operations needed for HDInsight Enterprise Security Package [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.AAD</a> /*/read	
<a href="#">Microsoft.AAD</a> /domainServices/*/read	
<a href="#">Microsoft.AAD</a> /domainServices/oucontainer/*	
<b>NotActions</b>	

ACTIONS	DESCRIPTION
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	
{ "assignableScopes": [ "/" ], "description": "Can Read, Create, Modify and Delete Domain Services related operations needed for HDInsight Enterprise Security Package", "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/8d8d5a11-05d3-4bda-a417-a08778121c7c", "name": "8d8d5a11-05d3-4bda-a417-a08778121c7c", "permissions": [ { "actions": [ "Microsoft.AAD/*/read", "Microsoft.AAD/domainServices/*/read", "Microsoft.AAD/domainServices/oucontainer/*" ], "notActions": [], "dataActions": [], "notDataActions": [] } ], "roleName": "HDInsight Domain Services Contributor", "roleType": "BuiltInRole", "type": "Microsoft.Authorization/roleDefinitions" }	

## Log Analytics Contributor

Log Analytics Contributor can read all monitoring data and edit monitoring settings. Editing monitoring settings includes adding the VM extension to VMs; reading storage account keys to be able to configure collection of logs from Azure Storage; creating and configuring Automation accounts; adding solutions; and configuring Azure diagnostics on all Azure resources. [Learn more](#)

ACTIONS	DESCRIPTION
<code>*/read</code>	Read resources of all types, except secrets.
<code>Microsoft.Automation/automationAccounts/*</code>	
<code>Microsoft.ClassicCompute/virtualMachines/extensions/*</code>	
<code>Microsoft.ClassicStorage/storageAccounts/listKeys/action</code>	Lists the access keys for the storage accounts.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Compute/virtualMachines/extensions/*</a>	
<a href="#">Microsoft.HybridCompute/machines/extensions/write</a>	Installs or Updates an Azure Arc extensions
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.Insights/diagnosticSettings/*</a>	Creates, updates, or reads the diagnostic setting for Analysis Server
<a href="#">Microsoft.OperationalInsights/*</a>	
<a href="#">Microsoft.OperationsManagement/*</a>	
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourcegroups/deployments/*</a>	
<a href="#">Microsoft.Storage/storageAccounts/listKeys/action</a>	Returns the access keys for the specified storage account.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Log Analytics Contributor can read all monitoring data and edit monitoring settings. Editing monitoring settings includes adding the VM extension to VMs; reading storage account keys to be able to configure collection of logs from Azure Storage; creating and configuring Automation accounts; adding solutions; and configuring Azure diagnostics on all Azure resources.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/92aaf0da-9dab-42b6-94a3-d43ce8d16293",
  "name": "92aaf0da-9dab-42b6-94a3-d43ce8d16293",
  "permissions": [
    {
      "actions": [
        "*/read",
        "Microsoft.Automation/automationAccounts/*",
        "Microsoft.ClassicCompute/virtualMachines/extensions/*",
        "Microsoft.ClassicStorage/storageAccounts/listKeys/action",
        "Microsoft.Compute/virtualMachines/extensions/*",
        "Microsoft.HybridCompute/machines/extensions/write",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Insights/diagnosticSettings/*",
        "Microsoft.OperationalInsights/*",
        "Microsoft.OperationsManagement/*",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourcegroups/deployments/*",
        "Microsoft.Storage/storageAccounts/listKeys/action",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Log Analytics Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Log Analytics Reader

Log Analytics Reader can view and search all monitoring data as well as and view monitoring settings, including viewing the configuration of Azure diagnostics on all Azure resources. [Learn more](#)

ACTIONS	DESCRIPTION
*/read	Read resources of all types, except secrets.
<a href="#">Microsoft.OperationalInsights</a> /workspaces/analytics/query/action	Search using new engine.
<a href="#">Microsoft.OperationalInsights</a> /workspaces/search/action	Executes a search query
<a href="#">Microsoft.Support</a> /*	Create and update a support ticket
<b>NotActions</b>	
<a href="#">Microsoft.OperationalInsights</a> /workspaces/sharedKeys/read	Retrieves the shared keys for the workspace. These keys are used to connect Microsoft Operational Insights agents to the workspace.

ACTIONS	DESCRIPTION
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Log Analytics Reader can view and search all monitoring data as well as and view monitoring settings, including viewing the configuration of Azure diagnostics on all Azure resources.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/73c42c96-874c-492b-b04d-ab87d138a893",
  "name": "73c42c96-874c-492b-b04d-ab87d138a893",
  "permissions": [
    {
      "actions": [
        "*/*read",
        "Microsoft.OperationalInsights/workspaces/analytics/query/action",
        "Microsoft.OperationalInsights/workspaces/search/action",
        "Microsoft.Support/*"
      ],
      "notActions": [
        "Microsoft.OperationalInsights/workspaces/sharedKeys/read"
      ],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Log Analytics Reader",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Blockchain

### Blockchain Member Node Access (Preview)

Allows for access to Blockchain Member nodes [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Blockchain/blockchainMembers/transactionNodes/read</a>	Gets or Lists existing Blockchain Member Transaction Node(s).
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.Blockchain/blockchainMembers/transactionNodes/connect/action</a>	Connects to a Blockchain Member Transaction Node.

ACTIONS	DESCRIPTION
<b>NotDataActions</b>	
<i>none</i>	

<pre>{   "assignableScopes": [     "/"   ],   "description": "Allows for access to Blockchain Member nodes",   "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/31a002a1-acaf-453e-8a5b-297c9ca1ea24",   "name": "31a002a1-acaf-453e-8a5b-297c9ca1ea24",   "permissions": [     {       "actions": [         "Microsoft.Blockchain/blockchainMembers/transactionNodes/read"       ],       "notActions": [],       "dataActions": [         "Microsoft.Blockchain/blockchainMembers/transactionNodes/connect/action"       ],       "notDataActions": []     }   ],   "roleName": "Blockchain Member Node Access (Preview)",   "roleType": "BuiltInRole",   "type": "Microsoft.Authorization/roleDefinitions" }</pre>	
---	--

## AI + machine learning

### Cognitive Services Contributor

Lets you create, read, update, delete and manage keys of Cognitive Services. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.CognitiveServices/*</a>	
<a href="#">Microsoft.Features/features/read</a>	Gets the features of a subscription.
<a href="#">Microsoft.Features/providers/features/read</a>	Gets the feature of a subscription in a given resource provider.
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.Insights/diagnosticSettings/*</a>	Creates, updates, or reads the diagnostic setting for Analysis Server
<a href="#">Microsoft.Insights/logDefinitions/read</a>	Read log definitions
<a href="#">Microsoft.Insights/metricdefinitions/read</a>	Read metric definitions

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Insights/metrics/read</a>	Read metrics
<a href="#">Microsoft.ResourceHealth/availabilityStatuses/read</a>	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/deployments/operations/read</a>	Gets or lists deployment operations.
<a href="#">Microsoft.Resources/subscriptions/operationresults/read</a>	Get the subscription operation results.
<a href="#">Microsoft.Resources/subscriptions/read</a>	Gets the list of subscriptions.
<a href="#">Microsoft.Resources/subscriptions/resourcegroups/deployments/*</a>	
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you create, read, update, delete and manage keys of Cognitive Services.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/25fbc0a9-
bd7c-42a3-aa1a-3b75d497ee68",
  "name": "25fbc0a9-bd7c-42a3-aa1a-3b75d497ee68",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.CognitiveServices/*",
        "Microsoft.Features/features/read",
        "Microsoft.Features/providers/features/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Insights/diagnosticSettings/*",
        "Microsoft.Insights/logDefinitions/read",
        "Microsoft.Insights/metricdefinitions/read",
        "Microsoft.Insights/metrics/read",
        "Microsoft.ResourceHealth/availabilityStatuses/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/deployments/operations/read",
        "Microsoft.Resources/subscriptions/operationresults/read",
        "Microsoft.Resources/subscriptions/read",
        "Microsoft.Resources/subscriptions/resourcegroups/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Cognitive Services Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Cognitive Services Data Reader (Preview)

Lets you read Cognitive Services data.

ACTIONS	DESCRIPTION
<i>none</i>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.CognitiveServices</a> /*/read	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you read Cognitive Services data.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/b59867f0-fa02-499b-be73-45a86b5b3e1c",
  "name": "b59867f0-fa02-499b-be73-45a86b5b3e1c",
  "permissions": [
    {
      "actions": [],
      "notActions": [],
      "dataActions": [
        "Microsoft.CognitiveServices/*/read"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Cognitive Services Data Reader (Preview)",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Cognitive Services User

Lets you read and list keys of Cognitive Services. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.CognitiveServices/*/read</a>	
<a href="#">Microsoft.CognitiveServices/accounts/listkeys/action</a>	List Keys
<a href="#">Microsoft.Insights/alertRules/read</a>	Read a classic metric alert
<a href="#">Microsoft.Insights/diagnosticSettings/read</a>	Read a resource diagnostic setting
<a href="#">Microsoft.Insights/logDefinitions/read</a>	Read log definitions
<a href="#">Microsoft.Insights/metricdefinitions/read</a>	Read metric definitions
<a href="#">Microsoft.Insights/metrics/read</a>	Read metrics
<a href="#">Microsoft.ResourceHealth/availabilityStatuses/read</a>	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources/deployments/operations/read</a>	Gets or lists deployment operations.
<a href="#">Microsoft.Resources/subscriptions/operationresults/read</a>	Get the subscription operation results.
<a href="#">Microsoft.Resources/subscriptions/read</a>	Gets the list of subscriptions.
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<a href="#">NotActions</a>	

ACTIONS	DESCRIPTION
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.CognitiveServices/*</a>	
<b>NotDataActions</b>	
<i>none</i>	

<pre>{   "assignableScopes": [     "/"   ],   "description": "Lets you read and list keys of Cognitive Services.",   "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/a97b65f3-24c7-4388-baec-2e87135dc908",   "name": "a97b65f3-24c7-4388-baec-2e87135dc908",   "permissions": [     {       "actions": [         "Microsoft.CognitiveServices/*/read",         "Microsoft.CognitiveServices/accounts/listkeys/action",         "Microsoft.Insights/alertRules/read",         "Microsoft.Insights/diagnosticSettings/read",         "Microsoft.Insights/logDefinitions/read",         "Microsoft.Insights/metricdefinitions/read",         "Microsoft.Insights/metrics/read",         "Microsoft.ResourceHealth/availabilityStatuses/read",         "Microsoft.Resources/deployments/operations/read",         "Microsoft.Resources/subscriptions/operationresults/read",         "Microsoft.Resources/subscriptions/read",         "Microsoft.Resources/subscriptions/resourceGroups/read",         "Microsoft.Support/*"       ],       "notActions": [],       "dataActions": [         "Microsoft.CognitiveServices/*"       ],       "notDataActions": []     }   ],   "roleName": "Cognitive Services User",   "roleType": "BuiltInRole",   "type": "Microsoft.Authorization/roleDefinitions" }</pre>	
--	--

## Mixed reality

### Remote Rendering Administrator

Provides user with conversion, manage session, rendering and diagnostics capabilities for Azure Remote Rendering [Learn more](#)

ACTIONS	DESCRIPTION
<i>none</i>	

ACTIONS	DESCRIPTION
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.MixedReality/RemoteRenderingAccounts/convert</a> <i>/action</i>	Start asset conversion
<a href="#">Microsoft.MixedReality/RemoteRenderingAccounts/convert</a> <i>/read</i>	Get asset conversion properties
<a href="#">Microsoft.MixedReality/RemoteRenderingAccounts/convert</a> <i>/delete</i>	Stop asset conversion
<a href="#">Microsoft.MixedReality/RemoteRenderingAccounts/manage</a> <i>sessions/read</i>	Get session properties
<a href="#">Microsoft.MixedReality/RemoteRenderingAccounts/manage</a> <i>sessions/action</i>	Start sessions
<a href="#">Microsoft.MixedReality/RemoteRenderingAccounts/manage</a> <i>sessions/delete</i>	Stop sessions
<a href="#">Microsoft.MixedReality/RemoteRenderingAccounts/render</a> <i>read</i>	Connect to a session
<a href="#">Microsoft.MixedReality/RemoteRenderingAccounts/diagnos</a> <i>tic/read</i>	Connect to the Remote Rendering inspector
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Provides user with conversion, manage session, rendering and diagnostics capabilities for Azure Remote Rendering",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/3df8b902-2a6f-47c7-8cc5-360e9b272a7e",
  "name": "3df8b902-2a6f-47c7-8cc5-360e9b272a7e",
  "permissions": [
    {
      "actions": [],
      "notActions": [],
      "dataActions": [
        "Microsoft.MixedReality/RemoteRenderingAccounts/convert/action",
        "Microsoft.MixedReality/RemoteRenderingAccounts/convert/read",
        "Microsoft.MixedReality/RemoteRenderingAccounts/convert/delete",
        "Microsoft.MixedReality/RemoteRenderingAccounts/managesessions/read",
        "Microsoft.MixedReality/RemoteRenderingAccounts/managesessions/action",
        "Microsoft.MixedReality/RemoteRenderingAccounts/managesessions/delete",
        "Microsoft.MixedReality/RemoteRenderingAccounts/render/read",
        "Microsoft.MixedReality/RemoteRenderingAccounts/diagnostic/read"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Remote Rendering Administrator",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Remote Rendering Client

Provides user with manage session, rendering and diagnostics capabilities for Azure Remote Rendering.

[Learn more](#)

ACTIONS	DESCRIPTION
<i>none</i>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.MixedReality/RemoteRenderingAccounts/manage sessions/read</a>	Get session properties
<a href="#">Microsoft.MixedReality/RemoteRenderingAccounts/manage sessions/action</a>	Start sessions
<a href="#">Microsoft.MixedReality/RemoteRenderingAccounts/manage sessions/delete</a>	Stop sessions
<a href="#">Microsoft.MixedReality/RemoteRenderingAccounts/render/read</a>	Connect to a session
<a href="#">Microsoft.MixedReality/RemoteRenderingAccounts/diagnostic/read</a>	Connect to the Remote Rendering inspector

ACTIONS	DESCRIPTION
<b>NotDataActions</b>	
<i>none</i>	

<pre>{   "assignableScopes": [     "/"   ],   "description": "Provides user with manage session, rendering and diagnostics capabilities for Azure Remote Rendering.",   "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/d39065c4-c120-43c9-ab0a-63eed9795f0a",   "name": "d39065c4-c120-43c9-ab0a-63eed9795f0a",   "permissions": [     {       "actions": [],       "notActions": [],       "dataActions": [         "Microsoft.MixedReality/RemoteRenderingAccounts/managesessions/read",         "Microsoft.MixedReality/RemoteRenderingAccounts/managesessions/action",         "Microsoft.MixedReality/RemoteRenderingAccounts/managesessions/delete",         "Microsoft.MixedReality/RemoteRenderingAccounts/render/read",         "Microsoft.MixedReality/RemoteRenderingAccounts/diagnostic/read"       ],       "notDataActions": []     }   ],   "roleName": "Remote Rendering Client",   "roleType": "BuiltInRole",   "type": "Microsoft.Authorization/roleDefinitions" }</pre>	
--	--

## Spatial Anchors Account Contributor

Lets you manage spatial anchors in your account, but not delete them [Learn more](#)

ACTIONS	DESCRIPTION
<i>none</i>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.MixedReality/SpatialAnchorsAccounts/create/acti on</a>	Create spatial anchors
<a href="#">Microsoft.MixedReality/SpatialAnchorsAccounts/discovery/r ead</a>	Discover nearby spatial anchors
<a href="#">Microsoft.MixedReality/SpatialAnchorsAccounts/properties/ read</a>	Get properties of spatial anchors
<a href="#">Microsoft.MixedReality/SpatialAnchorsAccounts/query/read</a>	Locate spatial anchors

ACTIONS	DESCRIPTION
<a href="#">Microsoft.MixedReality/SpatialAnchorsAccounts/submitdiag/read</a>	Submit diagnostics data to help improve the quality of the Azure Spatial Anchors service
<a href="#">Microsoft.MixedReality/SpatialAnchorsAccounts/write</a>	Update spatial anchors properties
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage spatial anchors in your account, but not delete them",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/8bbe83f1-e2a6-4df7-8cb4-4e04d4e5c827",
  "name": "8bbe83f1-e2a6-4df7-8cb4-4e04d4e5c827",
  "permissions": [
    {
      "actions": [],
      "notActions": [],
      "dataActions": [
        "Microsoft.MixedReality/SpatialAnchorsAccounts/create/action",
        "Microsoft.MixedReality/SpatialAnchorsAccounts/discovery/read",
        "Microsoft.MixedReality/SpatialAnchorsAccounts/properties/read",
        "Microsoft.MixedReality/SpatialAnchorsAccounts/query/read",
        "Microsoft.MixedReality/SpatialAnchorsAccounts/submitdiag/read",
        "Microsoft.MixedReality/SpatialAnchorsAccounts/write"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Spatial Anchors Account Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Spatial Anchors Account Owner

Lets you manage spatial anchors in your account, including deleting them [Learn more](#)

ACTIONS	DESCRIPTION
<i>none</i>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.MixedReality/SpatialAnchorsAccounts/create/acti on</a>	Create spatial anchors
<a href="#">Microsoft.MixedReality/SpatialAnchorsAccounts/delete</a>	Delete spatial anchors

ACTIONS	DESCRIPTION
<a href="#">Microsoft.MixedReality/SpatialAnchorsAccounts/discovery/read</a>	Discover nearby spatial anchors
<a href="#">Microsoft.MixedReality/SpatialAnchorsAccounts/properties/read</a>	Get properties of spatial anchors
<a href="#">Microsoft.MixedReality/SpatialAnchorsAccounts/query/read</a>	Locate spatial anchors
<a href="#">Microsoft.MixedReality/SpatialAnchorsAccounts/submitdiag/read</a>	Submit diagnostics data to help improve the quality of the Azure Spatial Anchors service
<a href="#">Microsoft.MixedReality/SpatialAnchorsAccounts/write</a>	Update spatial anchors properties
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage spatial anchors in your account, including deleting them",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/70bbe301-9835-447d-afdd-19eb3167307c",
  "name": "70bbe301-9835-447d-afdd-19eb3167307c",
  "permissions": [
    {
      "actions": [],
      "notActions": [],
      "dataActions": [
        "Microsoft.MixedReality/SpatialAnchorsAccounts/create/action",
        "Microsoft.MixedReality/SpatialAnchorsAccounts/delete",
        "Microsoft.MixedReality/SpatialAnchorsAccounts/discovery/read",
        "Microsoft.MixedReality/SpatialAnchorsAccounts/properties/read",
        "Microsoft.MixedReality/SpatialAnchorsAccounts/query/read",
        "Microsoft.MixedReality/SpatialAnchorsAccounts/submitdiag/read",
        "Microsoft.MixedReality/SpatialAnchorsAccounts/write"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Spatial Anchors Account Owner",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Spatial Anchors Account Reader

Lets you locate and read properties of spatial anchors in your account [Learn more](#)

ACTIONS	DESCRIPTION
<i>none</i>	
<b>NotActions</b>	
<i>none</i>	

ACTIONS	DESCRIPTION
<b>DataActions</b>	
<a href="#">Microsoft.MixedReality/SpatialAnchorsAccounts/discovery/read</a>	Discover nearby spatial anchors
<a href="#">Microsoft.MixedReality/SpatialAnchorsAccounts/properties/read</a>	Get properties of spatial anchors
<a href="#">Microsoft.MixedReality/SpatialAnchorsAccounts/query/read</a>	Locate spatial anchors
<a href="#">Microsoft.MixedReality/SpatialAnchorsAccounts/submitdiag/read</a>	Submit diagnostics data to help improve the quality of the Azure Spatial Anchors service
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you locate and read properties of spatial anchors in your account",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/5d51204f-eb77-4b1c-b86a-2ec626c49413",
  "name": "5d51204f-eb77-4b1c-b86a-2ec626c49413",
  "permissions": [
    {
      "actions": [],
      "notActions": [],
      "dataActions": [
        "Microsoft.MixedReality/SpatialAnchorsAccounts/discovery/read",
        "Microsoft.MixedReality/SpatialAnchorsAccounts/properties/read",
        "Microsoft.MixedReality/SpatialAnchorsAccounts/query/read",
        "Microsoft.MixedReality/SpatialAnchorsAccounts/submitdiag/read"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Spatial Anchors Account Reader",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Integration

### API Management Service Contributor

Can manage service and the APIs [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.ApiManagement/service/*</a>	Create and manage API Management service
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert

ACTIONS	DESCRIPTION
<a href="#">Microsoft.ResourceHealth/availabilityStatuses/read</a>	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Can manage service and the APIs",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/312a565d-c81f-4fd8-895a-4e21e48d571c",
  "name": "312a565d-c81f-4fd8-895a-4e21e48d571c",
  "permissions": [
    {
      "actions": [
        "Microsoft.ApiManagement/service/*",
        "Microsoft.Authorization/*/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.ResourceHealth/availabilityStatuses/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "API Management Service Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## API Management Service Operator Role

Can manage service but not the APIs [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.ApiManagement/service/*/read</a>	Read API Management Service instances
<a href="#">Microsoft.ApiManagement/service/backup/action</a>	Backup API Management Service to the specified container in a user provided storage account
<a href="#">Microsoft.ApiManagement/service/delete</a>	Delete API Management Service instance
<a href="#">Microsoft.ApiManagement/service/manageddeployments/action</a>	Change SKU/units, add/remove regional deployments of API Management Service
<a href="#">Microsoft.ApiManagement/service/read</a>	Read metadata for an API Management Service instance
<a href="#">Microsoft.ApiManagement/service/restore/action</a>	Restore API Management Service from the specified container in a user provided storage account
<a href="#">Microsoft.ApiManagement/service/updatecertificate/action</a>	Upload TLS/SSL certificate for an API Management Service
<a href="#">Microsoft.ApiManagement/service/updatehostname/action</a>	Setup, update or remove custom domain names for an API Management Service
<a href="#">Microsoft.ApiManagement/service/write</a>	Create or Update API Management Service instance
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.ResourceHealth/availabilityStatuses/read</a>	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<a href="#">Microsoft.ApiManagement/service/users/keys/read</a>	Get keys associated with user
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Can manage service but not the APIs",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/e022efe7-f5ba-4159-bbe4-b44f577e9b61",
  "name": "e022efe7-f5ba-4159-bbe4-b44f577e9b61",
  "permissions": [
    {
      "actions": [
        "Microsoft.ApiManagement/service/*/read",
        "Microsoft.ApiManagement/service/backup/action",
        "Microsoft.ApiManagement/service/delete",
        "Microsoft.ApiManagement/service/manageddeployments/action",
        "Microsoft.ApiManagement/service/read",
        "Microsoft.ApiManagement/service/restore/action",
        "Microsoft.ApiManagement/service/updatecertificate/action",
        "Microsoft.ApiManagement/service/updatehostname/action",
        "Microsoft.ApiManagement/service/write",
        "Microsoft.Authorization/*/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.ResourceHealth/availabilityStatuses/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*"
      ],
      "notActions": [
        "Microsoft.ApiManagement/service/users/keys/read"
      ],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "API Management Service Operator Role",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## API Management Service Reader Role

Read-only access to service and APIs [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.ApiManagement/service/*/read</a>	Read API Management Service instances
<a href="#">Microsoft.ApiManagement/service/read</a>	Read metadata for an API Management Service instance
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.ResourceHealth/availabilityStatuses/read</a>	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket

ACTIONS	DESCRIPTION
<b>NotActions</b>	
<a href="#">Microsoft.ApiManagement/service/users/keys/read</a>	Get keys associated with user
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Read-only access to service and APIs",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/71522526-b88f-4d52-b57f-d31fc3546d0d",
  "name": "71522526-b88f-4d52-b57f-d31fc3546d0d",
  "permissions": [
    {
      "actions": [
        "Microsoft.ApiManagement/service/*/read",
        "Microsoft.ApiManagement/service/read",
        "Microsoft.Authorization/*/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.ResourceHealth/availabilityStatuses/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*"
      ],
      "notActions": [
        "Microsoft.ApiManagement/service/users/keys/read"
      ],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "API Management Service Reader Role",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## App Configuration Data Owner

Allows full access to App Configuration data. [Learn more](#)

ACTIONS	DESCRIPTION
<i>none</i>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	

ACTIONS	DESCRIPTION
<a href="#">Microsoft.AppConfiguration/configurationStores/*/read</a>	
<a href="#">Microsoft.AppConfiguration/configurationStores/*/write</a>	
<a href="#">Microsoft.AppConfiguration/configurationStores/*/delete</a>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Allows full access to App Configuration data.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/5ae67dd6-50cb-40e7-96ff-dc2bfa4b606b",
  "name": "5ae67dd6-50cb-40e7-96ff-dc2bfa4b606b",
  "permissions": [
    {
      "actions": [],
      "notActions": [],
      "dataActions": [
        "Microsoft.AppConfiguration/configurationStores/*/read",
        "Microsoft.AppConfiguration/configurationStores/*/write",
        "Microsoft.AppConfiguration/configurationStores/*/delete"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "App Configuration Data Owner",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## App Configuration Data Reader

Allows read access to App Configuration data. [Learn more](#)

ACTIONS	DESCRIPTION
<i>none</i>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.AppConfiguration/configurationStores/*/read</a>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Allows read access to App Configuration data.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/516239f1-63e1-4d78-a4de-a74fb236a071",
  "name": "516239f1-63e1-4d78-a4de-a74fb236a071",
  "permissions": [
    {
      "actions": [],
      "notActions": [],
      "dataActions": [
        "Microsoft.AppConfiguration/configurationStores/*/read"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "App Configuration Data Reader",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Azure Service Bus Data Owner

Allows for full access to Azure Service Bus resources. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.ServiceBus/*</a>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.ServiceBus/*</a>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Allows for full access to Azure Service Bus resources.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/090c5cf7-751d-490a-894a-3ce6f1109419",
  "name": "090c5cf7-751d-490a-894a-3ce6f1109419",
  "permissions": [
    {
      "actions": [
        "Microsoft.ServiceBus/*"
      ],
      "notActions": [],
      "dataActions": [
        "Microsoft.ServiceBus/*"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Azure Service Bus Data Owner",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Azure Service Bus Data Receiver

Allows for receive access to Azure Service Bus resources. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.ServiceBus/*/queues/read</a>	
<a href="#">Microsoft.ServiceBus/*/topics/read</a>	
<a href="#">Microsoft.ServiceBus/*/topics/subscriptions/read</a>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.ServiceBus/*/receive/action</a>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Allows for receive access to Azure Service Bus resources.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/4f6d3b9b-027b-4f4c-9142-0e5a2a2247e0",
  "name": "4f6d3b9b-027b-4f4c-9142-0e5a2a2247e0",
  "permissions": [
    {
      "actions": [
        "Microsoft.ServiceBus/*/queues/read",
        "Microsoft.ServiceBus/*/topics/read",
        "Microsoft.ServiceBus/*/topics/subscriptions/read"
      ],
      "notActions": [],
      "dataActions": [
        "Microsoft.ServiceBus/*/receive/action"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Azure Service Bus Data Receiver",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Azure Service Bus Data Sender

Allows for send access to Azure Service Bus resources. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.ServiceBus/*/queues/read</a>	
<a href="#">Microsoft.ServiceBus/*/topics/read</a>	
<a href="#">Microsoft.ServiceBus/*/topics/subscriptions/read</a>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.ServiceBus/*/send/action</a>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Allows for send access to Azure Service Bus resources.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/69a216fc-b8fb-44d8-bc22-1f3c2cd27a39",
  "name": "69a216fc-b8fb-44d8-bc22-1f3c2cd27a39",
  "permissions": [
    {
      "actions": [
        "Microsoft.ServiceBus/*/queues/read",
        "Microsoft.ServiceBus/*/topics/read",
        "Microsoft.ServiceBus/*/topics/subscriptions/read"
      ],
      "notActions": [],
      "dataActions": [
        "Microsoft.ServiceBus/*/send/action"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Azure Service Bus Data Sender",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Azure Stack Registration Owner

Lets you manage Azure Stack registrations.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.AzureStack/edgeSubscriptions/read</a>	Get the properties of an Azure Stack Edge Subscription
<a href="#">Microsoft.AzureStack/registrations/products/*/action</a>	
<a href="#">Microsoft.AzureStack/registrations/products/read</a>	Gets the properties of an Azure Stack Marketplace product
<a href="#">Microsoft.AzureStack/registrations/read</a>	Gets the properties of an Azure Stack registration
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage Azure Stack registrations.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/6f12a6df-dd06-4f3e-bcb1-ce8be600526a",
  "name": "6f12a6df-dd06-4f3e-bcb1-ce8be600526a",
  "permissions": [
    {
      "actions": [
        "Microsoft.AzureStack/edgeSubscriptions/read",
        "Microsoft.AzureStack/registrations/products/*/action",
        "Microsoft.AzureStack/registrations/products/read",
        "Microsoft.AzureStack/registrations/read"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Azure Stack Registration Owner",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## EventGrid EventSubscription Contributor

Lets you manage EventGrid event subscription operations. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.EventGrid/eventSubscriptions/*</a>	
<a href="#">Microsoft.EventGrid/topicTypes/eventSubscriptions/read</a>	List global event subscriptions by topic type
<a href="#">Microsoft.EventGrid/locations/eventSubscriptions/read</a>	List regional event subscriptions
<a href="#">Microsoft.EventGrid/locations/topicTypes/eventSubscriptions/read</a>	List regional event subscriptions by topic type
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	

ACTIONS	DESCRIPTION
<b>NotDataActions</b>	
<i>none</i>	

<pre>{   "assignableScopes": [     "/"   ],   "description": "Lets you manage EventGrid event subscription operations.",   "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/428e0ff0-5e57-4d9c-a221-2c70d0e0a443",   "name": "428e0ff0-5e57-4d9c-a221-2c70d0e0a443",   "permissions": [     {       "actions": [         "Microsoft.Authorization/*/read",         "Microsoft.EventGrid/eventSubscriptions/*",         "Microsoft.EventGrid/topicTypes/eventSubscriptions/read",         "Microsoft.EventGrid/locations/eventSubscriptions/read",         "Microsoft.EventGrid/locations/topicTypes/eventSubscriptions/read",         "Microsoft.Insights/alertRules/*",         "Microsoft.Resources/deployments/*",         "Microsoft.Resources/subscriptions/resourceGroups/read",         "Microsoft.Support/*"       ],       "notActions": [],       "dataActions": [],       "notDataActions": []     }   ],   "roleName": "EventGrid EventSubscription Contributor",   "roleType": "BuiltInRole",   "type": "Microsoft.Authorization/roleDefinitions" }</pre>	
--	--

## EventGrid EventSubscription Reader

Lets you read EventGrid event subscriptions. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.EventGrid/eventSubscriptions/read</a>	Read an eventSubscription
<a href="#">Microsoft.EventGrid/topicTypes/eventSubscriptions/read</a>	List global event subscriptions by topic type
<a href="#">Microsoft.EventGrid/locations/eventSubscriptions/read</a>	List regional event subscriptions
<a href="#">Microsoft.EventGrid/locations/topicTypes/eventSubscriptions/read</a>	List regional event subscriptions by topic type
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<b>NotActions</b>	
<i>none</i>	

ACTIONS	DESCRIPTION
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you read EventGrid event subscriptions.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/2414bbcf-6497-4faf-8c65-045460748405",
  "name": "2414bbcf-6497-4faf-8c65-045460748405",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.EventGrid/eventSubscriptions/read",
        "Microsoft.EventGrid/topicTypes/eventSubscriptions/read",
        "Microsoft.EventGrid/locations/eventSubscriptions/read",
        "Microsoft.EventGrid/locations/topicTypes/eventSubscriptions/read",
        "Microsoft.Resources/subscriptions/resourceGroups/read"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "EventGrid EventSubscription Reader",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## FHIR Data Contributor

Role allows user or principal full access to FHIR Data [Learn more](#)

ACTIONS	DESCRIPTION
<i>none</i>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
Microsoft.HealthcareApis/services/fhir/resources/*	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Role allows user or principal full access to FHIR Data",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/5a1fc7df-4bf1-4951-a576-89034ee01acd",
  "name": "5a1fc7df-4bf1-4951-a576-89034ee01acd",
  "permissions": [
    {
      "actions": [],
      "notActions": [],
      "dataActions": [
        "Microsoft.HealthcareApis/services/fhir/resources/*"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "FHIR Data Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## FHIR Data Exporter

Role allows user or principal to read and export FHIR Data [Learn more](#)

ACTIONS	DESCRIPTION
<i>none</i>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
Microsoft.HealthcareApis/services/fhir/resources/read	Read FHIR resources (includes searching and versioned history).
Microsoft.HealthcareApis/services/fhir/resources/export/act ion	Export operation (\$export).
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Role allows user or principal to read and export FHIR Data",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/3db33094-8700-4567-8da5-1501d4e7e843",
  "name": "3db33094-8700-4567-8da5-1501d4e7e843",
  "permissions": [
    {
      "actions": [],
      "notActions": [],
      "dataActions": [
        "Microsoft.HealthcareApis/services/fhir/resources/read",
        "Microsoft.HealthcareApis/services/fhir/resources/export/action"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "FHIR Data Exporter",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## FHIR Data Reader

Role allows user or principal to read FHIR Data [Learn more](#)

ACTIONS	DESCRIPTION
<i>none</i>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
Microsoft.HealthcareApis/services/fhir/resources/read	Read FHIR resources (includes searching and versioned history).
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Role allows user or principal to read FHIR Data",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/4c8d0bbc-75d3-4935-991f-5f3c56d81508",
  "name": "4c8d0bbc-75d3-4935-991f-5f3c56d81508",
  "permissions": [
    {
      "actions": [],
      "notActions": [],
      "dataActions": [
        "Microsoft.HealthcareApis/services/fhir/resources/read"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "FHIR Data Reader",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## FHIR Data Writer

Role allows user or principal to read and write FHIR Data [Learn more](#)

ACTIONS	DESCRIPTION
<i>none</i>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
Microsoft.HealthcareApis/services/fhir/resources/*	
<b>NotDataActions</b>	
Microsoft.HealthcareApis/services/fhir/resources/hardDelete/action	Hard Delete (including version history).

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Role allows user or principal to read and write FHIR Data",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/3f88fce4-5892-4214-ae73-ba5294559913",
  "name": "3f88fce4-5892-4214-ae73-ba5294559913",
  "permissions": [
    {
      "actions": [],
      "notActions": [],
      "dataActions": [
        "Microsoft.HealthcareApis/services/fhir/resources/*"
      ],
      "notDataActions": [
        "Microsoft.HealthcareApis/services/fhir/resources/hardDelete/action"
      ]
    }
  ],
  "roleName": "FHIR Data Writer",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Integration Service Environment Contributor

Lets you manage integration service environments, but not access to them. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<a href="#">Microsoft.Logic/integrationServiceEnvironments/*</a>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage integration service environments, but not access to them.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/a41e2c5b-
bd99-4a07-88f4-9bf657a760b8",
  "name": "a41e2c5b-bd99-4a07-88f4-9bf657a760b8",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Support/*",
        "Microsoft.Logic/integrationServiceEnvironments/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Integration Service Environment Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Integration Service Environment Developer

Allows developers to create and update workflows, integration accounts and API connections in integration service environments. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization</a> /*/read	Read roles and role assignments
<a href="#">Microsoft.Support</a> /*	Create and update a support ticket
<a href="#">Microsoft.Logic</a> /integrationServiceEnvironments/read	Reads the integration service environment.
<a href="#">Microsoft.Logic</a> /integrationServiceEnvironments/join/action	Joins the Integration Service Environment.
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Allows developers to create and update workflows, integration accounts and API connections in integration service environments.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/c7aa55d3-1abb-444a-a5ca-5e51e485d6ec",
  "name": "c7aa55d3-1abb-444a-a5ca-5e51e485d6ec",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Support/*",
        "Microsoft.Logic/integrationServiceEnvironments/read",
        "Microsoft.Logic/integrationServiceEnvironments/join/action"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Integration Service Environment Developer",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Intelligent Systems Account Contributor

Lets you manage Intelligent Systems accounts, but not access to them.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization</a> /*/read	Read roles and role assignments
<a href="#">Microsoft.Insights</a> /alertRules/*	Create and manage a classic metric alert
<a href="#">Microsoft.IntelligentSystems</a> /accounts/*	Create and manage intelligent systems accounts
<a href="#">Microsoft.ResourceHealth</a> /availabilityStatuses/read	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources</a> /deployments/*	Create and manage a deployment
<a href="#">Microsoft.Resources</a> /subscriptions/resourceGroups/read	Gets or lists resource groups.
<a href="#">Microsoft.Support</a> /*	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	

ACTIONS	DESCRIPTION
<i>none</i>	
<pre>{   "assignableScopes": [     "/"   ],   "description": "Lets you manage Intelligent Systems accounts, but not access to them.",   "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/03a6d094-3444-4b3d-88af-7477090a9e5e",   "name": "03a6d094-3444-4b3d-88af-7477090a9e5e",   "permissions": [     {       "actions": [         "Microsoft.Authorization/*/read",         "Microsoft.Insights/alertRules/*",         "Microsoft.IntelligentSystems/accounts/*",         "Microsoft.ResourceHealth/availabilityStatuses/read",         "Microsoft.Resources/deployments/*",         "Microsoft.Resources/subscriptions/resourceGroups/read",         "Microsoft.Support/*"       ],       "notActions": [],       "dataActions": [],       "notDataActions": []     }   ],   "roleName": "Intelligent Systems Account Contributor",   "roleType": "BuiltInRole",   "type": "Microsoft.Authorization/roleDefinitions" }</pre>	

## Logic App Contributor

Lets you manage logic apps, but not change access to them. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization</a> /*/read	Read roles and role assignments
<a href="#">Microsoft.ClassicStorage</a> /storageAccounts/listKeys/action	Lists the access keys for the storage accounts.
<a href="#">Microsoft.ClassicStorage</a> /storageAccounts/read	Return the storage account with the given account.
<a href="#">Microsoft.Insights</a> /alertRules/*	Create and manage a classic metric alert
<a href="#">Microsoft.Insights</a> /metricAlerts/*	
<a href="#">Microsoft.Insights</a> /diagnosticSettings/*	Creates, updates, or reads the diagnostic setting for Analysis Server
<a href="#">Microsoft.Insights</a> /logdefinitions/*	This permission is necessary for users who need access to Activity Logs via the portal. List log categories in Activity Log.
<a href="#">Microsoft.Insights</a> /metricDefinitions/*	Read metric definitions (list of available metric types for a resource).

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Logic/*</a>	Manages Logic Apps resources.
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/operationresults/read</a>	Get the subscription operation results.
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Storage/storageAccounts/listkeys/action</a>	Returns the access keys for the specified storage account.
<a href="#">Microsoft.Storage/storageAccounts/read</a>	Returns the list of storage accounts or gets the properties for the specified storage account.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<a href="#">Microsoft.Web/connectionGateways/*</a>	Create and manages a Connection Gateway.
<a href="#">Microsoft.Web/connections/*</a>	Create and manages a Connection.
<a href="#">Microsoft.Web/customApis/*</a>	Creates and manages a Custom API.
<a href="#">Microsoft.Web/serverFarms/join/action</a>	Joins an App Service Plan
<a href="#">Microsoft.Web/serverFarms/read</a>	Get the properties on an App Service Plan
<a href="#">Microsoft.Web/sites/functions/listSecrets/action</a>	List Function secrets.
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage logic app, but not access to them.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/87a39d53-fc1b-424a-814c-f7e04687dc9e",
  "name": "87a39d53-fc1b-424a-814c-f7e04687dc9e",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.ClassicStorage/storageAccounts/listKeys/action",
        "Microsoft.ClassicStorage/storageAccounts/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Insights/metricAlerts/*",
        "Microsoft.Insights/diagnosticSettings/*",
        "Microsoft.Insights/logdefinitions/*",
        "Microsoft.Insights/metricDefinitions/*",
        "Microsoft.Logic/*",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/operationresults/read",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Storage/storageAccounts/listkeys/action",
        "Microsoft.Storage/storageAccounts/read",
        "Microsoft.Support/*",
        "Microsoft.Web/connectionGateways/*",
        "Microsoft.Web/connections/*",
        "Microsoft.Web/customApis/*",
        "Microsoft.Web/serverFarms/join/action",
        "Microsoft.Web/serverFarms/read",
        "Microsoft.Web/sites/functions/listSecrets/action"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Logic App Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Logic App Operator

Lets you read, enable, and disable logic apps, but not edit or update them. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Insights/alertRules/*/read</a>	Read Insights alert rules
<a href="#">Microsoft.Insights/metricAlerts/*/read</a>	
<a href="#">Microsoft.Insights/diagnosticSettings/*/read</a>	Gets diagnostic settings for Logic Apps
<a href="#">Microsoft.Insights/metricDefinitions/*/read</a>	Gets the available metrics for Logic Apps.
<a href="#">Microsoft.Logic/*/read</a>	Reads Logic Apps resources.
<a href="#">Microsoft.Logic/workflows/disable/action</a>	Disables the workflow.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Logic/workflows/enable/action</a>	Enables the workflow.
<a href="#">Microsoft.Logic/workflows/validate/action</a>	Validates the workflow.
<a href="#">Microsoft.Resources/deployments/operations/read</a>	Gets or lists deployment operations.
<a href="#">Microsoft.Resources/subscriptions/operationresults/read</a>	Get the subscription operation results.
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<a href="#">Microsoft.Web/connectionGateways/*/read</a>	Read Connection Gateways.
<a href="#">Microsoft.Web/connections/*/read</a>	Read Connections.
<a href="#">Microsoft.Web/customApis/*/read</a>	Read Custom API.
<a href="#">Microsoft.Web/serverFarms/read</a>	Get the properties on an App Service Plan
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you read, enable and disable logic app.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/515c2055-d9d4-4321-b1b9-bd0c9a0f79fe",
  "name": "515c2055-d9d4-4321-b1b9-bd0c9a0f79fe",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Insights/alertRules/*/read",
        "Microsoft.Insights/metricAlerts/*/read",
        "Microsoft.Insights/diagnosticSettings/*/read",
        "Microsoft.Insights/metricDefinitions/*/read",
        "Microsoft.Logic/*/read",
        "Microsoft.Logic/workflows/disable/action",
        "Microsoft.Logic/workflows/enable/action",
        "Microsoft.Logic/workflows/validate/action",
        "Microsoft.Resources/deployments/operations/read",
        "Microsoft.Resources/subscriptions/operationresults/read",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*",
        "Microsoft.Web/connectionGateways/*/read",
        "Microsoft.Web/connections/*/read",
        "Microsoft.Web/customApis/*/read",
        "Microsoft.Web/serverFarms/read"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Logic App Operator",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Identity

### Managed Identity Contributor

Create, Read, Update, and Delete User Assigned Identity [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.ManagedIdentity/userAssignedIdentities/read</a>	Gets an existing user assigned identity
<a href="#">Microsoft.ManagedIdentity/userAssignedIdentities/write</a>	Creates a new user assigned identity or updates the tags associated with an existing user assigned identity
<a href="#">Microsoft.ManagedIdentity/userAssignedIdentities/delete</a>	Deletes an existing user assigned identity
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Create, Read, Update, and Delete User Assigned Identity",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/e40ec5ca-96e0-45a2-b4ff-59039f2c2b59",
  "name": "e40ec5ca-96e0-45a2-b4ff-59039f2c2b59",
  "permissions": [
    {
      "actions": [
        "Microsoft.ManagedIdentity/userAssignedIdentities/read",
        "Microsoft.ManagedIdentity/userAssignedIdentities/write",
        "Microsoft.ManagedIdentity/userAssignedIdentities/delete",
        "Microsoft.Authorization/*/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Managed Identity Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Managed Identity Operator

Read and Assign User Assigned Identity [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.ManagedIdentity/userAssignedIdentities/*/read</a>	
<a href="#">Microsoft.ManagedIdentity/userAssignedIdentities/*/assign/action</a>	

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Read and Assign User Assigned Identity",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/f1a07417-d97a-45cb-824c-7a7467783830",
  "name": "f1a07417-d97a-45cb-824c-7a7467783830",
  "permissions": [
    {
      "actions": [
        "Microsoft.ManagedIdentity/userAssignedIdentities/*/read",
        "Microsoft.ManagedIdentity/userAssignedIdentities/*/assign/action",
        "Microsoft.Authorization/*/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Managed Identity Operator",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Security

### Azure Sentinel Contributor

Azure Sentinel Contributor [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.SecurityInsights/*</a>	
<a href="#">Microsoft.OperationalInsights/workspaces/analytics/query/</a> action	Search using new engine.
<a href="#">Microsoft.OperationalInsights/workspaces/*/read</a>	View log analytics data
<a href="#">Microsoft.OperationalInsights/workspaces/savedSearches/*</a>	
<a href="#">Microsoft.OperationsManagement/solutions/read</a>	Get exiting OMS solution
<a href="#">Microsoft.OperationalInsights/workspaces/query/read</a>	Run queries over the data in the workspace
<a href="#">Microsoft.OperationalInsights/workspaces/query/*/read</a>	
<a href="#">Microsoft.OperationalInsights/workspaces/dataSources/re</a> ad	Get datasources under a workspace.
<a href="#">Microsoft.Insights/workbooks/*</a>	
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Azure Sentinel Contributor",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/ab8e14d6-4a74-4a29-9ba8-549422addade",
  "name": "ab8e14d6-4a74-4a29-9ba8-549422addade",
  "permissions": [
    {
      "actions": [
        "Microsoft.SecurityInsights/*",
        "Microsoft.OperationalInsights/workspaces/analytics/query/action",
        "Microsoft.OperationalInsights/workspaces/*/read",
        "Microsoft.OperationalInsights/workspaces/savedSearches/*",
        "Microsoft.OperationsManagement/solutions/read",
        "Microsoft.OperationalInsights/workspaces/query/read",
        "Microsoft.OperationalInsights/workspaces/query/*/read",
        "Microsoft.OperationalInsights/workspaces/dataSources/read",
        "Microsoft.Insights/workbooks/*",
        "Microsoft.Authorization/*/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Azure Sentinel Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Azure Sentinel Reader

Azure Sentinel Reader [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.SecurityInsights/*/read</a>	
<a href="#">Microsoft.SecurityInsights/dataConnectorsCheckRequirements/action</a>	Check user authorization and license
<a href="#">Microsoft.OperationalInsights/workspaces/analytics/query/action</a>	Search using new engine.
<a href="#">Microsoft.OperationalInsights/workspaces/*/read</a>	View log analytics data
<a href="#">Microsoft.OperationalInsights/workspaces/LinkedServices/read</a>	Get linked services under given workspace.
<a href="#">Microsoft.OperationalInsights/workspaces/savedSearches/read</a>	Gets a saved search query
<a href="#">Microsoft.OperationsManagement/solutions/read</a>	Get exiting OMS solution
<a href="#">Microsoft.OperationalInsights/workspaces/query/read</a>	Run queries over the data in the workspace

ACTIONS	DESCRIPTION
<a href="#">Microsoft.OperationalInsights</a> /workspaces/query/*/read	
<a href="#">Microsoft.OperationalInsights</a> /workspaces/dataSources/read	Get datasources under a workspace.
<a href="#">Microsoft.Insights</a> /workbooks/read	Read a workbook
<a href="#">Microsoft.Authorization</a> /*/read	Read roles and role assignments
<a href="#">Microsoft.Insights</a> /alertRules/*	Create and manage a classic metric alert
<a href="#">Microsoft.Resources</a> /deployments/*	Create and manage a deployment
<a href="#">Microsoft.Resources</a> /subscriptions/resourceGroups/read	Gets or lists resource groups.
<a href="#">Microsoft.Support</a> /*	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Azure Sentinel Reader",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/8d289c81-5878-46d4-8554-54e1e3d8b5cb",
  "name": "8d289c81-5878-46d4-8554-54e1e3d8b5cb",
  "permissions": [
    {
      "actions": [
        "Microsoft.SecurityInsights/*/read",
        "Microsoft.SecurityInsights/dataConnectorsCheckRequirements/action",
        "Microsoft.OperationalInsights/workspaces/analytics/query/action",
        "Microsoft.OperationalInsights/workspaces/*/read",
        "Microsoft.OperationalInsights/workspaces/LinkedServices/read",
        "Microsoft.OperationalInsights/workspaces/savedSearches/read",
        "Microsoft.OperationsManagement/solutions/read",
        "Microsoft.OperationalInsights/workspaces/query/read",
        "Microsoft.OperationalInsights/workspaces/query/*/read",
        "Microsoft.OperationalInsights/workspaces/dataSources/read",
        "Microsoft.Insights/workbooks/read",
        "Microsoft.Authorization/*/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Azure Sentinel Reader",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Azure Sentinel Responder

Azure Sentinel Responder [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.SecurityInsights/*/read</a>	
<a href="#">Microsoft.SecurityInsights/dataConnectorsCheckRequirements/action</a>	Check user authorization and license
<a href="#">Microsoft.SecurityInsights/cases/*</a>	
<a href="#">Microsoft.SecurityInsights/incidents/*</a>	
<a href="#">Microsoft.OperationalInsights/workspaces/analytics/query/action</a>	Search using new engine.
<a href="#">Microsoft.OperationalInsights/workspaces/*/read</a>	View log analytics data
<a href="#">Microsoft.OperationalInsights/workspaces/dataSources/read</a>	Get datasources under a workspace.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.OperationalInsights</a> /workspaces/savedSearches/read	Gets a saved search query
<a href="#">Microsoft.OperationsManagement</a> /solutions/read	Get exiting OMS solution
<a href="#">Microsoft.OperationalInsights</a> /workspaces/query/read	Run queries over the data in the workspace
<a href="#">Microsoft.OperationalInsights</a> /workspaces/query/*/read	
<a href="#">Microsoft.OperationalInsights</a> /workspaces/dataSources/read	Get datasources under a workspace.
<a href="#">Microsoft.Insights</a> /workbooks/read	Read a workbook
<a href="#">Microsoft.Authorization</a> /*/read	Read roles and role assignments
<a href="#">Microsoft.Insights</a> /alertRules/*	Create and manage a classic metric alert
<a href="#">Microsoft.Resources</a> /deployments/*	Create and manage a deployment
<a href="#">Microsoft.Resources</a> /subscriptions/resourceGroups/read	Gets or lists resource groups.
<a href="#">Microsoft.Support</a> /*	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Azure Sentinel Responder",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/3e150937-b8fe-4cfb-8069-0eaf05ecd056",
  "name": "3e150937-b8fe-4cfb-8069-0eaf05ecd056",
  "permissions": [
    {
      "actions": [
        "Microsoft.SecurityInsights/*/read",
        "Microsoft.SecurityInsights/dataConnectorsCheckRequirements/action",
        "Microsoft.SecurityInsights/cases/*",
        "Microsoft.SecurityInsights/incidents/*",
        "Microsoft.OperationalInsights/workspaces/analytics/query/action",
        "Microsoft.OperationalInsights/workspaces/*/read",
        "Microsoft.OperationalInsights/workspaces/dataSources/read",
        "Microsoft.OperationalInsights/workspaces/savedSearches/read",
        "Microsoft.OperationsManagement/solutions/read",
        "Microsoft.OperationalInsights/workspaces/query/read",
        "Microsoft.OperationalInsights/workspaces/query/*/read",
        "Microsoft.OperationalInsights/workspaces/dataSources/read",
        "Microsoft.Insights/workbooks/read",
        "Microsoft.Authorization/*/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Azure Sentinel Responder",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Key Vault Contributor

Lets you manage key vaults, but not access to them. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.KeyVault/*</a>	
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<a href="#">Microsoft.KeyVault/locations/deletedVaults/purge/action</a>	Purge a soft deleted key vault

ACTIONS	DESCRIPTION
<a href="#">Microsoft.KeyVault/hsmPools/*</a>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage key vaults, but not access to them.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/f25e0fa2-a7c8-4377-a976-54943a77a395",
  "name": "f25e0fa2-a7c8-4377-a976-54943a77a395",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.KeyVault/*",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*"
      ],
      "notActions": [
        "Microsoft.KeyVault/locations/deletedVaults/purge/action",
        "Microsoft.KeyVault/hsmPools/*"
      ],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Key Vault Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Security Admin

View and update permissions for Security Center. Same permissions as the Security Reader role and can also update the security policy and dismiss alerts and recommendations. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Authorization/policyAssignments/*</a>	Create and manage policy assignments
<a href="#">Microsoft.Authorization/policyDefinitions/*</a>	Create and manage policy definitions
<a href="#">Microsoft.Authorization/policySetDefinitions/*</a>	Create and manage policy sets
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Management/managementGroups/read</a>	List management groups for the authenticated user.
<a href="#">Microsoft.operationalInsights/workspaces/*/read</a>	View log analytics data
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Security/*</a>	Create and manage security components and policies
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Security Admin Role",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/fb1c8493-542b-48eb-b624-b4c8fea62acd",
  "name": "fb1c8493-542b-48eb-b624-b4c8fea62acd",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Authorization/policyAssignments/*",
        "Microsoft.Authorization/policyDefinitions/*",
        "Microsoft.Authorization/policySetDefinitions/*",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Management/managementGroups/read",
        "Microsoft.operationalInsights/workspaces/*/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Security/*",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Security Admin",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Security Assessment Contributor

Lets you push assessments to Security Center

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Security</a> /assessments/write	Create or update security assessments on your subscription
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you push assessments to Security Center",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/612c2aa1-cb24-443b-ac28-3ab7272de6f5",
  "name": "612c2aa1-cb24-443b-ac28-3ab7272de6f5",
  "permissions": [
    {
      "actions": [
        "Microsoft.Security/assessments/write"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Security Assessment Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Security Manager (Legacy)

This is a legacy role. Please use Security Admin instead.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization</a> /*/read	Read roles and role assignments
<a href="#">Microsoft.ClassicCompute</a> /*/read	Read configuration information classic virtual machines
<a href="#">Microsoft.ClassicCompute</a> /virtualMachines/*/write	Write configuration for classic virtual machines
<a href="#">Microsoft.ClassicNetwork</a> /*/read	Read configuration information about classic network
<a href="#">Microsoft.Insights</a> /alertRules/*	Create and manage a classic metric alert
<a href="#">Microsoft.ResourceHealth</a> /availabilityStatuses/read	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources</a> /deployments/*	Create and manage a deployment
<a href="#">Microsoft.Resources</a> /subscriptions/resourceGroups/read	Gets or lists resource groups.
<a href="#">Microsoft.Security</a> /*	Create and manage security components and policies
<a href="#">Microsoft.Support</a> /*	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	

ACTIONS	DESCRIPTION
<b>NotDataActions</b>	
<i>none</i>	

<pre>{   "assignableScopes": [     "/"   ],   "description": "This is a legacy role. Please use Security Administrator instead",   "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/e3d13bf0-dd5a-482e-ba6b-9b8433878d10",   "name": "e3d13bf0-dd5a-482e-ba6b-9b8433878d10",   "permissions": [     {       "actions": [         "Microsoft.Authorization/*/read",         "Microsoft.ClassicCompute/*/read",         "Microsoft.ClassicCompute/virtualMachines/*/write",         "Microsoft.ClassicNetwork/*/read",         "Microsoft.Insights/alertRules/*",         "Microsoft.ResourceHealth/availabilityStatuses/read",         "Microsoft.Resources/deployments/*",         "Microsoft.Resources/subscriptions/resourceGroups/read",         "Microsoft.Security/*",         "Microsoft.Support/*"       ],       "notActions": [],       "dataActions": [],       "notDataActions": []     }   ],   "roleName": "Security Manager (Legacy)",   "roleType": "BuiltInRole",   "type": "Microsoft.Authorization/roleDefinitions" }</pre>	
---	--

## Security Reader

View permissions for Security Center. Can view recommendations, alerts, a security policy, and security states, but cannot make changes. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization</a> /*/read	Read roles and role assignments
<a href="#">Microsoft.Insights</a> /alertRules/*	Create and manage a classic metric alert
<a href="#">Microsoft.operationalInsights</a> /workspaces/*/read	View log analytics data
<a href="#">Microsoft.Resources</a> /deployments/*	Create and manage a deployment
<a href="#">Microsoft.Resources</a> /subscriptions/resourceGroups/read	Gets or lists resource groups.
<a href="#">Microsoft.Security</a> /*/read	Read security components and policies
<a href="#">Microsoft.Support</a> /*	Create and update a support ticket

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Management/managementGroups/read</a>	List management groups for the authenticated user.
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

<pre>{   "assignableScopes": [     "/"   ],   "description": "Security Reader Role",   "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/39bc4728-0917-49c7-9d2c-d95423bc2eb4",   "name": "39bc4728-0917-49c7-9d2c-d95423bc2eb4",   "permissions": [     {       "actions": [         "Microsoft.Authorization/*/read",         "Microsoft.Insights/alertRules/*",         "Microsoft.operationalInsights/workspaces/*/read",         "Microsoft.Resources/deployments/*",         "Microsoft.Resources/subscriptions/resourceGroups/read",         "Microsoft.Security/*/read",         "Microsoft.Support/*",         "Microsoft.Management/managementGroups/read"       ],       "notActions": [],       "dataActions": [],       "notDataActions": []     }   ],   "roleName": "Security Reader",   "roleType": "BuiltInRole",   "type": "Microsoft.Authorization/roleDefinitions" }</pre>	
---	--

## DevOps

### DevTest Labs User

Lets you connect, start, restart, and shutdown your virtual machines in your Azure DevTest Labs. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Compute/availabilitySets/read</a>	Get the properties of an availability set

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Compute/virtualMachines/*/read</a>	Read the properties of a virtual machine (VM sizes, runtime status, VM extensions, etc.)
<a href="#">Microsoft.Compute/virtualMachines/deallocate/action</a>	Powers off the virtual machine and releases the compute resources
<a href="#">Microsoft.Compute/virtualMachines/read</a>	Get the properties of a virtual machine
<a href="#">Microsoft.Compute/virtualMachines/restart/action</a>	Restarts the virtual machine
<a href="#">Microsoft.Compute/virtualMachines/start/action</a>	Starts the virtual machine
<a href="#">Microsoft.DevTestLab/*/read</a>	Read the properties of a lab
<a href="#">Microsoft.DevTestLab/labs/claimAnyVm/action</a>	Claim a random claimable virtual machine in the lab.
<a href="#">Microsoft.DevTestLab/labs/createEnvironment/action</a>	Create virtual machines in a lab.
<a href="#">Microsoft.DevTestLab/labs/ensureCurrentUserProfile/action</a>	Ensure the current user has a valid profile in the lab.
<a href="#">Microsoft.DevTestLab/labs/formulas/delete</a>	Delete formulas.
<a href="#">Microsoft.DevTestLab/labs/formulas/read</a>	Read formulas.
<a href="#">Microsoft.DevTestLab/labs/formulas/write</a>	Add or modify formulas.
<a href="#">Microsoft.DevTestLab/labs/policySets/evaluatePolicies/actio n</a>	Evaluates lab policy.
<a href="#">Microsoft.DevTestLab/labs/virtualMachines/claim/action</a>	Take ownership of an existing virtual machine
<a href="#">Microsoft.DevTestLab/labs/virtualmachines/listApplicableSc hedules/action</a>	Lists the applicable start/stop schedules, if any.
<a href="#">Microsoft.DevTestLab/labs/virtualMachines/getRdpFileCont ents/action</a>	Gets a string that represents the contents of the RDP file for the virtual machine
<a href="#">Microsoft.Network/loadBalancers/backendAddressPools/join/act ion</a>	Joins a load balancer backend address pool. Not Alertable.
<a href="#">Microsoft.Network/loadBalancers/inboundNatRules/join/ac tion</a>	Joins a load balancer inbound nat rule. Not Alertable.
<a href="#">Microsoft.Network/networkInterfaces/*/read</a>	Read the properties of a network interface (for example, all the load balancers that the network interface is a part of)
<a href="#">Microsoft.Network/networkInterfaces/join/action</a>	Joins a Virtual Machine to a network interface. Not Alertable.
<a href="#">Microsoft.Network/networkInterfaces/read</a>	Gets a network interface definition.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Network</a> /networkInterfaces/write	Creates a network interface or updates an existing network interface.
<a href="#">Microsoft.Network</a> /publicIPAddresses/*/read	Read the properties of a public IP address
<a href="#">Microsoft.Network</a> /publicIPAddresses/join/action	Joins a public ip address. Not Alertable.
<a href="#">Microsoft.Network</a> /publicIPAddresses/read	Gets a public ip address definition.
<a href="#">Microsoft.Network</a> /virtualNetworks/subnets/join/action	Joins a virtual network. Not Alertable.
<a href="#">Microsoft.Resources</a> /deployments/operations/read	Gets or lists deployment operations.
<a href="#">Microsoft.Resources</a> /deployments/read	Gets or lists deployments.
<a href="#">Microsoft.Resources</a> /subscriptions/resourceGroups/read	Gets or lists resource groups.
<a href="#">Microsoft.Storage</a> /storageAccounts/listKeys/action	Returns the access keys for the specified storage account.
<b>NotActions</b>	
<a href="#">Microsoft.Compute</a> /virtualMachines/vmSizes/read	Lists available sizes the virtual machine can be updated to
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you connect, start, restart, and shutdown your virtual machines in your Azure DevTest Labs.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/76283e04-6283-4c54-8f91-bcf1374a3c64",
  "name": "76283e04-6283-4c54-8f91-bcf1374a3c64",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Compute/availabilitySets/read",
        "Microsoft.Compute/virtualMachines/*/read",
        "Microsoft.Compute/virtualMachines/deallocate/action",
        "Microsoft.Compute/virtualMachines/read",
        "Microsoft.Compute/virtualMachines/restart/action",
        "Microsoft.Compute/virtualMachines/start/action",
        "Microsoft.DevTestLab/*/read",
        "Microsoft.DevTestLab/labs/claimAnyVm/action",
        "Microsoft.DevTestLab/labs/createEnvironment/action",
        "Microsoft.DevTestLab/labs/ensureCurrentUserProfile/action",
        "Microsoft.DevTestLab/labs/formulas/delete",
        "Microsoft.DevTestLab/labs/formulas/read",
        "Microsoft.DevTestLab/labs/formulas/write",
        "Microsoft.DevTestLab/labs/policySets/evaluatePolicies/action",
        "Microsoft.DevTestLab/labs/virtualMachines/claim/action",
        "Microsoft.DevTestLab/labs/virtualmachines/listApplicableSchedules/action",
        "Microsoft.DevTestLab/labs/virtualMachines/getRdpFileContents/action",
        "Microsoft.Network/loadBalancers/backendAddressPools/join/action",
        "Microsoft.Network/loadBalancers/inboundNatRules/join/action",
        "Microsoft.Network/networkInterfaces/*/read",
        "Microsoft.Network/networkInterfaces/join/action",
        "Microsoft.Network/networkInterfaces/read",
        "Microsoft.Network/networkInterfaces/write",
        "Microsoft.Network/publicIPAddresses/*/read",
        "Microsoft.Network/publicIPAddresses/join/action",
        "Microsoft.Network/publicIPAddresses/read",
        "Microsoft.Network/virtualNetworks/subnets/join/action",
        "Microsoft.Resources/deployments/operations/read",
        "Microsoft.Resources/deployments/read",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Storage/storageAccounts/listKeys/action"
      ],
      "notActions": [
        "Microsoft.Compute/virtualMachines/vmSizes/read"
      ],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "DevTest Labs User",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Lab Creator

Lets you create new labs under your Azure Lab Accounts. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments

ACTIONS	DESCRIPTION
<a href="#">Microsoft.LabServices/labAccounts/*/read</a>	
<a href="#">Microsoft.LabServices/labAccounts/createLab/action</a>	Create a lab in a lab account.
<a href="#">Microsoft.LabServices/labAccounts/getPricingAndAvailability/action</a>	Get the pricing and availability of combinations of sizes, geographies, and operating systems for the lab account.
<a href="#">Microsoft.LabServices/labAccounts/getRestrictionsAndUsage/action</a>	Get core restrictions and usage for this subscription
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you create new labs under your Azure Lab Accounts.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/b97fb8bc-a8b2-4522-a38b-dd33c7e65ead",
  "name": "b97fb8bc-a8b2-4522-a38b-dd33c7e65ead",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.LabServices/labAccounts/*/read",
        "Microsoft.LabServices/labAccounts/createLab/action",
        "Microsoft.LabServices/labAccounts/getPricingAndAvailability/action",
        "Microsoft.LabServices/labAccounts/getRestrictionsAndUsage/action",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Lab Creator",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

# Monitor

## Application Insights Component Contributor

Can manage Application Insights components [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage classic alert rules
<a href="#">Microsoft.Insights/metricAlerts/*</a>	Create and manage new alert rules
<a href="#">Microsoft.Insights/components/*</a>	Create and manage Insights components
<a href="#">Microsoft.Insights/webtests/*</a>	Create and manage Insights web tests
<a href="#">Microsoft.ResourceHealth/availabilityStatuses/read</a>	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Can manage Application Insights components",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/ae349356-3a1b-4a5e-921d-050484c6347e",
  "name": "ae349356-3a1b-4a5e-921d-050484c6347e",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Insights/metricAlerts/*",
        "Microsoft.Insights/components/*",
        "Microsoft.Insights/webtests/*",
        "Microsoft.ResourceHealth/availabilityStatuses/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Application Insights Component Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Application Insights Snapshot Debugger

Gives user permission to view and download debug snapshots collected with the Application Insights Snapshot Debugger. Note that these permissions are not included in the [Owner](#) or [Contributor](#) roles. When giving users the Application Insights Snapshot Debugger role, you must grant the role directly to the user. The role is not recognized when it is added to a custom role. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization</a> /*/read	Read roles and role assignments
<a href="#">Microsoft.Insights</a> /alertRules/*	Create and manage a classic metric alert
<a href="#">Microsoft.Insights</a> /components/*/read	
<a href="#">Microsoft.Resources</a> /deployments/*	Create and manage a deployment
<a href="#">Microsoft.Resources</a> /subscriptions/resourceGroups/read	Gets or lists resource groups.
<a href="#">Microsoft.Support</a> /*	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	

ACTIONS	DESCRIPTION
<b>NotDataActions</b>	
<i>none</i>	

<pre>{   "assignableScopes": [     "/"   ],   "description": "Gives user permission to use Application Insights Snapshot Debugger features",   "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/08954f03-6346-4c2e-81c0-ec3a5cfcae23b",   "name": "08954f03-6346-4c2e-81c0-ec3a5cfcae23b",   "permissions": [     {       "actions": [         "Microsoft.Authorization/*/read",         "Microsoft.Insights/alertRules/*",         "Microsoft.Insights/components/*/read",         "Microsoft.Resources/deployments/*",         "Microsoft.Resources/subscriptions/resourceGroups/read",         "Microsoft.Support/*"       ],       "notActions": [],       "dataActions": [],       "notDataActions": []     }   ],   "roleName": "Application Insights Snapshot Debugger",   "roleType": "BuiltInRole",   "type": "Microsoft.Authorization/roleDefinitions" }</pre>	
--	--

## Monitoring Contributor

Can read all monitoring data and edit monitoring settings. See also [Get started with roles, permissions, and security with Azure Monitor](#). [Learn more](#)

ACTIONS	DESCRIPTION
<code>*/read</code>	Read resources of all types, except secrets.
<code>Microsoft.AlertsManagement/alerts/*</code>	
<code>Microsoft.AlertsManagement/alertsSummary/*</code>	
<code>Microsoft.Insights/actiongroups/*</code>	
<code>Microsoft.Insights/activityLogAlerts/*</code>	
<code>Microsoft.Insights/AlertRules/*</code>	Create and manage a classic metric alert
<code>Microsoft.Insights/components/*</code>	Create and manage Insights components
<code>Microsoft.Insights/DiagnosticSettings/*</code>	Creates, updates, or reads the diagnostic setting for Analysis Server

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Insights/eventtypes/*</a>	List Activity Log events (management events) in a subscription. This permission is applicable to both programmatic and portal access to the Activity Log.
<a href="#">Microsoft.Insights/LogDefinitions/*</a>	This permission is necessary for users who need access to Activity Logs via the portal. List log categories in Activity Log.
<a href="#">Microsoft.Insights/metricalarerts/*</a>	
<a href="#">Microsoft.Insights/MetricDefinitions/*</a>	Read metric definitions (list of available metric types for a resource).
<a href="#">Microsoft.Insights/Metrics/*</a>	Read metrics for a resource.
<a href="#">Microsoft.Insights/Register/Action</a>	Register the Microsoft Insights provider
<a href="#">Microsoft.Insights/scheduledqueryrules/*</a>	
<a href="#">Microsoft.Insights/webtests/*</a>	Create and manage Insights web tests
<a href="#">Microsoft.Insights/workbooks/*</a>	
<a href="#">Microsoft.Insights/privateLinkScopes/*</a>	
<a href="#">Microsoft.Insights/privateLinkScopeOperationStatuses/*</a>	
<a href="#">Microsoft.OperationalInsights/workspaces/write</a>	Creates a new workspace or links to an existing workspace by providing the customer id from the existing workspace.
<a href="#">Microsoft.OperationalInsights/workspaces/intelligencepacks/*</a>	Read/write/delete log analytics solution packs.
<a href="#">Microsoft.OperationalInsights/workspaces/savedSearches/*</a>	Read/write/delete log analytics saved searches.
<a href="#">Microsoft.OperationalInsights/workspaces/search/action</a>	Executes a search query
<a href="#">Microsoft.OperationalInsights/workspaces/sharedKeys/acti on</a>	Retrieves the shared keys for the workspace. These keys are used to connect Microsoft Operational Insights agents to the workspace.
<a href="#">Microsoft.OperationalInsights/workspaces/storageinsightconfigs/*</a>	Read/write/delete log analytics storage insight configurations.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<a href="#">Microsoft.WorkloadMonitor/monitors/*</a>	
<a href="#">Microsoft.WorkloadMonitor/notificationSettings/*</a>	
<a href="#">Microsoft.AlertsManagement/smartDetectorAlertRules/*</a>	

ACTIONS	DESCRIPTION
<a href="#">Microsoft/alertsManagement</a> /actionRules/*	
<a href="#">Microsoft/alertsManagement</a> /smartGroups/*	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Can read all monitoring data and update monitoring settings.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/749f88d5-cbae-40b8-bcfc-e573ddc772fa",
  "name": "749f88d5-cbae-40b8-bcfc-e573ddc772fa",
  "permissions": [
    {
      "actions": [
        "*/*",
        "Microsoft.AlertsManagement/alerts/*",
        "Microsoft.AlertsManagement/alertsSummary/*",
        "Microsoft.Insights/actiongroups/*",
        "Microsoft.Insights/activityLogAlerts/*",
        "Microsoft.Insights/AlertRules/*",
        "Microsoft.Insights/components/*",
        "Microsoft.Insights/DiagnosticSettings/*",
        "Microsoft.Insights/eventtypes/*",
        "Microsoft.Insights/LogDefinitions/*",
        "Microsoft.Insights/metricalarms/*",
        "Microsoft.Insights/MetricDefinitions/*",
        "Microsoft.Insights/Metrics/*",
        "Microsoft.Insights/Register/Action",
        "Microsoft.Insights/scheduledqueryrules/*",
        "Microsoft.Insights/webtests/*",
        "Microsoft.Insights/workbooks/*",
        "Microsoft.Insights/privateLinkScopes/*",
        "Microsoft.Insights/privateLinkScopeOperationStatuses/*",
        "Microsoft.OperationalInsights/workspaces/write",
        "Microsoft.OperationalInsights/workspaces/intelligencepacks/*",
        "Microsoft.OperationalInsights/workspaces/savedSearches/*",
        "Microsoft.OperationalInsights/workspaces/search/action",
        "Microsoft.OperationalInsights/workspaces/sharedKeys/action",
        "Microsoft.OperationalInsights/workspaces/storageinsightconfigs/*",
        "Microsoft.Support/*",
        "Microsoft.WorkloadMonitor/monitors/*",
        "Microsoft.WorkloadMonitor/notificationSettings/*",
        "Microsoft.AlertsManagement/smartDetectorAlertRules/*",
        "Microsoft.AlertsManagement/actionRules/*",
        "Microsoft.AlertsManagement/smartGroups/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Monitoring Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
}
```

## Monitoring Metrics Publisher

Enables publishing metrics against Azure resources [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Insights/Register/Action</a>	Register the Microsoft Insights provider
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.

ACTIONS	DESCRIPTION
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.Insights</a> /Metrics/Write	Write metrics
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Enables publishing metrics against Azure resources",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/3913510d-42f4-4e42-8a64-420c390055eb",
  "name": "3913510d-42f4-4e42-8a64-420c390055eb",
  "permissions": [
    {
      "actions": [
        "Microsoft.Insights/Register/Action",
        "Microsoft.Support/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read"
      ],
      "notActions": [],
      "dataActions": [
        "Microsoft.Insights/Metrics/Write"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Monitoring Metrics Publisher",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Monitoring Reader

Can read all monitoring data (metrics, logs, etc.). See also [Get started with roles, permissions, and security with Azure Monitor](#). [Learn more](#)

ACTIONS	DESCRIPTION
<i>*/read</i>	Read resources of all types, except secrets.
<a href="#">Microsoft.OperationalInsights</a> /workspaces/search/action	Executes a search query
<a href="#">Microsoft.Support</a> /*	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	

ACTIONS	DESCRIPTION
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Can read all monitoring data.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/43d0d8ad-25c7-4714-9337-8ba259a9fe05",
  "name": "43d0d8ad-25c7-4714-9337-8ba259a9fe05",
  "permissions": [
    {
      "actions": [
        "*/*",
        "Microsoft.OperationalInsights/workspaces/search/action",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Monitoring Reader",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Workbook Contributor

Can save shared workbooks. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Insights</a> /workbooks/write	Create or update a workbook
<a href="#">Microsoft.Insights</a> /workbooks/delete	Delete a workbook
<a href="#">Microsoft.Insights</a> /workbooks/read	Read a workbook
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	

ACTIONS	DESCRIPTION
<i>none</i>	
<pre>{   "assignableScopes": [     "/"   ],   "description": "Can save shared workbooks.",   "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/e8ddcd69-c73f-4f9f-9844-4100522f16ad",   "name": "e8ddcd69-c73f-4f9f-9844-4100522f16ad",   "permissions": [     {       "actions": [         "Microsoft.Insights/workbooks/write",         "Microsoft.Insights/workbooks/delete",         "Microsoft.Insights/workbooks/read"       ],       "notActions": [],       "dataActions": [],       "notDataActions": []     }   ],   "roleName": "Workbook Contributor",   "roleType": "BuiltInRole",   "type": "Microsoft.Authorization/roleDefinitions" }</pre>	

## Workbook Reader

Can read workbooks. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">microsoft.insights</a> /workbooks/read	Read a workbook
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Can read workbooks.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/b279062a-9be3-42a0-92ae-8b3cf002ec4d",
  "name": "b279062a-9be3-42a0-92ae-8b3cf002ec4d",
  "permissions": [
    {
      "actions": [
        "microsoft.insights/workbooks/read"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Workbook Reader",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Management + governance

### Automation Job Operator

Create and Manage Jobs using Automation Runbooks. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Automation/automationAccounts/hybridRunbookWorkerGroups/read</a>	Reads Hybrid Runbook Worker Resources
<a href="#">Microsoft.Automation/automationAccounts/jobs/read</a>	Gets an Azure Automation job
<a href="#">Microsoft.Automation/automationAccounts/jobs/resume/action</a>	Resumes an Azure Automation job
<a href="#">Microsoft.Automation/automationAccounts/jobs/stop/action</a>	Stops an Azure Automation job
<a href="#">Microsoft.Automation/automationAccounts/jobsstreams/read</a>	Gets an Azure Automation job stream
<a href="#">Microsoft.Automation/automationAccounts/jobs/suspend/action</a>	Suspends an Azure Automation job
<a href="#">Microsoft.Automation/automationAccounts/jobs/write</a>	Creates an Azure Automation job
<a href="#">Microsoft.Automation/automationAccounts/jobs/output/read</a>	Gets the output of a job
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Create and Manage Jobs using Automation Runbooks.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/4fe576fe-1146-4730-92eb-48519fa6bf9f",
  "name": "4fe576fe-1146-4730-92eb-48519fa6bf9f",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Automation/automationAccounts/hybridRunbookWorkerGroups/read",
        "Microsoft.Automation/automationAccounts/jobs/read",
        "Microsoft.Automation/automationAccounts/jobs/resume/action",
        "Microsoft.Automation/automationAccounts/jobs/stop/action",
        "Microsoft.Automation/automationAccounts/jobs/streams/read",
        "Microsoft.Automation/automationAccounts/jobs/suspend/action",
        "Microsoft.Automation/automationAccounts/jobs/write",
        "Microsoft.Automation/automationAccounts/jobs/output/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Automation Job Operator",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Automation Operator

Automation Operators are able to start, stop, suspend, and resume jobs [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Automation/automationAccounts/hybridRunbookWorkerGroups/read</a>	Reads Hybrid Runbook Worker Resources
<a href="#">Microsoft.Automation/automationAccounts/jobs/read</a>	Gets an Azure Automation job
<a href="#">Microsoft.Automation/automationAccounts/jobs/resume/action</a>	Resumes an Azure Automation job
<a href="#">Microsoft.Automation/automationAccounts/jobs/stop/action</a>	Stops an Azure Automation job
<a href="#">Microsoft.Automation/automationAccounts/jobsstreams/read</a>	Gets an Azure Automation job stream
<a href="#">Microsoft.Automation/automationAccounts/jobs/suspend/action</a>	Suspends an Azure Automation job
<a href="#">Microsoft.Automation/automationAccounts/jobs/write</a>	Creates an Azure Automation job
<a href="#">Microsoft.Automation/automationAccounts/jobSchedules/read</a>	Gets an Azure Automation job schedule
<a href="#">Microsoft.Automation/automationAccounts/jobSchedules/write</a>	Creates an Azure Automation job schedule
<a href="#">Microsoft.Automation/automationAccounts/linkedWorkspace/read</a>	Gets the workspace linked to the automation account
<a href="#">Microsoft.Automation/automationAccounts/read</a>	Gets an Azure Automation account
<a href="#">Microsoft.Automation/automationAccounts/runbooks/read</a>	Gets an Azure Automation runbook
<a href="#">Microsoft.Automation/automationAccounts/schedules/read</a>	Gets an Azure Automation schedule asset
<a href="#">Microsoft.Automation/automationAccounts/schedules/write</a>	Creates or updates an Azure Automation schedule asset
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.ResourceHealth/availabilityStatuses/read</a>	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Automation/automationAccounts/jobs/output/read</a>	Gets the output of a job
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/",
  ],
  "description": "Automation Operators are able to start, stop, suspend, and resume jobs",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/d3881f73-407a-4167-8283-e981cbba0404",
  "name": "d3881f73-407a-4167-8283-e981cbba0404",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Automation/automationAccounts/hybridRunbookWorkerGroups/read",
        "Microsoft.Automation/automationAccounts/jobs/read",
        "Microsoft.Automation/automationAccounts/jobs/resume/action",
        "Microsoft.Automation/automationAccounts/jobs/stop/action",
        "Microsoft.Automation/automationAccounts/jobs/streams/read",
        "Microsoft.Automation/automationAccounts/jobs/suspend/action",
        "Microsoft.Automation/automationAccounts/jobs/write",
        "Microsoft.Automation/automationAccounts/jobSchedules/read",
        "Microsoft.Automation/automationAccounts/jobSchedules/write",
        "Microsoft.Automation/automationAccounts/linkedWorkspace/read",
        "Microsoft.Automation/automationAccounts/read",
        "Microsoft.Automation/automationAccounts/runbooks/read",
        "Microsoft.Automation/automationAccounts/schedules/read",
        "Microsoft.Automation/automationAccounts/schedules/write",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.ResourceHealth/availabilityStatuses/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Automation/automationAccounts/jobs/output/read",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Automation Operator",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Automation Runbook Operator

Read Runbook properties - to be able to create Jobs of the runbook. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Automation/automationAccounts/runbooks/read</a>	Gets an Azure Automation runbook
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Read Runbook properties - to be able to create Jobs of the runbook.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/5fb5aef8-1081-4b8e-bb16-9d5d0385bab5",
  "name": "5fb5aef8-1081-4b8e-bb16-9d5d0385bab5",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Automation/automationAccounts/runbooks/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Automation Runbook Operator",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Azure Connected Machine Onboarding

Can onboard Azure Connected Machines. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.HybridCompute/machines/read</a>	Read any Azure Arc machines
<a href="#">Microsoft.HybridCompute/machines/write</a>	Writes an Azure Arc machines
<a href="#">Microsoft.GuestConfiguration/guestConfigurationAssignments/read</a>	Get guest configuration assignment.
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Can onboard Azure Connected Machines.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/b64e21ea-ac4e-4cdf-9dc9-5b892992bee7",
  "name": "b64e21ea-ac4e-4cdf-9dc9-5b892992bee7",
  "permissions": [
    {
      "actions": [
        "Microsoft.HybridCompute/machines/read",
        "Microsoft.HybridCompute/machines/write",
        "Microsoft.GuestConfiguration/guestConfigurationAssignments/read"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Azure Connected Machine Onboarding",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Azure Connected Machine Resource Administrator

Can read, write, delete and re-onboard Azure Connected Machines.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.HybridCompute/machines/read</a>	Read any Azure Arc machines
<a href="#">Microsoft.HybridCompute/machines/write</a>	Writes an Azure Arc machines
<a href="#">Microsoft.HybridCompute/machines/delete</a>	Deletes an Azure Arc machines

ACTIONS	DESCRIPTION
<a href="#">Microsoft.HybridCompute/machines/reconnect/action</a>	Reconnects an Azure Arc machines
<a href="#">Microsoft.HybridCompute/machines/extensions/write</a>	Installs or Updates an Azure Arc extensions
<a href="#">Microsoft.HybridCompute/*/read</a>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Can read, write, delete and re-onboard Azure Connected Machines.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/cd570a14-e51a-42ad-bac8-baf67325302",
  "name": "cd570a14-e51a-42ad-bac8-baf67325302",
  "permissions": [
    {
      "actions": [
        "Microsoft.HybridCompute/machines/read",
        "Microsoft.HybridCompute/machines/write",
        "Microsoft.HybridCompute/machines/delete",
        "Microsoft.HybridCompute/machines/reconnect/action",
        "Microsoft.HybridCompute/machines/extensions/write",
        "Microsoft.HybridCompute/*/read"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Azure Connected Machine Resource Administrator",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Billing Reader

Allows read access to billing data [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Billing/*/read</a>	Read Billing information

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Commerce/*/read</a>	
<a href="#">Microsoft.Consumption/*/read</a>	
<a href="#">Microsoft.Management/managementGroups/read</a>	List management groups for the authenticated user.
<a href="#">Microsoft.CostManagement/*/read</a>	
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Allows read access to billing data",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/fa23ad8b-c56e-40d8-ac0c-ce449e1d2c64",
  "name": "fa23ad8b-c56e-40d8-ac0c-ce449e1d2c64",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Billing/*/read",
        "Microsoft.Commerce/*/read",
        "Microsoft.Consumption/*/read",
        "Microsoft.Management/managementGroups/read",
        "Microsoft.CostManagement/*/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Billing Reader",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Blueprint Contributor

Can manage blueprint definitions, but not assign them. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Blueprint/blueprints/*</a>	Create and manage blueprint definitions or blueprint artifacts.
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Can manage blueprint definitions, but not assign them.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/41077137-e803-4205-871c-5a86e6a753b4",
  "name": "41077137-e803-4205-871c-5a86e6a753b4",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Blueprint/blueprints/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Blueprint Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Blueprint Operator

Can assign existing published blueprints, but cannot create new blueprints. Note that this only works if the assignment is done with a user-assigned managed identity. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Blueprint/blueprintAssignments/*</a>	Create and manage blueprint assignments.
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Can assign existing published blueprints, but cannot create new blueprints. NOTE: this only works if the assignment is done with a user-assigned managed identity.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/437d2ced-4a38-4302-8479-ed2bcb43d090",
  "name": "437d2ced-4a38-4302-8479-ed2bcb43d090",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Blueprint/blueprintAssignments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Blueprint Operator",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Cost Management Contributor

Can view costs and manage cost configuration (e.g. budgets, exports) [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Consumption/*</a>	
<a href="#">Microsoft.CostManagement/*</a>	
<a href="#">Microsoft.Billing/billingPeriods/read</a>	
<a href="#">Microsoft.Resources/subscriptions/read</a>	Gets the list of subscriptions.
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<a href="#">Microsoft.Advisor/configurations/read</a>	Get configurations
<a href="#">Microsoft.Advisor/recommendations/read</a>	Reads recommendations
<a href="#">Microsoft.Management/managementGroups/read</a>	List management groups for the authenticated user.
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Can view costs and manage cost configuration (e.g. budgets, exports)",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/434105ed-43f6-45c7-a02f-909b2ba83430",
  "name": "434105ed-43f6-45c7-a02f-909b2ba83430",
  "permissions": [
    {
      "actions": [
        "Microsoft.Consumption/*",
        "Microsoft.CostManagement/*",
        "Microsoft.Billing/billingPeriods/read",
        "Microsoft.Resources/subscriptions/read",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*",
        "Microsoft.Advisor/configurations/read",
        "Microsoft.Advisor/recommendations/read",
        "Microsoft.Management/managementGroups/read"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Cost Management Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Cost Management Reader

Can view cost data and configuration (e.g. budgets, exports) [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Consumption/*/read</a>	
<a href="#">Microsoft.CostManagement/*/read</a>	
<a href="#">Microsoft.Billing/billingPeriods/read</a>	
<a href="#">Microsoft.Resources/subscriptions/read</a>	Gets the list of subscriptions.
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<a href="#">Microsoft.Advisor/configurations/read</a>	Get configurations
<a href="#">Microsoft.Advisor/recommendations/read</a>	Reads recommendations
<a href="#">Microsoft.Management/managementGroups/read</a>	List management groups for the authenticated user.
<b>NotActions</b>	
<i>none</i>	

ACTIONS	DESCRIPTION
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Can view cost data and configuration (e.g. budgets, exports)",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/72faffb9e-0641-4937-9268-a91bfd8191a3",
  "name": "72faffb9e-0641-4937-9268-a91bfd8191a3",
  "permissions": [
    {
      "actions": [
        "Microsoft.Consumption/*/read",
        "Microsoft.CostManagement/*/read",
        "Microsoft.Billing/billingPeriods/read",
        "Microsoft.Resources/subscriptions/read",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*",
        "Microsoft.Advisor/configurations/read",
        "Microsoft.Advisor/recommendations/read",
        "Microsoft.Management/managementGroups/read"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Cost Management Reader",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Hierarchy Settings Administrator

Allows users to edit and delete Hierarchy Settings

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Management/managementGroups/settings/write</a>	Creates or updates management group hierarchy settings.
<a href="#">Microsoft.Management/managementGroups/settings/delete</a>	Deletes management group hierarchy settings.
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	

ACTIONS	DESCRIPTION
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Allows users to edit and delete Hierarchy Settings",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/350f8d15-c687-4448-8ae1-157740a3936d",
  "name": "350f8d15-c687-4448-8ae1-157740a3936d",
  "permissions": [
    {
      "actions": [
        "Microsoft.Management/managementGroups/settings/write",
        "Microsoft.Management/managementGroups/settings/delete"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Hierarchy Settings Administrator",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Managed Application Contributor Role

Allows for creating managed application resources.

ACTIONS	DESCRIPTION
<code>*/read</code>	Read resources of all types, except secrets.
<code>Microsoft.Solutions/applications/*</code>	
<code>Microsoft.Solutions/register/action</code>	Register to Solutions.
<code>Microsoft.Resources/subscriptions/resourceGroups/*</code>	
<code>Microsoft.Resources/deployments/*</code>	Create and manage a deployment
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	

ACTIONS	DESCRIPTION
<i>none</i>	
<pre>{   "assignableScopes": [     "/"   ],   "description": "Allows for creating managed application resources.",   "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/641177b8-a67a-45b9-a033-47bc880bb21e",   "name": "641177b8-a67a-45b9-a033-47bc880bb21e",   "permissions": [     {       "actions": [         "*/*",         "Microsoft.Solutions/applications/*",         "Microsoft.Solutions/register/action",         "Microsoft.Resources/subscriptions/resourceGroups/*",         "Microsoft.Resources/deployments/*"       ],       "notActions": [],       "dataActions": [],       "notDataActions": []     }   ],   "roleName": "Managed Application Contributor Role",   "roleType": "BuiltInRole",   "type": "Microsoft.Authorization/roleDefinitions" }</pre>	

## Managed Application Operator Role

Lets you read and perform actions on Managed Application resources

ACTIONS	DESCRIPTION
<code>*/read</code>	Read resources of all types, except secrets.
<code>Microsoft.Solutions/applications/read</code>	Retrieves a list of applications.
<code>Microsoft.Solutions/*/action</code>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you read and perform actions on Managed Application resources",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/c7393b34-138c-406f-901b-d8cf2b17e6ae",
  "name": "c7393b34-138c-406f-901b-d8cf2b17e6ae",
  "permissions": [
    {
      "actions": [
        "*/read",
        "Microsoft.Solutions/applications/read",
        "Microsoft.Solutions/*/action"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Managed Application Operator Role",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Managed Applications Reader

Lets you read resources in a managed app and request JIT access.

ACTIONS	DESCRIPTION
<code>*/read</code>	Read resources of all types, except secrets.
<code>Microsoft.Resources/deployments/*</code>	Create and manage a deployment
<code>Microsoft.Solutions/jitRequests/*</code>	
<b>NotActions</b>	
<code>none</code>	
<b>DataActions</b>	
<code>none</code>	
<b>NotDataActions</b>	
<code>none</code>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you read resources in a managed app and request JIT access.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/b9331d33-8a36-4f8c-b097-4f54124fdb44",
  "name": "b9331d33-8a36-4f8c-b097-4f54124fdb44",
  "permissions": [
    {
      "actions": [
        "*/*",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Solutions/jitRequests/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Managed Applications Reader",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Managed Services Registration assignment Delete Role

Managed Services Registration Assignment Delete Role allows the managing tenant users to delete the registration assignment assigned to their tenant. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.ManagedServices/registrationAssignments/read</a>	Retrieves a list of Managed Services registration assignments.
<a href="#">Microsoft.ManagedServices/registrationAssignments/delete</a>	Removes Managed Services registration assignment.
<a href="#">Microsoft.ManagedServices/operationStatuses/read</a>	Reads the operation status for the resource.
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Managed Services Registration Assignment Delete Role allows the managing tenant users to delete the registration assignment assigned to their tenant.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/91c1777a-f3dc-4fae-b103-61d183457e46",
  "name": "91c1777a-f3dc-4fae-b103-61d183457e46",
  "permissions": [
    {
      "actions": [
        "Microsoft.ManagedServices/registrationAssignments/read",
        "Microsoft.ManagedServices/registrationAssignments/delete",
        "Microsoft.ManagedServices/operationStatuses/read"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Managed Services Registration assignment Delete Role",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Management Group Contributor

Management Group Contributor Role [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Management/managementGroups/delete</a>	Delete management group.
<a href="#">Microsoft.Management/managementGroups/read</a>	List management groups for the authenticated user.
<a href="#">Microsoft.Management/managementGroups/subscriptions/delete</a>	De-associates subscription from the management group.
<a href="#">Microsoft.Management/managementGroups/subscriptions/write</a>	Associates existing subscription with the management group.
<a href="#">Microsoft.Management/managementGroups/write</a>	Create or update a management group.
<a href="#">Microsoft.Management/managementGroups/subscriptions/read</a>	Lists subscription under the given management group.
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Management Group Contributor Role",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/5d58bcf-24a5-4b20-bdb6-eed9f69fbe4c",
  "name": "5d58bcf-24a5-4b20-bdb6-eed9f69fbe4c",
  "permissions": [
    {
      "actions": [
        "Microsoft.Management/managementGroups/delete",
        "Microsoft.Management/managementGroups/read",
        "Microsoft.Management/managementGroups/subscriptions/delete",
        "Microsoft.Management/managementGroups/subscriptions/write",
        "Microsoft.Management/managementGroups/write",
        "Microsoft.Management/managementGroups/subscriptions/read"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Management Group Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Management Group Reader

### Management Group Reader Role

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Management</a> /managementGroups/read	List management groups for the authenticated user.
<a href="#">Microsoft.Management</a> /managementGroups/subscriptions /read	Lists subscription under the given management group.
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Management Group Reader Role",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/ac63b705-f282-497d-ac71-919bf39d939d",
  "name": "ac63b705-f282-497d-ac71-919bf39d939d",
  "permissions": [
    {
      "actions": [
        "Microsoft.Management/managementGroups/read",
        "Microsoft.Management/managementGroups/subscriptions/read"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Management Group Reader",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## New Relic APM Account Contributor

Lets you manage New Relic Application Performance Management accounts and applications, but not access to them.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.ResourceHealth/availabilityStatuses/read</a>	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
NewRelic.APM/accounts/*	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage New Relic Application Performance Management accounts and applications, but not access to them.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/5d28c62d-5b37-4476-8438-e587778df237",
  "name": "5d28c62d-5b37-4476-8438-e587778df237",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.ResourceHealth/availabilityStatuses/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*",
        "NewRelic.APM/accounts/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "New Relic APM Account Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Policy Insights Data Writer (Preview)

Allows read access to resource policies and write access to resource component policy events. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/policyassignments/read</a>	Get information about a policy assignment.
<a href="#">Microsoft.Authorization/policydefinitions/read</a>	Get information about a policy definition.
<a href="#">Microsoft.Authorization/policysetdefinitions/read</a>	Get information about a policy set definition.
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<a href="#">Microsoft.PolicyInsights/checkDataPolicyCompliance/action</a>	Check the compliance status of a given component against data policies.
<a href="#">Microsoft.PolicyInsights/policyEvents/logDataEvents/action</a>	Log the resource component policy events.
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Allows read access to resource policies and write access to resource component policy events.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/66bb4e9e-b016-4a94-8249-4c0511c2be84",
  "name": "66bb4e9e-b016-4a94-8249-4c0511c2be84",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/policyassignments/read",
        "Microsoft.Authorization/policydefinitions/read",
        "Microsoft.Authorization/policysetdefinitions/read"
      ],
      "notActions": [],
      "dataActions": [
        "Microsoft.PolicyInsights/checkDataPolicyCompliance/action",
        "Microsoft.PolicyInsights/policyEvents/logDataEvents/action"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Policy Insights Data Writer (Preview)",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Resource Policy Contributor

Users with rights to create/modify resource policy, create support ticket and read resources/hierarchy. [Learn more](#)

ACTIONS	DESCRIPTION
*/read	Read resources of all types, except secrets.
Microsoft.Authorization/policyassignments/*	Create and manage policy assignments
Microsoft.Authorization/policydefinitions/*	Create and manage policy definitions
Microsoft.Authorization/policysetdefinitions/*	Create and manage policy sets
Microsoft.PolicyInsights/*	
Microsoft.Support/*	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	

ACTIONS	DESCRIPTION
<i>none</i>	
<pre>{   "assignableScopes": [     "/"   ],   "description": "Users with rights to create/modify resource policy, create support ticket and read resources/hierarchy.",   "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/36243c78-bf99-498c-9df9-86d9f8d28608",   "name": "36243c78-bf99-498c-9df9-86d9f8d28608",   "permissions": [     {       "actions": [         "*/*",         "Microsoft.Authorization/policyassignments/*",         "Microsoft.Authorization/policydefinitions/*",         "Microsoft.Authorization/policysetdefinitions/*",         "Microsoft.PolicyInsights/*",         "Microsoft.Support/*"       ],       "notActions": [],       "dataActions": [],       "notDataActions": []     }   ],   "roleName": "Resource Policy Contributor",   "roleType": "BuiltInRole",   "type": "Microsoft.Authorization/roleDefinitions" }</pre>	

## Site Recovery Contributor

Lets you manage Site Recovery service except vault creation and role assignment [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization</a> /*/read	Read roles and role assignments
<a href="#">Microsoft.Insights</a> /alertRules/*	Create and manage a classic metric alert
<a href="#">Microsoft.Network</a> /virtualNetworks/read	Get the virtual network definition
<a href="#">Microsoft.RecoveryServices</a> /locations/allocatedStamp/read	GetAllocatedStamp is internal operation used by service
<a href="#">Microsoft.RecoveryServices</a> /locations/allocateStamp/action	AllocateStamp is internal operation used by service
<a href="#">Microsoft.RecoveryServices</a> /Vaults/certificates/write	The Update Resource Certificate operation updates the resource/vault credential certificate.
<a href="#">Microsoft.RecoveryServices</a> /Vaults/extendedInformation/*	Create and manage extended info related to vault
<a href="#">Microsoft.RecoveryServices</a> /Vaults/read	The Get Vault operation gets an object representing the Azure resource of type 'vault'
<a href="#">Microsoft.RecoveryServices</a> /Vaults/refreshContainers/read	

ACTIONS	DESCRIPTION
<a href="#">Microsoft.RecoveryServices/Vaults/registeredIdentities/*</a>	Create and manage registered identities
<a href="#">Microsoft.RecoveryServices/vaults/replicationAlertSettings/*</a>	Create or Update replication alert settings
<a href="#">Microsoft.RecoveryServices/vaults/replicationEvents/read</a>	Read any Events
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/*</a>	Create and manage replication fabrics
<a href="#">Microsoft.RecoveryServices/vaults/replicationJobs/*</a>	Create and manage replication jobs
<a href="#">Microsoft.RecoveryServices/vaults/replicationPolicies/*</a>	Create and manage replication policies
<a href="#">Microsoft.RecoveryServices/vaults/replicationRecoveryPlans/*</a>	Create and manage recovery plans
<a href="#">Microsoft.RecoveryServices/Vaults/storageConfig/*</a>	Create and manage storage configuration of Recovery Services vault
<a href="#">Microsoft.RecoveryServices/Vaults/tokenInfo/read</a>	
<a href="#">Microsoft.RecoveryServices/Vaults/usages/read</a>	Returns usage details for a Recovery Services Vault.
<a href="#">Microsoft.RecoveryServices/Vaults/vaultTokens/read</a>	The Vault Token operation can be used to get Vault Token for vault level backend operations.
<a href="#">Microsoft.RecoveryServices/Vaults/monitoringAlerts/*</a>	Read alerts for the Recovery services vault
<a href="#">Microsoft.RecoveryServices/Vaults/monitoringConfigurations/notificationConfiguration/read</a>	
<a href="#">Microsoft.ResourceHealth/availabilityStatuses/read</a>	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Storage/storageAccounts/read</a>	Returns the list of storage accounts or gets the properties for the specified storage account.
<a href="#">Microsoft.RecoveryServices/vaults/replicationOperationStatuses/read</a>	Read any Vault Replication Operation Status
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	

ACTIONS	DESCRIPTION
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage Site Recovery service except vault creation and role assignment",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/6670b86e-a3f7-4917-ac9b-5d6ab1be4567",
  "name": "6670b86e-a3f7-4917-ac9b-5d6ab1be4567",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Network/virtualNetworks/read",
        "Microsoft.RecoveryServices/locations/allocatedStamp/read",
        "Microsoft.RecoveryServices/locations/allocateStamp/action",
        "Microsoft.RecoveryServices/Vaults/certificates/write",
        "Microsoft.RecoveryServices/Vaults/extendedInformation/*",
        "Microsoft.RecoveryServices/Vaults/read",
        "Microsoft.RecoveryServices/Vaults/refreshContainers/read",
        "Microsoft.RecoveryServices/Vaults/registeredIdentities/*",
        "Microsoft.RecoveryServices/vaults/replicationAlertSettings/*",
        "Microsoft.RecoveryServices/vaults/replicationEvents/read",
        "Microsoft.RecoveryServices/vaults/replicationFabrics/*",
        "Microsoft.RecoveryServices/vaults/replicationJobs/*",
        "Microsoft.RecoveryServices/vaults/replicationPolicies/*",
        "Microsoft.RecoveryServices/vaults/replicationRecoveryPlans/*",
        "Microsoft.RecoveryServices/Vaults/storageConfig/*",
        "Microsoft.RecoveryServices/Vaults/tokenInfo/read",
        "Microsoft.RecoveryServices/Vaults/usages/read",
        "Microsoft.RecoveryServices/Vaults/vaultTokens/read",
        "Microsoft.RecoveryServices/Vaults/monitoringAlerts/*",
        "Microsoft.RecoveryServices/Vaults/monitoringConfigurations/notificationConfiguration/read",
        "Microsoft.ResourceHealth/availabilityStatuses/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Storage/storageAccounts/read",
        "Microsoft.RecoveryServices/vaults/replicationOperationStatus/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Site Recovery Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Site Recovery Operator

Lets you failover and fallback but not perform other Site Recovery management operations [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.Network/virtualNetworks/read</a>	Get the virtual network definition
<a href="#">Microsoft.RecoveryServices/locations/allocatedStamp/read</a>	GetAllocatedStamp is internal operation used by service
<a href="#">Microsoft.RecoveryServices/locations/allocateStamp/action</a>	AllocateStamp is internal operation used by service
<a href="#">Microsoft.RecoveryServices/Vaults/extendedInformation/read</a>	The Get Extended Info operation gets an object's Extended Info representing the Azure resource of type ?vault?
<a href="#">Microsoft.RecoveryServices/Vaults/read</a>	The Get Vault operation gets an object representing the Azure resource of type 'vault'
<a href="#">Microsoft.RecoveryServices/Vaults/refreshContainers/read</a>	
<a href="#">Microsoft.RecoveryServices/Vaults/registeredIdentities/operationResults/read</a>	The Get Operation Results operation can be used get the operation status and result for the asynchronously submitted operation
<a href="#">Microsoft.RecoveryServices/Vaults/registeredIdentities/read</a>	The Get Containers operation can be used get the containers registered for a resource.
<a href="#">Microsoft.RecoveryServices/vaults/replicationAlertSettings/read</a>	Read any Alerts Settings
<a href="#">Microsoft.RecoveryServices/vaults/replicationEvents/read</a>	Read any Events
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/checkConsistency/action</a>	Checks Consistency of the Fabric
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/read</a>	Read any Fabrics
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/reassociateGateway/action</a>	Reassociate Gateway
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/renewCertificate/action</a>	Renew Certificate for Fabric
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replicationNetworks/read</a>	Read any Networks
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replicationNetworks/replicationNetworkMappings/read</a>	Read any Network Mappings
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/read</a>	Read any Protection Containers
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectableItems/read</a>	Read any Protectable Items

ACTIONS	DESCRIPTION
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/applyRecoveryPoint/action</a>	Apply Recovery Point
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/failoverCommit/action</a>	Failover Commit
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/plannedFailover/action</a>	Planned Failover
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/read</a>	Read any Protected Items
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/recoveryPoints/read</a>	Read any Replication Recovery Points
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/repairReplication/action</a>	Repair replication
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/reProtect/action</a>	ReProtect Protected Item
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/switchProtection/action</a>	Switch Protection Container
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/testFailover/action</a>	Test Failover
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/testFailoverCleanup/action</a>	Test Failover Cleanup
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/unplannedFailover/action</a>	Failover
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/updateMobilityService/action</a>	Update Mobility Service
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectionContainerMappings/read</a>	Read any Protection Container Mappings
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replicationRecoveryServicesProviders/read</a>	Read any Recovery Services Providers
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replicationRecoveryServicesProviders/refreshProvider/action</a>	Refresh Provider

ACTIONS	DESCRIPTION
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replica</a> tionStorageClassifications/read	Read any Storage Classifications
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replica</a> tionStorageClassifications/replicationStorageClassificationM appings/read	Read any Storage Classification Mappings
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replica</a> tionvCenters/read	Read any vCenters
<a href="#">Microsoft.RecoveryServices/vaults/replicationJobs/*</a>	Create and manage replication jobs
<a href="#">Microsoft.RecoveryServices/vaults/replicationPolicies/read</a>	Read any Policies
<a href="#">Microsoft.RecoveryServices/vaults/replicationRecoveryPlan</a> s/failoverCommit/action	Failover Commit Recovery Plan
<a href="#">Microsoft.RecoveryServices/vaults/replicationRecoveryPlan</a> s/plannedFailover/action	Planned Failover Recovery Plan
<a href="#">Microsoft.RecoveryServices/vaults/replicationRecoveryPlan</a> s/read	Read any Recovery Plans
<a href="#">Microsoft.RecoveryServices/vaults/replicationRecoveryPlan</a> s/reProtect/action	ReProtect Recovery Plan
<a href="#">Microsoft.RecoveryServices/vaults/replicationRecoveryPlan</a> s/testFailover/action	Test Failover Recovery Plan
<a href="#">Microsoft.RecoveryServices/vaults/replicationRecoveryPlan</a> s/testFailoverCleanup/action	Test Failover Cleanup Recovery Plan
<a href="#">Microsoft.RecoveryServices/vaults/replicationRecoveryPlan</a> s/unplannedFailover/action	Failover Recovery Plan
<a href="#">Microsoft.RecoveryServices/Vaults/monitoringAlerts/*</a>	Read alerts for the Recovery services vault
<a href="#">Microsoft.RecoveryServices/Vaults/monitoringConfiguratio</a> ns/notificationConfiguration/read	
<a href="#">Microsoft.RecoveryServices/Vaults/storageConfig/read</a>	
<a href="#">Microsoft.RecoveryServices/Vaults/tokenInfo/read</a>	
<a href="#">Microsoft.RecoveryServices/Vaults/usages/read</a>	Returns usage details for a Recovery Services Vault.
<a href="#">Microsoft.RecoveryServices/Vaults/vaultTokens/read</a>	The Vault Token operation can be used to get Vault Token for vault level backend operations.
<a href="#">Microsoft.ResourceHealth/availabilityStatuses/read</a>	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Storage/storageAccounts/read</a>	Returns the list of storage accounts or gets the properties for the specified storage account.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you failover and fallback but not perform other Site Recovery management operations",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/494ae006-db33-4328-bf46-533a6560a3ca",
  "name": "494ae006-db33-4328-bf46-533a6560a3ca",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Network/virtualNetworks/read",
        "Microsoft.RecoveryServices/locations/allocatedStamp/read",
        "Microsoft.RecoveryServices/locations/allocateStamp/action",
        "Microsoft.RecoveryServices/Vaults/extendedInformation/read",
        "Microsoft.RecoveryServices/Vaults/read",
        "Microsoft.RecoveryServices/Vaults/refreshContainers/read",
        "Microsoft.RecoveryServices/Vaults/registeredIdentities/operationResults/read",
        "Microsoft.RecoveryServices/Vaults/registeredIdentities/read",
        "Microsoft.RecoveryServices/vaults/replicationAlertSettings/read",
        "Microsoft.RecoveryServices/vaults/replicationEvents/read",
        "Microsoft.RecoveryServices/vaults/replicationFabrics/checkConsistency/action",
        "Microsoft.RecoveryServices/vaults/replicationFabrics/read",
        "Microsoft.RecoveryServices/vaults/replicationFabrics/reassociateGateway/action",
        "Microsoft.RecoveryServices/vaults/replicationFabrics/renewcertificate/action",
        "Microsoft.RecoveryServices/vaults/replicationFabrics/replicationNetworks/read",
        "Microsoft.RecoveryServices/vaults/replicationFabrics/replicationNetworkMappings/read",
        "Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/read",
        "Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/read",
        "Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/applyRecoveryPoint/action",
        "Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/cancelRecoveryPoint"
      ]
    }
  ]
}
```

```
"Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/failoverCommit/action",

"Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/plannedFailover/action",

"Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/read",

"Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/recoveryPoints/read",

"Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/repairReplication/action",

"Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/reProtect/action",

"Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/switchprotection/action",

"Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/testFailover/action",

"Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/testFailoverCleanup/action",

"Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/unplannedFailover/action",

"Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/updateMobilityService/action",

"Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectionContainerMappings/read",

"Microsoft.RecoveryServices/vaults/replicationFabrics/replicationRecoveryServicesProviders/read",

"Microsoft.RecoveryServices/vaults/replicationFabrics/replicationRecoveryServicesProviders/refreshProvider/action",
    "Microsoft.RecoveryServices/vaults/replicationFabrics/replicationStorageClassifications/read",

"Microsoft.RecoveryServices/vaults/replicationFabrics/replicationStorageClassifications/replicationStorageClassificationMappings/read",
    "Microsoft.RecoveryServices/vaults/replicationFabrics/replicationvCenters/read",
    "Microsoft.RecoveryServices/vaults/replicationJobs/*",
    "Microsoft.RecoveryServices/vaults/replicationPolicies/read",
    "Microsoft.RecoveryServices/vaults/replicationRecoveryPlans/failoverCommit/action",
    "Microsoft.RecoveryServices/vaults/replicationRecoveryPlans/plannedFailover/action",
    "Microsoft.RecoveryServices/vaults/replicationRecoveryPlans/read",
    "Microsoft.RecoveryServices/vaults/replicationRecoveryPlans/reProtect/action",
    "Microsoft.RecoveryServices/vaults/replicationRecoveryPlans/testFailover/action",
    "Microsoft.RecoveryServices/vaults/replicationRecoveryPlans/testFailoverCleanup/action",
    "Microsoft.RecoveryServices/vaults/replicationRecoveryPlans/unplannedFailover/action",
    "Microsoft.RecoveryServices/Vaults/monitoringAlerts/*",
    "Microsoft.RecoveryServices/Vaults/monitoringConfigurations/notificationConfiguration/read",
    "Microsoft.RecoveryServices/Vaults/storageConfig/read",
    "Microsoft.RecoveryServices/Vaults/tokenInfo/read",
    "Microsoft.RecoveryServices/Vaults/usages/read",
    "Microsoft.RecoveryServices/Vaults/vaultTokens/read",
    "Microsoft.ResourceHealth/availabilityStatuses/read",
    "Microsoft.Resources/deployments/*",
    "Microsoft.Resources/subscriptions/resourceGroups/read",
    "Microsoft.Storage/storageAccounts/read",
    "Microsoft.Support/*"

],
"notActions": [],
"dataActions": [],
"notDataActions": []
```

```

        ],
        "roleName": "Site Recovery Operator",
        "roleType": "BuiltInRole",
        "type": "Microsoft.Authorization/roleDefinitions"
    }
}

```

## Site Recovery Reader

Lets you view Site Recovery status but not perform other management operations [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.RecoveryServices/locations/allocatedStamp/read</a>	GetAllocatedStamp is internal operation used by service
<a href="#">Microsoft.RecoveryServices/Vaults/extendedInformation/read</a>	The Get Extended Info operation gets an object's Extended Info representing the Azure resource of type ?vault?
<a href="#">Microsoft.RecoveryServices/Vaults/monitoringAlerts/read</a>	Gets the alerts for the Recovery services vault.
<a href="#">Microsoft.RecoveryServices/Vaults/monitoringConfigurations/notificationConfiguration/read</a>	
<a href="#">Microsoft.RecoveryServices/Vaults/read</a>	The Get Vault operation gets an object representing the Azure resource of type 'vault'
<a href="#">Microsoft.RecoveryServices/Vaults/refreshContainers/read</a>	
<a href="#">Microsoft.RecoveryServices/Vaults/registeredIdentities/operationResults/read</a>	The Get Operation Results operation can be used get the operation status and result for the asynchronously submitted operation
<a href="#">Microsoft.RecoveryServices/Vaults/registeredIdentities/read</a>	The Get Containers operation can be used get the containers registered for a resource.
<a href="#">Microsoft.RecoveryServices/vaults/replicationAlertSettings/read</a>	Read any Alerts Settings
<a href="#">Microsoft.RecoveryServices/vaults/replicationEvents/read</a>	Read any Events
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/read</a>	Read any Fabrics
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replicationNetworks/read</a>	Read any Networks
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replicationNetworks/replicationNetworkMappings/read</a>	Read any Network Mappings
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/read</a>	Read any Protection Containers
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectableItems/read</a>	Read any Protectable Items

ACTIONS	DESCRIPTION
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/read</a>	Read any Protected Items
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/recoveryPoints/read</a>	Read any Replication Recovery Points
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectionContainerMappings/read</a>	Read any Protection Container Mappings
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replica tionRecoveryServicesProviders/read</a>	Read any Recovery Services Providers
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replica tionStorageClassifications/read</a>	Read any Storage Classifications
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replica tionStorageClassifications/replicationStorageClassificationMappings/read</a>	Read any Storage Classification Mappings
<a href="#">Microsoft.RecoveryServices/vaults/replicationFabrics/replica tionvCenters/read</a>	Read any vCenters
<a href="#">Microsoft.RecoveryServices/vaults/replicationJobs/read</a>	Read any Jobs
<a href="#">Microsoft.RecoveryServices/vaults/replicationPolicies/read</a>	Read any Policies
<a href="#">Microsoft.RecoveryServices/vaults/replicationRecoveryPlans/read</a>	Read any Recovery Plans
<a href="#">Microsoft.RecoveryServices/Vaults/storageConfig/read</a>	
<a href="#">Microsoft.RecoveryServices/Vaults/tokenInfo/read</a>	
<a href="#">Microsoft.RecoveryServices/Vaults/usages/read</a>	Returns usage details for a Recovery Services Vault.
<a href="#">Microsoft.RecoveryServices/Vaults/vaultTokens/read</a>	The Vault Token operation can be used to get Vault Token for vault level backend operations.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	

ACTIONS	DESCRIPTION
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you view Site Recovery status but not perform other management operations",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/dbaa88c4-0c30-4179-9fb3-46319faa6149",
  "name": "dbaa88c4-0c30-4179-9fb3-46319faa6149",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.RecoveryServices/locations/allocatedStamp/read",
        "Microsoft.RecoveryServices/Vaults/extendedInformation/read",
        "Microsoft.RecoveryServices/Vaults/monitoringAlerts/read",
        "Microsoft.RecoveryServices/Vaults/monitoringConfigurations/notificationConfiguration/read",
        "Microsoft.RecoveryServices/Vaults/read",
        "Microsoft.RecoveryServices/Vaults/refreshContainers/read",
        "Microsoft.RecoveryServices/Vaults/registeredIdentities/operationResults/read",
        "Microsoft.RecoveryServices/Vaults/registeredIdentities/read",
        "Microsoft.RecoveryServices/vaults/replicationAlertSettings/read",
        "Microsoft.RecoveryServices/vaults/replicationEvents/read",
        "Microsoft.RecoveryServices/vaults/replicationFabrics/read",
        "Microsoft.RecoveryServices/vaults/replicationFabrics/replicationNetworks/read",
        "Microsoft.RecoveryServices/vaults/replicationFabrics/replicationNetworkMappings/read",
        "Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/read",
        "Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectableItems/read",
        "Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/read",
        "Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/recoveryPoints/read",
        "Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectionContainerMappings/read",
        "Microsoft.RecoveryServices/vaults/replicationFabrics/replicationRecoveryServicesProviders/read",
        "Microsoft.RecoveryServices/vaults/replicationFabrics/replicationStorageClassifications/read",
        "Microsoft.RecoveryServices/vaults/replicationFabrics/replicationStorageClassifications/replicationStorageClassificationMappings/read",
        "Microsoft.RecoveryServices/vaults/replicationFabrics/replicationvCenters/read",
        "Microsoft.RecoveryServices/vaults/replicationJobs/read",
        "Microsoft.RecoveryServices/vaults/replicationPolicies/read",
        "Microsoft.RecoveryServices/vaults/replicationRecoveryPlans/read",
        "Microsoft.RecoveryServices/Vaults/storageConfig/read",
        "Microsoft.RecoveryServices/Vaults/tokenInfo/read",
        "Microsoft.RecoveryServices/Vaults/usages/read",
        "Microsoft.RecoveryServices/Vaults/vaultTokens/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Site Recovery Reader",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Support Request Contributor

Lets you create and manage Support requests [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you create and manage Support requests",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/cfd33db0-3dd1-45e3-aa9d-cdbdf3b6f24e",
  "name": "cf33db0-3dd1-45e3-aa9d-cdbdf3b6f24e",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Support Request Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Tag Contributor

Lets you manage tags on entities, without providing access to the entities themselves. [Learn more](#)

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/resources/read</a>	Gets the resources for the resource group.
<a href="#">Microsoft.Resources/subscriptions/resources/read</a>	Gets resources of a subscription.
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<a href="#">Microsoft.Resources/tags/*</a>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage tags on entities, without providing access to the entities themselves.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/4a9ae827-6dc8-4573-8ac7-8239d42aa03f",
  "name": "4a9ae827-6dc8-4573-8ac7-8239d42aa03f",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Resources/subscriptions/resourceGroups/resources/read",
        "Microsoft.Resources/subscriptions/resources/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.Support/*",
        "Microsoft.Resources/tags/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "Tag Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

# Other

## BizTalk Contributor

Lets you manage BizTalk services, but not access to them.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization/*/read</a>	Read roles and role assignments
<a href="#">Microsoft.BizTalkServices/BizTalk/*</a>	Create and manage BizTalk services
<a href="#">Microsoft.Insights/alertRules/*</a>	Create and manage a classic metric alert
<a href="#">Microsoft.ResourceHealth/availabilityStatuses/read</a>	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources/deployments/*</a>	Create and manage a deployment
<a href="#">Microsoft.Resources/subscriptions/resourceGroups/read</a>	Gets or lists resource groups.
<a href="#">Microsoft.Support/*</a>	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Lets you manage BizTalk services, but not access to them.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/5e3c6656-6cfa-4708-81fe-0de47ac73342",
  "name": "5e3c6656-6cfa-4708-81fe-0de47ac73342",
  "permissions": [
    {
      "actions": [
        "Microsoft.Authorization/*/read",
        "Microsoft.BizTalkServices/BizTalk/*",
        "Microsoft.Insights/alertRules/*",
        "Microsoft.ResourceHealth/availabilityStatuses/read",
        "Microsoft.Resources/deployments/*",
        "Microsoft.Resources/subscriptions/resourceGroups/read",
        "Microsoft.Support/*"
      ],
      "notActions": [],
      "dataActions": [],
      "notDataActions": []
    }
  ],
  "roleName": "BizTalk Contributor",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Desktop Virtualization User

Allows user to use the applications in an application group. [Learn more](#)

ACTIONS	DESCRIPTION
<i>none</i>	
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
Microsoft.DesktopVirtualization/applicationGroups/useApp lications/action	Use ApplicationGroup
<b>NotDataActions</b>	
<i>none</i>	

```
{
  "assignableScopes": [
    "/"
  ],
  "description": "Allows user to use the applications in an application group.",
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/1d18ffff-a72a-46b5-b4a9-0b38a3cd7e63",
  "name": "1d18ffff-a72a-46b5-b4a9-0b38a3cd7e63",
  "permissions": [
    {
      "actions": [],
      "notActions": [],
      "dataActions": [
        "Microsoft.DesktopVirtualization/applicationGroups/useApplications/action"
      ],
      "notDataActions": []
    }
  ],
  "roleName": "Desktop Virtualization User",
  "roleType": "BuiltInRole",
  "type": "Microsoft.Authorization/roleDefinitions"
}
```

## Scheduler Job Collections Contributor

Lets you manage Scheduler job collections, but not access to them.

ACTIONS	DESCRIPTION
<a href="#">Microsoft.Authorization</a> /*/read	Read roles and role assignments
<a href="#">Microsoft.Insights</a> /alertRules/*	Create and manage a classic metric alert
<a href="#">Microsoft.ResourceHealth</a> /availabilityStatuses/read	Gets the availability statuses for all resources in the specified scope
<a href="#">Microsoft.Resources</a> /deployments/*	Create and manage a deployment
<a href="#">Microsoft.Resources</a> /subscriptions/resourceGroups/read	Gets or lists resource groups.
<a href="#">Microsoft.Scheduler</a> /jobcollections/*	Create and manage job collections
<a href="#">Microsoft.Support</a> /*	Create and update a support ticket
<b>NotActions</b>	
<i>none</i>	
<b>DataActions</b>	
<i>none</i>	
<b>NotDataActions</b>	
<i>none</i>	

```
{  
  "assignableScopes": [  
    "/"  
  ],  
  "description": "Lets you manage Scheduler job collections, but not access to them.",  
  "id": "/subscriptions/{subscriptionId}/providers/Microsoft.Authorization/roleDefinitions/188a0f2f-  
5c9e-469b-ae67-2aa5ce574b94",  
  "name": "188a0f2f-5c9e-469b-ae67-2aa5ce574b94",  
  "permissions": [  
    {  
      "actions": [  
        "Microsoft.Authorization/*/read",  
        "Microsoft.Insights/alertRules/*",  
        "Microsoft.ResourceHealth/availabilityStatuses/read",  
        "Microsoft.Resources/deployments/*",  
        "Microsoft.Resources/subscriptions/resourceGroups/read",  
        "Microsoft.Scheduler/jobCollections/*",  
        "Microsoft.Support/*"  
      ],  
      "notActions": [],  
      "dataActions": [],  
      "notDataActions": []  
    }  
  ],  
  "roleName": "Scheduler Job Collections Contributor",  
  "roleType": "BuiltInRole",  
  "type": "Microsoft.Authorization/roleDefinitions"  
}
```

## Next steps

- [Match resource provider to service](#)
- [Azure custom roles](#)
- [Permissions in Azure Security Center](#)

# Azure resource providers operations

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This section lists the operations for Azure resource providers, which are used in built-in roles. You can use these operations in your own [Azure custom roles](#) to provide granular access control to resources in Azure. The resource provider operations are always evolving. To get the latest operations, use [Get-AzProviderOperation](#) or [az provider operation list](#).

Click the resource provider name in the following table to see the list of operations.

## All

### GENERAL

[Microsoft.Addons](#)

[Microsoft.Marketplace](#)

[Microsoft.MarketplaceApps](#)

[Microsoft.MarketplaceOrdering](#)

[Microsoft.ResourceHealth](#)

[Microsoft.Support](#)

### Compute

[Microsoft.ClassicCompute](#)

[Microsoft.Compute](#)

[Microsoft.ServiceFabric](#)

### Networking

[Microsoft.Cdn](#)

[Microsoft.ClassicNetwork](#)

[Microsoft.Network](#)

### Storage

[Microsoft.ClassicStorage](#)

[Microsoft.DataBox](#)

[Microsoft.ImportExport](#)

**GENERAL**

[Microsoft.NetApp](#)

[Microsoft.Storage](#)

[microsoft.storagesync](#)

[Microsoft.StorSimple](#)

**Web**

[Microsoft.CertificateRegistration](#)

[Microsoft.DomainRegistration](#)

[MicrosoftMaps](#)

[Microsoft.Media](#)

[Microsoft.Search](#)

[Microsoft.SignalRService](#)

[microsoft.web](#)

**Containers**

[Microsoft.ContainerInstance](#)

[Microsoft.ContainerRegistry](#)

[Microsoft.ContainerService](#)

[Microsoft.DevSpaces](#)

**Databases**

[Microsoft.Cache](#)

[Microsoft.DataFactory](#)

[Microsoft.DataMigration](#)

[Microsoft.DBforMariaDB](#)

[Microsoft.DBforMySQL](#)

[Microsoft.DBforPostgreSQL](#)

[Microsoft.DocumentDB](#)

**GENERAL**

[Microsoft.Sql](#)

[Microsoft.SqlVirtualMachine](#)

**Analytics**

[Microsoft.AnalysisServices](#)

[Microsoft.Databricks](#)

[Microsoft.DataLakeAnalytics](#)

[Microsoft.DataLakeStore](#)

[Microsoft.EventHub](#)

[Microsoft.HDInsight](#)

[Microsoft.Kusto](#)

[Microsoft.PowerBIDedicated](#)

[Microsoft.StreamAnalytics](#)

**Blockchain**

[Microsoft.Blockchain](#)

**AI + machine learning**

[Microsoft.BotService](#)

[Microsoft.CognitiveServices](#)

[Microsoft.MachineLearning](#)

[Microsoft.MachineLearningServices](#)

**Internet of things**

[Microsoft.Devices](#)

[Microsoft.IoTCentral](#)

[Microsoft.NotificationHubs](#)

[Microsoft.TimeSeriesInsights](#)

**Mixed reality**

**GENERAL**

[Microsoft.IoTSpaces](#)

[Microsoft.MixedReality](#)

**Integration**

[Microsoft.ApiManagement](#)

[Microsoft.AppConfiguration](#)

[Microsoft.AzureStack](#)

[Microsoft.DataBoxEdge](#)

[Microsoft.DataCatalog](#)

[Microsoft.EventGrid](#)

[Microsoft.Logic](#)

[Microsoft.Relay](#)

[Microsoft.ServiceBus](#)

**Identity**

[Microsoft.AAD](#)

[microsoft.aadim](#)

[Microsoft.ADHybridHealthService](#)

[Microsoft.AzureActiveDirectory](#)

[Microsoft.ManagedIdentity](#)

**Security**

[Microsoft.KeyVault](#)

[Microsoft.Security](#)

[Microsoft.SecurityGraph](#)

[Microsoft.SecurityInsights](#)

**DevOps**

[Microsoft.DevTestLab](#)

**GENERAL**

[Microsoft.LabServices](#)

[Microsoft.VisualStudio](#)

**Migrate**

[Microsoft.Migrate](#)

[Microsoft.OffAzure](#)

**Monitor**

[Microsoft.AlertsManagement](#)

[Microsoft.Insights](#)

[Microsoft.OperationalInsights](#)

[Microsoft.OperationsManagement](#)

[Microsoft.WorkloadMonitor](#)

**Management + governance**

[Microsoft.Advisor](#)

[Microsoft.Authorization](#)

[Microsoft.Automation](#)

[Microsoft.Batch](#)

[Microsoft.Billing](#)

[Microsoft.Blueprint](#)

[Microsoft.Capacity](#)

[Microsoft.Commerce](#)

[Microsoft.Consumption](#)

[Microsoft.CostManagement](#)

[Microsoft.Features](#)

[Microsoft.GuestConfiguration](#)

[Microsoft.HybridCompute](#)

GENERAL
<a href="#">Microsoft.ManagedServices</a>
<a href="#">Microsoft.Management</a>
<a href="#">Microsoft.PolicyInsights</a>
<a href="#">Microsoft.Portal</a>
<a href="#">Microsoft.RecoveryServices</a>
<a href="#">Microsoft.Resources</a>
<a href="#">Microsoft.Scheduler</a>
<a href="#">Microsoft.Solutions</a>
<a href="#">Microsoft.Subscription</a>
Intune
<a href="#">Microsoft.Intune</a>
Other
<a href="#">Microsoft.BingMaps</a>

## General

### **Microsoft.Addons**

Azure service: core

ACTION	DESCRIPTION
<a href="#">Microsoft.Addons/register/action</a>	Register the specified subscription with Microsoft.Addons
<a href="#">Microsoft.Addons/operations/read</a>	Gets supported RP operations.
<a href="#">Microsoft.Addons/supportProviders/listsupportplaninfo/actio n</a>	Lists current support plan information for the specified subscription.
<a href="#">Microsoft.Addons/supportProviders/supportPlanTypes/read</a>	Get the specified Canonical support plan state.
<a href="#">Microsoft.Addons/supportProviders/supportPlanTypes/write</a>	Adds the Canonical support plan type specified.
<a href="#">Microsoft.Addons/supportProviders/supportPlanTypes/delete</a>	Removes the specified Canonical support plan

### **Microsoft.Marketplace**

Azure service: core

ACTION	DESCRIPTION
Microsoft.Marketplace/register/action	Registers Microsoft.Marketplace resource provider in the subscription.
Microsoft.Marketplace/privateStores/action	Updates PrivateStore.
Microsoft.Marketplace/offerTypes/publishers/offers/plans/agreements/read	Returns an Agreement.
Microsoft.Marketplace/offerTypes/publishers/offers/plans/agreements/write	Accepts a signed agreement.
Microsoft.Marketplace/offerTypes/publishers/offers/plans/configs/read	Returns a config.
Microsoft.Marketplace/offerTypes/publishers/offers/plans/configs/write	Saves a config.
Microsoft.Marketplace/offerTypes/publishers/offers/plans/configs/importImage/action	Imports an image to the end user's ACR.
Microsoft.Marketplace/privateStores/write	Creates PrivateStore.
Microsoft.Marketplace/privateStores/delete	Deletes PrivateStore.
Microsoft.Marketplace/privateStores/offers/action	Updates offer in PrivateStore.
Microsoft.Marketplace/privateStores/read	Reads PrivateStores.
Microsoft.Marketplace/privateStores/offers/write	Creates offer in PrivateStore.
Microsoft.Marketplace/privateStores/offers/delete	Deletes offer from PrivateStore.
Microsoft.Marketplace/privateStores/offers/read	Reads PrivateStore offers.

## Microsoft.MarketplaceApps

Azure service: core

ACTION	DESCRIPTION
Microsoft.MarketplaceApps/ClassicDevServices/read	Does a GET operation on a classic dev service.
Microsoft.MarketplaceApps/ClassicDevServices/delete	Does a DELETE operation on a classic dev service resource.
Microsoft.MarketplaceApps/ClassicDevServices/listSingleSignOnToken/action	Gets the Single Sign On URL for a classic dev service.
Microsoft.MarketplaceApps/ClassicDevServices/listSecrets/action	Gets a classic dev service resource management keys.
Microsoft.MarketplaceApps/ClassicDevServices/regenerateKey/action	Generates a classic dev service resource management keys.

ACTION	DESCRIPTION
Microsoft.MarketplaceApps/Operations/read	Read the operations for all resource types.

## Microsoft.MarketplaceOrdering

Azure service: core

ACTION	DESCRIPTION
Microsoft.MarketplaceOrdering/agreements/read	Return all agreements under given subscription
Microsoft.MarketplaceOrdering/agreements/offers/plans/read	Return an agreement for a given marketplace item
Microsoft.MarketplaceOrdering/agreements/offers/plans/sign/action	Sign an agreement for a given marketplace item
Microsoft.MarketplaceOrdering/agreements/offers/plans/cancel/action	Cancel an agreement for a given marketplace item
Microsoft.MarketplaceOrdering/offertypes/publishers/offers/plans/agreements/read	Get an agreement for a given marketplace virtual machine item
Microsoft.MarketplaceOrdering/offertypes/publishers/offers/plans/agreements/write	Sign or Cancel an agreement for a given marketplace virtual machine item
Microsoft.MarketplaceOrdering/operations/read	List all possible operations in the API

## Microsoft.ResourceHealth

Azure service: [Azure Service Health](#)

ACTION	DESCRIPTION
Microsoft.ResourceHealth/register/action	Registers the subscription for the Microsoft ResourceHealth
Microsoft.ResourceHealth/unregister/action	Unregisters the subscription for the Microsoft ResourceHealth
Microsoft.Resourcehealth/healthevent/action	Denotes the change in health state for the specified resource
Microsoft.ResourceHealth/AvailabilityStatuses/read	Gets the availability statuses for all resources in the specified scope
Microsoft.ResourceHealth/AvailabilityStatuses/current/read	Gets the availability status for the specified resource
Microsoft.ResourceHealth/emergingissues/read	Get Azure services' emerging issues
Microsoft.ResourceHealth/events/read	Get Service Health Events for given subscription
Microsoft.Resourcehealth/healthevent/Activated/action	Denotes the change in health state for the specified resource
Microsoft.Resourcehealth/healthevent/Updated/action	Denotes the change in health state for the specified resource

ACTION	DESCRIPTION
Microsoft.Resourcehealth/healthevent/Resolved/action	Denotes the change in health state for the specified resource
Microsoft.Resourcehealth/healthevent/InProgress/action	Denotes the change in health state for the specified resource
Microsoft.Resourcehealth/healthevent/Pending/action	Denotes the change in health state for the specified resource
Microsoft.ResourceHealth/impactedResources/read	Get Impacted Resources for given subscription
Microsoft.ResourceHealth/metadata/read	Gets Metadata
Microsoft.ResourceHealth/Notifications/read	Receives Azure Resource Manager notifications
Microsoft.ResourceHealth/Operations/read	Get the operations available for the Microsoft ResourceHealth

## Microsoft.Support

Azure service: core

ACTION	DESCRIPTION
Microsoft.Support/register/action	Registers Support Resource Provider
Microsoft.Support/checkNameAvailability/action	Checks that name is valid and not in use for resource type
Microsoft.Support/operationresults/read	Gets the result of the asynchronous operation
Microsoft.Support/operations/read	Lists all operations available on Microsoft.Support resource provider
Microsoft.Support/operationsstatus/read	Gets the status of the asynchronous operation
Microsoft.Support/services/read	Lists one or all Azure services available for support
Microsoft.Support/services/problemClassifications/read	Lists one or all problem classifications for an Azure service
Microsoft.Support/supportTickets/read	Lists one or all support tickets
Microsoft.Support/supportTickets/write	Allows creating and updating a support ticket
Microsoft.Support/supportTickets/communications/read	Lists one or all support ticket communications
Microsoft.Support/supportTickets/communications/write	Adds a new communication to a support ticket

## Compute

### Microsoft.ClassicCompute

Azure service: Classic deployment model virtual machine

ACTION	DESCRIPTION
Microsoft.ClassicCompute/register/action	Register to Classic Compute
Microsoft.ClassicCompute/checkDomainNameAvailability/acti on	Checks the availability of a given domain name.
Microsoft.ClassicCompute/moveSubscriptionResources/actio n	Move all classic resources to a different subscription.
Microsoft.ClassicCompute/validateSubscriptionMoveAvailabil ity/action	Validate the subscription's availability for classic move operation.
Microsoft.ClassicCompute/capabilities/read	Shows the capabilities
Microsoft.ClassicCompute/checkDomainNameAvailability/re ad	Gets the availability of a given domain name.
Microsoft.ClassicCompute/domainNames/read	Return the domain names for resources.
Microsoft.ClassicCompute/domainNames/write	Add or modify the domain names for resources.
Microsoft.ClassicCompute/domainNames/delete	Remove the domain names for resources.
Microsoft.ClassicCompute/domainNames/swap/action	Swaps the staging slot to the production slot.
Microsoft.ClassicCompute/domainNames/active/write	Sets the active domain name.
Microsoft.ClassicCompute/domainNames/availabilitySets/re ad	Show the availability set for the resource.
Microsoft.ClassicCompute/domainNames/capabilities/read	Shows the domain name capabilities
Microsoft.ClassicCompute/domainNames/deploymentslots/r ead	Shows the deployment slots.
Microsoft.ClassicCompute/domainNames/deploymentslots/w rite	Creates or update the deployment.
Microsoft.ClassicCompute/domainNames/deploymentslots/r oles/read	Get role on deployment slot of domain name
Microsoft.ClassicCompute/domainNames/deploymentslots/r oles/roleinstances/read	Get role instance for role on deployment slot of domain name
Microsoft.ClassicCompute/domainNames/deploymentslots/s tate/read	Get the deployment slot state.
Microsoft.ClassicCompute/domainNames/deploymentslots/s tate/write	Add the deployment slot state.
Microsoft.ClassicCompute/domainNames/deploymentslots/u pgradedomain/read	Get upgrade domain for deployment slot on domain name

ACTION	DESCRIPTION
Microsoft.ClassicCompute/domainNames/deploymentslots/upgradedomain/write	Update upgrade domain for deployment slot on domain name
Microsoft.ClassicCompute/domainNames/extensions/read	Returns the domain name extensions.
Microsoft.ClassicCompute/domainNames/extensions/write	Add the domain name extensions.
Microsoft.ClassicCompute/domainNames/extensions/delete	Remove the domain name extensions.
Microsoft.ClassicCompute/domainNames/extensions/operationStatuses/read	Reads the operation status for the domain names extensions.
Microsoft.ClassicCompute/domainNames/internalLoadBalancers/read	Gets the internal load balancers.
Microsoft.ClassicCompute/domainNames/internalLoadBalancers/write	Creates a new internal load balance.
Microsoft.ClassicCompute/domainNames/internalLoadBalancers/delete	Remove a new internal load balance.
Microsoft.ClassicCompute/domainNames/internalLoadBalancers/operationStatuses/read	Reads the operation status for the domain names internal load balancers.
Microsoft.ClassicCompute/domainNames/loadBalancedEndpointSets/read	Get the load balanced endpoint sets.
Microsoft.ClassicCompute/domainNames/loadBalancedEndpointSets/write	Add the load balanced endpoint set.
Microsoft.ClassicCompute/domainNames/loadBalancedEndpointSets/operationStatuses/read	Reads the operation status for the domain names load balanced endpoint sets.
Microsoft.ClassicCompute/domainNames/operationstatuses/read	Get operation status of the domain name.
Microsoft.ClassicCompute/domainNames/operationStatuses/read	Reads the operation status for the domain names extensions.
Microsoft.ClassicCompute/domainNames/serviceCertificates/read	Returns the service certificates used.
Microsoft.ClassicCompute/domainNames/serviceCertificates/write	Add or modify the service certificates used.
Microsoft.ClassicCompute/domainNames/serviceCertificates/delete	Delete the service certificates used.
Microsoft.ClassicCompute/domainNames/serviceCertificates/operationStatuses/read	Reads the operation status for the domain names service certificates.
Microsoft.ClassicCompute/domainNames/slots/read	Shows the deployment slots.

ACTION	DESCRIPTION
Microsoft.ClassicCompute/domainNames/slots/write	Creates or update the deployment.
Microsoft.ClassicCompute/domainNames/slots/delete	Deletes a given deployment slot.
Microsoft.ClassicCompute/domainNames/slots/start/action	Starts a deployment slot.
Microsoft.ClassicCompute/domainNames/slots/stop/action	Suspends the deployment slot.
Microsoft.ClassicCompute/domainNames/slots/validateMigration/action	Validates migration of a deployment slot.
Microsoft.ClassicCompute/domainNames/slots/prepareMigration/action	Prepares migration of a deployment slot.
Microsoft.ClassicCompute/domainNames/slots/commitMigration/action	Commits migration of a deployment slot.
Microsoft.ClassicCompute/domainNames/slots/abortMigration/action	Aborts migration of a deployment slot.
Microsoft.ClassicCompute/domainNames/slots/operationStatuses/read	Reads the operation status for the domain names slots.
Microsoft.ClassicCompute/domainNames/slots/roles/read	Get the role for the deployment slot.
Microsoft.ClassicCompute/domainNames/slots/roles/write	Add role for the deployment slot.
Microsoft.ClassicCompute/domainNames/slots/roles/extensionReferences/read	Returns the extension reference for the deployment slot role.
Microsoft.ClassicCompute/domainNames/slots/roles/extensionReferences/write	Add or modify the extension reference for the deployment slot role.
Microsoft.ClassicCompute/domainNames/slots/roles/extensionReferences/delete	Remove the extension reference for the deployment slot role.
Microsoft.ClassicCompute/domainNames/slots/roles/extensionReferences/operationStatuses/read	Reads the operation status for the domain names slots roles extension references.
Microsoft.ClassicCompute/domainNames/slots/roles/metricDefinitions/read	Get the role metric definition for the domain name.
Microsoft.ClassicCompute/domainNames/slots/roles/metrics/read	Get role metric for the domain name.
Microsoft.ClassicCompute/domainNames/slots/roles/operationstatuses/read	Get the operation status for the domain names slot role.
Microsoft.ClassicCompute/domainNames/slots/roles/providers/Microsoft.Insights/diagnosticSettings/read	Get the diagnostics settings.
Microsoft.ClassicCompute/domainNames/slots/roles/providers/Microsoft.Insights/diagnosticSettings/write	Add or modify diagnostics settings.

ACTION	DESCRIPTION
Microsoft.ClassicCompute/domainNames/slots/roles/providers/Microsoft.Insights/metricDefinitions/read	Gets the metrics definitions.
Microsoft.ClassicCompute/domainNames/slots/roles/roleInstances/downloadremotedesktopconnectionfile/action	Downloads remote desktop connection file for the role instance on the domain name slot role.
Microsoft.ClassicCompute/domainNames/slots/roles/roleInstances/read	Get the role instance.
Microsoft.ClassicCompute/domainNames/slots/roles/roleInstances/restart/action	Restarts role instances.
Microsoft.ClassicCompute/domainNames/slots/roles/roleInstances/reimage/action	Reimages the role instance.
Microsoft.ClassicCompute/domainNames/slots/roles/roleInstances/rebuild/action	Rebuilds the role instance.
Microsoft.ClassicCompute/domainNames/slots/roles/roleInstances/operationStatuses/read	Gets the operation status for the role instance on domain names slot role.
Microsoft.ClassicCompute/domainNames/slots/roles/skus/read	Get role sku for the deployment slot.
Microsoft.ClassicCompute/domainNames/slots/state/start/write	Changes the deployment slot state to stopped.
Microsoft.ClassicCompute/domainNames/slots/state/stop/write	Changes the deployment slot state to started.
Microsoft.ClassicCompute/domainNames/slots/upgradeDomain/write	Walk upgrade the domain.
Microsoft.ClassicCompute/operatingSystemFamilies/read	Lists the guest operating system families available in Microsoft Azure, and also lists the operating system versions available for each family.
Microsoft.ClassicCompute/operatingSystems/read	Lists the versions of the guest operating system that are currently available in Microsoft Azure.
Microsoft.ClassicCompute/operations/read	Gets the list of operations.
Microsoft.ClassicCompute/operationStatuses/read	Reads the operation status for the resource.
Microsoft.ClassicCompute/quotas/read	Get the quota for the subscription.
Microsoft.ClassicCompute/resourceTypes/skus/read	Gets the Sku list for supported resource types.
Microsoft.ClassicCompute/virtualMachines/read	Retrieves list of virtual machines.
Microsoft.ClassicCompute/virtualMachines/write	Add or modify virtual machines.
Microsoft.ClassicCompute/virtualMachines/delete	Removes virtual machines.

ACTION	DESCRIPTION
Microsoft.ClassicCompute/virtualMachines/capture/action	Capture a virtual machine.
Microsoft.ClassicCompute/virtualMachines/start/action	Start the virtual machine.
Microsoft.ClassicCompute/virtualMachines/redeploy/action	Redeploys the virtual machine.
Microsoft.ClassicCompute/virtualMachines/performMaintenance/action	Performs maintenance on the virtual machine.
Microsoft.ClassicCompute/virtualMachines/restart/action	Restarts virtual machines.
Microsoft.ClassicCompute/virtualMachines/stop/action	Stops the virtual machine.
Microsoft.ClassicCompute/virtualMachines/shutdown/action	Shutdown the virtual machine.
Microsoft.ClassicCompute/virtualMachines/attachDisk/action	Attaches a data disk to a virtual machine.
Microsoft.ClassicCompute/virtualMachines/detachDisk/action	Detaches a data disk from virtual machine.
Microsoft.ClassicCompute/virtualMachines/downloadRemoteDesktopConnectionFile/action	Downloads the RDP file for virtual machine.
Microsoft.ClassicCompute/virtualMachines/associatedNetworkSecurityGroups/read	Gets the network security group associated with the virtual machine.
Microsoft.ClassicCompute/virtualMachines/associatedNetworkSecurityGroups/write	Adds a network security group associated with the virtual machine.
Microsoft.ClassicCompute/virtualMachines/associatedNetworkSecurityGroups/delete	Deletes the network security group associated with the virtual machine.
Microsoft.ClassicCompute/virtualMachines/associatedNetworkSecurityGroups/operationStatuses/read	Reads the operation status for the virtual machines associated network security groups.
Microsoft.ClassicCompute/virtualMachines/asyncOperations/read	Gets the possible async operations
Microsoft.ClassicCompute/virtualMachines/diagnosticSettings/read	Get virtual machine diagnostics settings.
Microsoft.ClassicCompute/virtualMachines/disks/read	Retrieves list of data disks
Microsoft.ClassicCompute/virtualMachines/extensions/read	Gets the virtual machine extension.
Microsoft.ClassicCompute/virtualMachines/extensions/write	Puts the virtual machine extension.
Microsoft.ClassicCompute/virtualMachines/extensions/operationStatuses/read	Reads the operation status for the virtual machines extensions.
Microsoft.ClassicCompute/virtualMachines/metricDefinitions/read	Get the virtual machine metric definition.

ACTION	DESCRIPTION
Microsoft.ClassicCompute/virtualMachines/metrics/read	Gets the metrics.
Microsoft.ClassicCompute/virtualMachines/networkInterfaces/associatedNetworkSecurityGroups/read	Gets the network security group associated with the network interface.
Microsoft.ClassicCompute/virtualMachines/networkInterfaces/associatedNetworkSecurityGroups/write	Adds a network security group associated with the network interface.
Microsoft.ClassicCompute/virtualMachines/networkInterfaces/associatedNetworkSecurityGroups/delete	Deletes the network security group associated with the network interface.
Microsoft.ClassicCompute/virtualMachines/networkInterfaces/associatedNetworkSecurityGroups/operationStatuses/read	Reads the operation status for the virtual machines associated network security groups.
Microsoft.ClassicCompute/virtualMachines/operationStatuses/read	Reads the operation status for the virtual machines.
Microsoft.ClassicCompute/virtualMachines/providers/Microsoft.Insights/diagnosticSettings/read	Get the diagnostics settings.
Microsoft.ClassicCompute/virtualMachines/providers/Microsoft.Insights/diagnosticSettings/write	Add or modify diagnostics settings.
Microsoft.ClassicCompute/virtualMachines/providers/Microsoft.Insights/metricDefinitions/read	Gets the metrics definitions.

## Microsoft.Compute

Azure service: [Virtual Machines](#), [Virtual Machine Scale Sets](#)

ACTION	DESCRIPTION
Microsoft.Compute/register/action	Registers Subscription with Microsoft.Compute resource provider
Microsoft.Compute/unregister/action	Unregisters Subscription with Microsoft.Compute resource provider
Microsoft.Compute/availabilitySets/read	Get the properties of an availability set
Microsoft.Compute/availabilitySets/write	Creates a new availability set or updates an existing one
Microsoft.Compute/availabilitySets/delete	Deletes the availability set
Microsoft.Compute/availabilitySets/vmSizes/read	List available sizes for creating or updating a virtual machine in the availability set
Microsoft.Compute/diskAccesses/read	Get the properties of DiskAccess resource
Microsoft.Compute/diskAccesses/write	Create a new DiskAccess resource or update an existing one
Microsoft.Compute/diskAccesses/delete	Delete a DiskAccess resource

ACTION	DESCRIPTION
Microsoft.Compute/diskAccesses/privateEndpointConnectionsApproval/action	Approve a Private Endpoint Connection
Microsoft.Compute/diskAccesses/privateEndpointConnectionProxies/read	Get the properties of a private endpoint connection proxy
Microsoft.Compute/diskAccesses/privateEndpointConnectionProxies/write	Create a new Private Endpoint Connection Proxy
Microsoft.Compute/diskAccesses/privateEndpointConnectionProxies/delete	Delete a Private Endpoint Connection Proxy
Microsoft.Compute/diskAccesses/privateEndpointConnectionProxies/validate/action	Validate a Private Endpoint Connection Proxy object
Microsoft.Compute/diskAccesses/privateEndpointConnections/s/delete	Delete a Private Endpoint Connection
Microsoft.Compute/diskEncryptionSets/read	Get the properties of a disk encryption set
Microsoft.Compute/diskEncryptionSets/write	Create a new disk encryption set or update an existing one
Microsoft.Compute/diskEncryptionSets/delete	Delete a disk encryption set
Microsoft.Compute/disks/read	Get the properties of a Disk
Microsoft.Compute/disks/write	Creates a new Disk or updates an existing one
Microsoft.Compute/disks/delete	Deletes the Disk
Microsoft.Compute/disks/beginGetAccess/action	Get the SAS URI of the Disk for blob access
Microsoft.Compute/disks/endGetAccess/action	Revoke the SAS URI of the Disk
Microsoft.Compute/galleries/read	Gets the properties of Gallery
Microsoft.Compute/galleries/write	Creates a new Gallery or updates an existing one
Microsoft.Compute/galleries/delete	Deletes the Gallery
Microsoft.Compute/galleries/applications/read	Gets the properties of Gallery Application
Microsoft.Compute/galleries/applications/write	Creates a new Gallery Application or updates an existing one
Microsoft.Compute/galleries/applications/delete	Deletes the Gallery Application
Microsoft.Compute/galleries/applications/versions/read	Gets the properties of Gallery Application Version
Microsoft.Compute/galleries/applications/versions/write	Creates a new Gallery Application Version or updates an existing one

ACTION	DESCRIPTION
Microsoft.Compute/galleries/applications/versions/delete	Deletes the Gallery Application Version
Microsoft.Compute/galleries/images/read	Gets the properties of Gallery Image
Microsoft.Compute/galleries/images/write	Creates a new Gallery Image or updates an existing one
Microsoft.Compute/galleries/images/delete	Deletes the Gallery Image
Microsoft.Compute/galleries/images/versions/read	Gets the properties of Gallery Image Version
Microsoft.Compute/galleries/images/versions/write	Creates a new Gallery Image Version or updates an existing one
Microsoft.Compute/galleries/images/versions/delete	Deletes the Gallery Image Version
Microsoft.Compute/hostGroups/read	Get the properties of a host group
Microsoft.Compute/hostGroups/write	Creates a new host group or updates an existing host group
Microsoft.Compute/hostGroups/delete	Deletes the host group
Microsoft.Compute/hostGroups/hosts/read	Get the properties of a host
Microsoft.Compute/hostGroups/hosts/write	Creates a new host or updates an existing host
Microsoft.Compute/hostGroups/hosts/delete	Deletes the host
Microsoft.Compute/images/read	Get the properties of the Image
Microsoft.Compute/images/write	Creates a new Image or updates an existing one
Microsoft.Compute/images/delete	Deletes the image
Microsoft.Compute/locations/capsOperations/read	Gets the status of an asynchronous Caps operation
Microsoft.Compute/locations/diskOperations/read	Gets the status of an asynchronous Disk operation
Microsoft.Compute/locations/logAnalytics/getRequestRateByInterval/action	Create logs to show total requests by time interval to aid throttling diagnostics.
Microsoft.Compute/locations/logAnalytics/getThrottledRequests/action	Create logs to show aggregates of throttled requests grouped by ResourceName, OperationName, or the applied Throttle Policy.
Microsoft.Compute/locations/operations/read	Gets the status of an asynchronous operation
Microsoft.Compute/locations/privateEndpointConnectionProxyAzureAsyncOperation/read	Get the status of asynchronous Private Endpoint Connection Proxy operation
Microsoft.Compute/locations/privateEndpointConnectionProxyOperationResults/read	Get the results of Private Endpoint Connection Proxy operation

ACTION	DESCRIPTION
Microsoft.Compute/locations/publishers/read	Get the properties of a Publisher
Microsoft.Compute/locations/publishers/artifacttypes/offers/read	Get the properties of a Platform Image Offer
Microsoft.Compute/locations/publishers/artifacttypes/offers/skus/read	Get the properties of a Platform Image Sku
Microsoft.Compute/locations/publishers/artifacttypes/offers/skus/versions/read	Get the properties of a Platform Image Version
Microsoft.Compute/locations/publishers/artifacttypes/types/read	Get the properties of a VMExtension Type
Microsoft.Compute/locations/publishers/artifacttypes/types/versions/read	Get the properties of a VMExtension Version
Microsoft.Compute/locations/runCommands/read	Lists available run commands in location
Microsoft.Compute/locations/usages/read	Gets service limits and current usage quantities for the subscription's compute resources in a location
Microsoft.Compute/locations/vmSizes/read	Lists available virtual machine sizes in a location
Microsoft.Compute/locations/vsmOperations/read	Gets the status of an asynchronous operation for Virtual Machine Scale Set with the Virtual Machine Runtime Service Extension
Microsoft.Compute/operations/read	Lists operations available on Microsoft.Compute resource provider
Microsoft.Compute/proximityPlacementGroups/read	Get the Properties of a Proximity Placement Group
Microsoft.Compute/proximityPlacementGroups/write	Creates a new Proximity Placement Group or updates an existing one
Microsoft.Compute/proximityPlacementGroups/delete	Deletes the Proximity Placement Group
Microsoft.Compute/restorePointCollections/read	Get the properties of a restore point collection
Microsoft.Compute/restorePointCollections/write	Creates a new restore point collection or updates an existing one
Microsoft.Compute/restorePointCollections/delete	Deletes the restore point collection and contained restore points
Microsoft.Compute/restorePointCollections/restorePoints/read	Get the properties of a restore point
Microsoft.Compute/restorePointCollections/restorePoints/write	Creates a new restore point

ACTION	DESCRIPTION
Microsoft.Compute/restorePointCollections/restorePoints/delete	Deletes the restore point
Microsoft.Compute/restorePointCollections/restorePoints/retrieveSasUris/action	Get the properties of a restore point along with blob SAS URIs
Microsoft.Compute/sharedVMExtensions/read	Gets the properties of Shared VM Extension
Microsoft.Compute/sharedVMExtensions/write	Creates a new Shared VM Extension or updates an existing one
Microsoft.Compute/sharedVMExtensions/delete	Deletes the Shared VM Extension
Microsoft.Compute/sharedVMExtensions/versions/read	Gets the properties of Shared VM Extension Version
Microsoft.Compute/sharedVMExtensions/versions/write	Creates a new Shared VM Extension Version or updates an existing one
Microsoft.Compute/sharedVMExtensions/versions/delete	Deletes the Shared VM Extension Version
Microsoft.Compute/sharedVMImages/read	Get the properties of a SharedVMImage
Microsoft.Compute/sharedVMImages/write	Creates a new SharedVMImage or updates an existing one
Microsoft.Compute/sharedVMImages/delete	Deletes the SharedVMImage
Microsoft.Compute/sharedVMImages/versions/read	Get the properties of a SharedVMImageVersion
Microsoft.Compute/sharedVMImages/versions/write	Create a new SharedVMImageVersion or update an existing one
Microsoft.Compute/sharedVMImages/versions/delete	Delete a SharedVMImageVersion
Microsoft.Compute/sharedVMImages/versions/replicate/acti on	Replicate a SharedVMImageVersion to target regions
Microsoft.Compute/skus/read	Gets the list of Microsoft.Compute SKUs available for your Subscription
Microsoft.Compute/snapshots/read	Get the properties of a Snapshot
Microsoft.Compute/snapshots/write	Create a new Snapshot or update an existing one
Microsoft.Compute/snapshots/delete	Delete a Snapshot
Microsoft.Compute/snapshots/beginGetAccess/action	Get the SAS URI of the Snapshot for blob access
Microsoft.Compute/snapshots/endGetAccess/action	Revoke the SAS URI of the Snapshot
Microsoft.Compute/sshPublicKeys/read	Get the properties of an SSH public key

ACTION	DESCRIPTION
Microsoft.Compute/sshPublicKeys/write	Creates a new SSH public key or updates an existing SSH public key
Microsoft.Compute/sshPublicKeys/delete	Deletes the SSH public key
Microsoft.Compute/virtualMachines/read	Get the properties of a virtual machine
Microsoft.Compute/virtualMachines/write	Creates a new virtual machine or updates an existing virtual machine
Microsoft.Compute/virtualMachines/delete	Deletes the virtual machine
Microsoft.Compute/virtualMachines/start/action	Starts the virtual machine
Microsoft.Compute/virtualMachines/powerOff/action	Powers off the virtual machine. Note that the virtual machine will continue to be billed.
Microsoft.Compute/virtualMachines/reapply/action	Reapplies a virtual machine's current model
Microsoft.Compute/virtualMachines/redeploy/action	Redeploys virtual machine
Microsoft.Compute/virtualMachines/restart/action	Restarts the virtual machine
Microsoft.Compute/virtualMachines/retrieveBootDiagnosticsData/action	Retrieves boot diagnostic logs blob URIs
Microsoft.Compute/virtualMachines/deallocate/action	Powers off the virtual machine and releases the compute resources
Microsoft.Compute/virtualMachines/generalize/action	Sets the virtual machine state to Generalized and prepares the virtual machine for capture
Microsoft.Compute/virtualMachines/capture/action	Captures the virtual machine by copying virtual hard disks and generates a template that can be used to create similar virtual machines
Microsoft.Compute/virtualMachines/runCommand/action	Executes a predefined script on the virtual machine
Microsoft.Compute/virtualMachines/convertToManagedDisks/action	Converts the blob based disks of the virtual machine to managed disks
Microsoft.Compute/virtualMachines/performMaintenance/action	Performs Maintenance Operation on the VM.
Microsoft.Compute/virtualMachines/reimage/action	Reimages virtual machine which is using differencing disk.
Microsoft.Compute/virtualMachines/installPatches/action	Installs available OS update patches on the virtual machine based on parameters provided by user. Assessment results containing list of available patches will also get refreshed as part of this.
Microsoft.Compute/virtualMachines/assessPatches/action	Assesses the virtual machine and finds list of available OS update patches for it.

ACTION	DESCRIPTION
Microsoft.Compute/virtualMachines/cancelPatchInstallation/action	Cancels the ongoing install OS update patch operation on the virtual machine.
Microsoft.Compute/virtualMachines/simulateEviction/action	Simulates the eviction of spot Virtual Machine
Microsoft.Compute/virtualMachines/extensions/read	Get the properties of a virtual machine extension
Microsoft.Compute/virtualMachines/extensions/write	Creates a new virtual machine extension or updates an existing one
Microsoft.Compute/virtualMachines/extensions/delete	Deletes the virtual machine extension
Microsoft.Compute/virtualMachines/instanceView/read	Gets the detailed runtime status of the virtual machine and its resources
Microsoft.Compute/virtualMachines/vmSizes/read	Lists available sizes the virtual machine can be updated to
Microsoft.Compute/virtualMachineScaleSets/read	Get the properties of a Virtual Machine Scale Set
Microsoft.Compute/virtualMachineScaleSets/write	Creates a new Virtual Machine Scale Set or updates an existing one
Microsoft.Compute/virtualMachineScaleSets/delete	Deletes the Virtual Machine Scale Set
Microsoft.Compute/virtualMachineScaleSets/delete/action	Deletes the instances of the Virtual Machine Scale Set
Microsoft.Compute/virtualMachineScaleSets/start/action	Starts the instances of the Virtual Machine Scale Set
Microsoft.Compute/virtualMachineScaleSets/powerOff/action	Powers off the instances of the Virtual Machine Scale Set
Microsoft.Compute/virtualMachineScaleSets/restart/action	Restarts the instances of the Virtual Machine Scale Set
Microsoft.Compute/virtualMachineScaleSets/deallocate/actio n	Powers off and releases the compute resources for the instances of the Virtual Machine Scale Set
Microsoft.Compute/virtualMachineScaleSets/manualUpgrade /action	Manually updates instances to latest model of the Virtual Machine Scale Set
Microsoft.Compute/virtualMachineScaleSets/reimage/action	Reimages the instances of the Virtual Machine Scale Set
Microsoft.Compute/virtualMachineScaleSets/reimageAll/actio n	Reimages all disks (OS Disk and Data Disks) for the instances of a Virtual Machine Scale Set
Microsoft.Compute/virtualMachineScaleSets/redeploy/action	Redeploy the instances of the Virtual Machine Scale Set
Microsoft.Compute/virtualMachineScaleSets/performMainte nance/action	Performs planned maintenance on the instances of the Virtual Machine Scale Set
Microsoft.Compute/virtualMachineScaleSets/scale/action	Verify if an existing Virtual Machine Scale Set can Scale In/Scale Out to specified instance count

ACTION	DESCRIPTION
Microsoft.Compute/virtualMachineScaleSets/forceRecoveryServiceFabricPlatformUpdateDomainWalk/action	Manually walk the platform update domains of a service fabric Virtual Machine Scale Set to finish a pending update that is stuck
Microsoft.Compute/virtualMachineScaleSets/osRollingUpgrade/action	Starts a rolling upgrade to move all Virtual Machine Scale Set instances to the latest available Platform Image OS version.
Microsoft.Compute/virtualMachineScaleSets/setOrchestrationServiceState/action	Sets the state of an orchestration service based on the action provided in operation input.
Microsoft.Compute/virtualMachineScaleSets/rollingUpgrades/action	Cancels the rolling upgrade of a Virtual Machine Scale Set
Microsoft.Compute/virtualMachineScaleSets/extensions/read	Gets the properties of a Virtual Machine Scale Set Extension
Microsoft.Compute/virtualMachineScaleSets/extensions/write	Creates a new Virtual Machine Scale Set Extension or updates an existing one
Microsoft.Compute/virtualMachineScaleSets/extensions/delete	Deletes the Virtual Machine Scale Set Extension
Microsoft.Compute/virtualMachineScaleSets/extensions/roles/read	Gets the properties of a Role in a Virtual Machine Scale Set with the Virtual Machine Runtime Service Extension
Microsoft.Compute/virtualMachineScaleSets/extensions/roles/write	Updates the properties of an existing Role in a Virtual Machine Scale Set with the Virtual Machine Runtime Service Extension
Microsoft.Compute/virtualMachineScaleSets/instanceView/read	Gets the instance view of the Virtual Machine Scale Set
Microsoft.Compute/virtualMachineScaleSets/networkInterfaces/read	Get properties of all network interfaces of a Virtual Machine Scale Set
Microsoft.Compute/virtualMachineScaleSets/osUpgradeHistory/read	Gets the history of OS upgrades for a Virtual Machine Scale Set
Microsoft.Compute/virtualMachineScaleSets/publicIPAddresses/read	Get properties of all public IP addresses of a Virtual Machine Scale Set
Microsoft.Compute/virtualMachineScaleSets/rollingUpgrades/read	Get latest Rolling Upgrade status for a Virtual Machine Scale Set
Microsoft.Compute/virtualMachineScaleSets/skus/read	Lists the valid SKUs for an existing Virtual Machine Scale Set
Microsoft.Compute/virtualMachineScaleSets/virtualMachines/read	Retrieves the properties of a Virtual Machine in a VM Scale Set
Microsoft.Compute/virtualMachineScaleSets/virtualMachines/write	Updates the properties of a Virtual Machine in a VM Scale Set
Microsoft.Compute/virtualMachineScaleSets/virtualMachines/delete	Delete a specific Virtual Machine in a VM Scale Set.

ACTION	DESCRIPTION
Microsoft.Compute/virtualMachineScaleSets/virtualMachines /start/action	Starts a Virtual Machine instance in a VM Scale Set.
Microsoft.Compute/virtualMachineScaleSets/virtualMachines /powerOff/action	Powers Off a Virtual Machine instance in a VM Scale Set.
Microsoft.Compute/virtualMachineScaleSets/virtualMachines /restart/action	Restarts a Virtual Machine instance in a VM Scale Set.
Microsoft.Compute/virtualMachineScaleSets/virtualMachines /deallocate/action	Powers off and releases the compute resources for a Virtual Machine in a VM Scale Set.
Microsoft.Compute/virtualMachineScaleSets/virtualMachines /reimage/action	Reimages a Virtual Machine instance in a Virtual Machine Scale Set.
Microsoft.Compute/virtualMachineScaleSets/virtualMachines /reimageAll/action	Reimages all disks (OS Disk and Data Disks) for Virtual Machine instance in a Virtual Machine Scale Set.
Microsoft.Compute/virtualMachineScaleSets/virtualMachines /redeploy/action	Redeploys a Virtual Machine instance in a Virtual Machine Scale Set
Microsoft.Compute/virtualMachineScaleSets/virtualMachines /retrieveBootDiagnosticsData/action	Retrieves boot diagnostic logs blob URIs of Virtual Machine instance in a Virtual Machine Scale Set
Microsoft.Compute/virtualMachineScaleSets/virtualMachines /performMaintenance/action	Performs planned maintenance on a Virtual Machine instance in a Virtual Machine Scale Set
Microsoft.Compute/virtualMachineScaleSets/virtualMachines /runCommand/action	Executes a predefined script on a Virtual Machine instance in a Virtual Machine Scale Set.
Microsoft.Compute/virtualMachineScaleSets/virtualMachines /simulateEviction/action	Simulates the eviction of spot Virtual Machine in Virtual Machine Scale Set
Microsoft.Compute/virtualMachineScaleSets/virtualMachines /extensions/read	Get the properties of an extension for Virtual Machine in Virtual Machine Scale Set
Microsoft.Compute/virtualMachineScaleSets/virtualMachines /extensions/write	Creates a new extension for Virtual Machine in Virtual Machine Scale Set or updates an existing one
Microsoft.Compute/virtualMachineScaleSets/virtualMachines /extensions/delete	Deletes the extension for Virtual Machine in Virtual Machine Scale Set
Microsoft.Compute/virtualMachineScaleSets/virtualMachines /instanceView/read	Retrieves the instance view of a Virtual Machine in a VM Scale Set.
Microsoft.Compute/virtualMachineScaleSets/virtualMachines /networkInterfaces/read	Get properties of one or all network interfaces of a virtual machine created using Virtual Machine Scale Set
Microsoft.Compute/virtualMachineScaleSets/virtualMachines /networkInterfaces/ipConfigurations/read	Get properties of one or all IP configurations of a network interface created using Virtual Machine Scale Set. IP configurations represent private IPs

ACTION	DESCRIPTION
Microsoft.Compute/virtualMachineScaleSets/virtualMachines/networkInterfaces/ipConfigurations/publicIPAddresses/read	Get properties of public IP address created using Virtual Machine Scale Set. Virtual Machine Scale Set can create at most one public IP per ipconfiguration (private IP)
Microsoft.Compute/virtualMachineScaleSets/vmSizes/read	List available sizes for creating or updating a virtual machine in the Virtual Machine Scale Set
DataAction	Description
Microsoft.Compute/virtualMachines/login/action	Log in to a virtual machine as a regular user
Microsoft.Compute/virtualMachines/loginAsAdmin/action	Log in to a virtual machine with Windows administrator or Linux root user privileges

## Microsoft.ServiceFabric

Azure service: [Service Fabric](#)

ACTION	DESCRIPTION
Microsoft.ServiceFabric/register/action	Register any Action
Microsoft.ServiceFabric/clusters/read	Read any Cluster
Microsoft.ServiceFabric/clusters/write	Create or Update any Cluster
Microsoft.ServiceFabric/clusters/delete	Delete any Cluster
Microsoft.ServiceFabric/clusters/applications/read	Read any Application
Microsoft.ServiceFabric/clusters/applications/write	Create or Update any Application
Microsoft.ServiceFabric/clusters/applications/delete	Delete any Application
Microsoft.ServiceFabric/clusters/applications/services/read	Read any Service
Microsoft.ServiceFabric/clusters/applications/services/write	Create or Update any Service
Microsoft.ServiceFabric/clusters/applications/services/delete	Delete any Service
Microsoft.ServiceFabric/clusters/applications/services/partitions/read	Read any Partition
Microsoft.ServiceFabric/clusters/applications/services/partitions/replicas/read	Read any Replica
Microsoft.ServiceFabric/clusters/applications/services/statuses/read	Read any Service Status
Microsoft.ServiceFabric/clusters/applicationTypes/read	Read any Application Type
Microsoft.ServiceFabric/clusters/applicationTypes/write	Create or Update any Application Type

ACTION	DESCRIPTION
Microsoft.ServiceFabric/clusters/applicationTypes/delete	Delete any Application Type
Microsoft.ServiceFabric/clusters/applicationTypes/versions/read	Read any Application Type Version
Microsoft.ServiceFabric/clusters/applicationTypes/versions/write	Create or Update any Application Type Version
Microsoft.ServiceFabric/clusters/applicationTypes/versions/delete	Delete any Application Type Version
Microsoft.ServiceFabric/clusters/nodes/read	Read any Node
Microsoft.ServiceFabric/clusters/statuses/read	Read any Cluster Status
Microsoft.ServiceFabric/locations/clusterVersions/read	Read any Cluster Version
Microsoft.ServiceFabric/locations/environments/clusterVersions/read	Read any Cluster Version for a specific environment
Microsoft.ServiceFabric/locations/operationresults/read	Read any Operation Results
Microsoft.ServiceFabric/locations/operations/read	Read any Operations by location
Microsoft.ServiceFabric/operations/read	Read any Available Operations

## Networking

### Microsoft.Cdn

Azure service: [Content Delivery Network](#)

ACTION	DESCRIPTION
Microsoft.Cdn/register/action	Registers the subscription for the CDN resource provider and enables the creation of CDN profiles.
Microsoft.Cdn/CheckNameAvailability/action	
Microsoft.Cdn/ValidateProbe/action	
Microsoft.Cdn/CheckResourceUsage/action	
Microsoft.Cdn/edgenodes/read	
Microsoft.Cdn/edgenodes/write	
Microsoft.Cdn/edgenodes/delete	
Microsoft.Cdn/operationresults/read	

ACTION	DESCRIPTION
Microsoft.Cdn/operationresults/write	
Microsoft.Cdn/operationresults/delete	
Microsoft.Cdn/operationresults/profileresults/read	
Microsoft.Cdn/operationresults/profileresults/write	
Microsoft.Cdn/operationresults/profileresults/delete	
Microsoft.Cdn/operationresults/profileresults/CheckResourceUsage/action	
Microsoft.Cdn/operationresults/profileresults/GenerateSsoUri/action	
Microsoft.Cdn/operationresults/profileresults/GetSupportedOptimizationTypes/action	
Microsoft.Cdn/operationresults/profileresults/endpointresults/read	
Microsoft.Cdn/operationresults/profileresults/endpointresults/write	
Microsoft.Cdn/operationresults/profileresults/endpointresults/delete	
Microsoft.Cdn/operationresults/profileresults/endpointresults/CheckResourceUsage/action	
Microsoft.Cdn/operationresults/profileresults/endpointresults/Start/action	
Microsoft.Cdn/operationresults/profileresults/endpointresults/Stop/action	
Microsoft.Cdn/operationresults/profileresults/endpointresults/Purge/action	
Microsoft.Cdn/operationresults/profileresults/endpointresults/Load/action	
Microsoft.Cdn/operationresults/profileresults/endpointresults/ValidateCustomDomain/action	
Microsoft.Cdn/operationresults/profileresults/endpointresults/customdomainresults/read	
Microsoft.Cdn/operationresults/profileresults/endpointresults/customdomainresults/write	

ACTION	DESCRIPTION
Microsoft.Cdn/operationresults/profileresults/endpointresults/customdomainresults/delete	
Microsoft.Cdn/operationresults/profileresults/endpointresults/customdomainresults/DisableCustomHttps/action	
Microsoft.Cdn/operationresults/profileresults/endpointresults/customdomainresults/EnableCustomHttps/action	
Microsoft.Cdn/operationresults/profileresults/endpointresults/origingroupresults/read	
Microsoft.Cdn/operationresults/profileresults/endpointresults/origingroupresults/write	
Microsoft.Cdn/operationresults/profileresults/endpointresults/origingroupresults/delete	
Microsoft.Cdn/operationresults/profileresults/endpointresults/originresults/read	
Microsoft.Cdn/operationresults/profileresults/endpointresults/originresults/write	
Microsoft.Cdn/operationresults/profileresults/endpointresults/originresults/delete	
Microsoft.Cdn/operations/read	
Microsoft.Cdn/profiles/read	
Microsoft.Cdn/profiles/write	
Microsoft.Cdn/profiles/delete	
Microsoft.Cdn/profiles/CheckResourceUsage/action	
Microsoft.Cdn/profiles/GenerateSsoUri/action	
Microsoft.Cdn/profiles/GetSupportedOptimizationTypes/action	
Microsoft.Cdn/profiles/endpoints/read	
Microsoft.Cdn/profiles/endpoints/write	
Microsoft.Cdn/profiles/endpoints/delete	
Microsoft.Cdn/profiles/endpoints/CheckResourceUsage/action	
Microsoft.Cdn/profiles/endpoints/Start/action	

ACTION	DESCRIPTION
Microsoft.Cdn/profiles/endpoints/Stop/action	
Microsoft.Cdn/profiles/endpoints/Purge/action	
Microsoft.Cdn/profiles/endpoints/Load/action	
Microsoft.Cdn/profiles/endpoints/ValidateCustomDomain/action	
Microsoft.Cdn/profiles/endpoints/customdomains/read	
Microsoft.Cdn/profiles/endpoints/customdomains/write	
Microsoft.Cdn/profiles/endpoints/customdomains/delete	
Microsoft.Cdn/profiles/endpoints/customdomains/DisableCustomHttps/action	
Microsoft.Cdn/profiles/endpoints/customdomains/EnableCustomHttps/action	
Microsoft.Cdn/profiles/endpoints/oringroups/read	
Microsoft.Cdn/profiles/endpoints/oringroups/write	
Microsoft.Cdn/profiles/endpoints/oringroups/delete	
Microsoft.Cdn/profiles/endpoints/origins/read	
Microsoft.Cdn/profiles/endpoints/origins/write	
Microsoft.Cdn/profiles/endpoints/origins/delete	

## Microsoft.ClassicNetwork

Azure service: Classic deployment model virtual network

ACTION	DESCRIPTION
Microsoft.ClassicNetwork/register/action	Register to Classic Network
Microsoft.ClassicNetwork/expressroutecrossconnections/read	Get express route cross connections.
Microsoft.ClassicNetwork/expressroutecrossconnections/write	Add express route cross connections.
Microsoft.ClassicNetwork/expressroutecrossconnections/operationstatuses/read	Get an express route cross connection operation status.
Microsoft.ClassicNetwork/expressroutecrossconnections-peerings/read	Get express route cross connection peering.

ACTION	DESCRIPTION
Microsoft.ClassicNetwork/expressrouteconnections/peerings/write	Add express route cross connection peering.
Microsoft.ClassicNetwork/expressrouteconnections/peerings/delete	Delete express route cross connection peering.
Microsoft.ClassicNetwork/expressrouteconnections/peerings/operationstatuses/read	Get an express route cross connection peering operation status.
Microsoft.ClassicNetwork/gatewaySupportedDevices/read	Retrieves the list of supported devices.
Microsoft.ClassicNetwork/networkSecurityGroups/read	Gets the network security group.
Microsoft.ClassicNetwork/networkSecurityGroups/write	Adds a new network security group.
Microsoft.ClassicNetwork/networkSecurityGroups/delete	Deletes the network security group.
Microsoft.ClassicNetwork/networkSecurityGroups/operationStatuses/read	Reads the operation status for the network security group.
Microsoft.ClassicNetwork/networksecuritygroups/providers/Microsoft.Insights/diagnosticSettings/read	Gets the Network Security Groups Diagnostic Settings
Microsoft.ClassicNetwork/networksecuritygroups/providers/Microsoft.Insights/diagnosticSettings/write	Creates or updates the Network Security Groups diagnostic settings, this operation is supplemented by insights resource provider.
Microsoft.ClassicNetwork/networksecuritygroups/providers/Microsoft.Insights/logDefinitions/read	Gets the events for network security group
Microsoft.ClassicNetwork/networkSecurityGroups/securityRules/read	Gets the security rule.
Microsoft.ClassicNetwork/networkSecurityGroups/securityRules/write	Adds or update a security rule.
Microsoft.ClassicNetwork/networkSecurityGroups/securityRules/delete	Deletes the security rule.
Microsoft.ClassicNetwork/networkSecurityGroups/securityRules/operationStatuses/read	Reads the operation status for the network security group security rules.
Microsoft.ClassicNetwork/operations/read	Get classic network operations.
Microsoft.ClassicNetwork/quotas/read	Get the quota for the subscription.
Microsoft.ClassicNetwork/reservedIps/read	Gets the reserved Ips
Microsoft.ClassicNetwork/reservedIps/write	Add a new reserved Ip
Microsoft.ClassicNetwork/reservedIps/delete	Delete a reserved Ip.

ACTION	DESCRIPTION
Microsoft.ClassicNetwork/reservedIps/link/action	Link a reserved Ip
Microsoft.ClassicNetwork/reservedIps/join/action	Join a reserved Ip
Microsoft.ClassicNetwork/reservedIps/operationStatuses/read	Reads the operation status for the reserved ips.
Microsoft.ClassicNetwork/virtualNetworks/read	Get the virtual network.
Microsoft.ClassicNetwork/virtualNetworks/write	Add a new virtual network.
Microsoft.ClassicNetwork/virtualNetworks/delete	Deletes the virtual network.
Microsoft.ClassicNetwork/virtualNetworks/peer/action	Peers a virtual network with another virtual network.
Microsoft.ClassicNetwork/virtualNetworks/join/action	Joins the virtual network.
Microsoft.ClassicNetwork/virtualNetworks/checkIPAddressAvailability/action	Checks the availability of a given IP address in a virtual network.
Microsoft.ClassicNetwork/virtualNetworks/validateMigration/action	Validates the migration of a Virtual Network
Microsoft.ClassicNetwork/virtualNetworks/prepareMigration/action	Prepares the migration of a Virtual Network
Microsoft.ClassicNetwork/virtualNetworks/commitMigration/action	Commits the migration of a Virtual Network
Microsoft.ClassicNetwork/virtualNetworks/abortMigration/action	Aborts the migration of a Virtual Network
Microsoft.ClassicNetwork/virtualNetworks/capabilities/read	Shows the capabilities
Microsoft.ClassicNetwork/virtualNetworks/gateways/read	Gets the virtual network gateways.
Microsoft.ClassicNetwork/virtualNetworks/gateways/write	Adds a virtual network gateway.
Microsoft.ClassicNetwork/virtualNetworks/gateways/delete	Deletes the virtual network gateway.
Microsoft.ClassicNetwork/virtualNetworks/gateways/startDiagnostics/action	Starts diagnostic for the virtual network gateway.
Microsoft.ClassicNetwork/virtualNetworks/gateways/stopDiagnostics/action	Stops the diagnostic for the virtual network gateway.
Microsoft.ClassicNetwork/virtualNetworks/gateways/downloadDiagnostics/action	Downloads the gateway diagnostics.
Microsoft.ClassicNetwork/virtualNetworks/gateways/listCircuitServiceKey/action	Retrieves the circuit service key.

ACTION	DESCRIPTION
Microsoft.ClassicNetwork/virtualNetworks/gateways/downloadDeviceConfigurationScript/action	Downloads the device configuration script.
Microsoft.ClassicNetwork/virtualNetworks/gateways/listPackage/action	Lists the virtual network gateway package.
Microsoft.ClassicNetwork/virtualNetworks/gateways/clientRevokedCertificates/read	Read the revoked client certificates.
Microsoft.ClassicNetwork/virtualNetworks/gateways/clientRevokedCertificates/write	Revokes a client certificate.
Microsoft.ClassicNetwork/virtualNetworks/gateways/clientRevokedCertificates/delete	Unrevokes a client certificate.
Microsoft.ClassicNetwork/virtualNetworks/gateways/clientRootCertificates/read	Find the client root certificates.
Microsoft.ClassicNetwork/virtualNetworks/gateways/clientRootCertificates/write	Uploads a new client root certificate.
Microsoft.ClassicNetwork/virtualNetworks/gateways/clientRootCertificates/delete	Deletes the virtual network gateway client certificate.
Microsoft.ClassicNetwork/virtualNetworks/gateways/clientRootCertificates/download/action	Downloads certificate by thumbprint.
Microsoft.ClassicNetwork/virtualNetworks/gateways/clientRootCertificates/listPackage/action	Lists the virtual network gateway certificate package.
Microsoft.ClassicNetwork/virtualNetworks/gateways/connections/read	Retrieves the list of connections.
Microsoft.ClassicNetwork/virtualNetworks/gateways/connections/connect/action	Connects a site to site gateway connection.
Microsoft.ClassicNetwork/virtualNetworks/gateways/connections/disconnect/action	Disconnects a site to site gateway connection.
Microsoft.ClassicNetwork/virtualNetworks/gateways/connections/test/action	Tests a site to site gateway connection.
Microsoft.ClassicNetwork/virtualNetworks/gateways/operationStatuses/read	Reads the operation status for the virtual networks gateways.
Microsoft.ClassicNetwork/virtualNetworks/gateways/packages/read	Gets the virtual network gateway package.
Microsoft.ClassicNetwork/virtualNetworks/operationStatuses/read	Reads the operation status for the virtual networks.
Microsoft.ClassicNetwork/virtualNetworks/remoteVirtualNetworkPeeringProxies/read	Gets the remote virtual network peering proxy.

ACTION	DESCRIPTION
Microsoft.ClassicNetwork/virtualNetworks/remoteVirtualNetworkPeeringProxies/write	Adds or updates the remote virtual network peering proxy.
Microsoft.ClassicNetwork/virtualNetworks/remoteVirtualNetworkPeeringProxies/delete	Deletes the remote virtual network peering proxy.
Microsoft.ClassicNetwork/virtualNetworks/subnets/associateNetworkSecurityGroups/read	Gets the network security group associated with the subnet.
Microsoft.ClassicNetwork/virtualNetworks/subnets/associateNetworkSecurityGroups/write	Adds a network security group associated with the subnet.
Microsoft.ClassicNetwork/virtualNetworks/subnets/associateNetworkSecurityGroups/delete	Deletes the network security group associated with the subnet.
Microsoft.ClassicNetwork/virtualNetworks/subnets/associateNetworkSecurityGroups/operationStatuses/read	Reads the operation status for the virtual network subnet associated network security group.
Microsoft.ClassicNetwork/virtualNetworks/virtualNetworkPeerings/read	Gets the virtual network peering.

## Microsoft.Network

Azure service: [Application Gateway](#), [Azure Bastion](#), [Azure DDoS Protection](#), [Azure DNS](#), [Azure ExpressRoute](#), [Azure Firewall](#), [Azure Front Door Service](#), [Azure Private Link](#), [Load Balancer](#), [Network Watcher](#), [Traffic Manager](#), [Virtual Network](#), [Virtual WAN](#), [VPN Gateway](#)

ACTION	DESCRIPTION
Microsoft.Network/register/action	Registers the subscription
Microsoft.Network/unregister/action	Unregisters the subscription
Microsoft.Network/checkTrafficManagerNameAvailability/action	Checks the availability of a Traffic Manager Relative DNS name.
Microsoft.Network/checkFrontDoorNameAvailability/action	Checks whether a Front Door name is available
Microsoft.Network/applicationGatewayAvailableRequestHeaders/read	Get Application Gateway available Request Headers
Microsoft.Network/applicationGatewayAvailableResponseHeaders/read	Get Application Gateway available Response Header
Microsoft.Network/applicationGatewayAvailableServerVariables/read	Get Application Gateway available Server Variables
Microsoft.Network/applicationGatewayAvailableSslOptions/read	Application Gateway available Ssl Options
Microsoft.Network/applicationGatewayAvailableSslOptions/predefinedPolicies/read	Application Gateway Ssl Predefined Policy

ACTION	DESCRIPTION
Microsoft.Network/applicationGatewayAvailableWafRuleSets/read	Gets Application Gateway Available Waf Rule Sets
Microsoft.Network/applicationGateways/read	Gets an application gateway
Microsoft.Network/applicationGateways/write	Creates an application gateway or updates an application gateway
Microsoft.Network/applicationGateways/delete	Deletes an application gateway
Microsoft.Network/applicationGateways/backendhealth/action	Gets an application gateway backend health
Microsoft.Network/applicationGateways/getBackendHealthOnDemand/action	Gets an application gateway backend health on demand for given http setting and backend pool
Microsoft.Network/applicationGateways/start/action	Starts an application gateway
Microsoft.Network/applicationGateways/stop/action	Stops an application gateway
Microsoft.Network/applicationGateways/restart/action	Restarts an application gateway
Microsoft.Network/applicationGateways/backendAddressPools/join/action	Joins an application gateway backend address pool. Not Alertable.
Microsoft.Network/applicationGateways/privateEndpointConnections/read	Gets Application Gateway PrivateEndpoint Connections
Microsoft.Network/applicationGateways/privateEndpointConnections/write	Updates Application Gateway PrivateEndpoint Connection
Microsoft.Network/applicationGateways/privateEndpointConnections/delete	Deletes Application Gateway PrivateEndpoint Connection
Microsoft.Network/applicationGateways/privateLinkResources/read	Gets ApplicationGateway PrivateLink Resources
Microsoft.Network/ApplicationGatewayWebApplicationFirewallPolicies/read	Gets an Application Gateway WAF policy
Microsoft.Network/ApplicationGatewayWebApplicationFirewallPolicies/write	Creates an Application Gateway WAF policy or updates an Application Gateway WAF policy
Microsoft.Network/ApplicationGatewayWebApplicationFirewallPolicies/delete	Deletes an Application Gateway WAF policy
Microsoft.Network/applicationRuleCollections/read	Gets Azure Firewall ApplicationRuleCollection
Microsoft.Network/applicationRuleCollections/write	CreatesOrUpdates Azure Firewall ApplicationRuleCollection
Microsoft.Network/applicationRuleCollections/delete	Deletes Azure Firewall ApplicationRuleCollection

ACTION	DESCRIPTION
Microsoft.Network/applicationSecurityGroups/joinIpConfiguration/action	Joins an IP Configuration to Application Security Groups. Not alertable.
Microsoft.Network/applicationSecurityGroups/joinNetworkSecurityRule/action	Joins a Security Rule to Application Security Groups. Not alertable.
Microsoft.Network/applicationSecurityGroups/read	Gets an Application Security Group ID.
Microsoft.Network/applicationSecurityGroups/write	Creates an Application Security Group, or updates an existing Application Security Group.
Microsoft.Network/applicationSecurityGroups/delete	Deletes an Application Security Group
Microsoft.Network/applicationSecurityGroups/listIpConfigurations/action	Lists IP Configurations in the ApplicationSecurityGroup
Microsoft.Network/azureFirewallFqdnTags/read	Gets Azure Firewall FQDN Tags
Microsoft.Network/azurefirewalls/read	Get Azure Firewall
Microsoft.Network/azurefirewalls/write	Creates or updates an Azure Firewall
Microsoft.Network/azurefirewalls/delete	Delete Azure Firewall
Microsoft.Network/bastionHosts/read	Gets a Bastion Host
Microsoft.Network/bastionHosts/write	Create or Update a Bastion Host
Microsoft.Network/bastionHosts/delete	Deletes a Bastion Host
Microsoft.Network/bastionHosts/getactivesessions/action	Get Active Sessions in the Bastion Host
Microsoft.Network/bastionHosts/disconnectactivesessions/action	Disconnect given Active Sessions in the Bastion Host
Microsoft.Network/bastionHosts/getShareableLinks/action	Returns the shareable urls for the specified VMs in a Bastion subnet provided their urls are created
Microsoft.Network/bastionHosts/createShareableLinks/action	Creates shareable urls for the VMs under a bastion and returns the urls
Microsoft.Network/bastionHosts/deleteShareableLinks/action	Deletes shareable urls for the provided VMs under a bastion
Microsoft.Network/bastionHosts/deleteShareableLinksByToken/action	Deletes shareable urls for the provided tokens under a bastion
Microsoft.Network/bgpServiceCommunities/read	Get Bgp Service Communities
Microsoft.Network/connections/read	Gets VirtualNetworkGatewayConnection
Microsoft.Network/connections/write	Creates or updates an existing VirtualNetworkGatewayConnection

ACTION	DESCRIPTION
Microsoft.Network/connections/delete	Deletes VirtualNetworkGatewayConnection
Microsoft.Network/connections/sharedkey/action	Get VirtualNetworkGatewayConnection SharedKey
Microsoft.Network/connections/vpndeviceconfigurationscript /action	Gets Vpn Device Configuration of VirtualNetworkGatewayConnection
Microsoft.Network/connections/revoke/action	Marks an Express Route Connection status as Revoked
Microsoft.Network/connections/startpacketcapture/action	Starts a Virtual Network Gateway Connection Packet Capture.
Microsoft.Network/connections/stoppacketcapture/action	Stops a Virtual Network Gateway Connection Packet Capture.
Microsoft.Network/connections/sharedKey/read	Gets VirtualNetworkGatewayConnection SharedKey
Microsoft.Network/connections/sharedKey/write	Creates or updates an existing VirtualNetworkGatewayConnection SharedKey
Microsoft.Network/customIpPrefixes/read	Gets a Custom Ip Prefix Definition
Microsoft.Network/customIpPrefixes/write	Creates A Custom Ip Prefix Or Updates An Existing Custom Ip Prefix
Microsoft.Network/customIpPrefixes/delete	Deletes A Custom Ip Prefix
Microsoft.Network/ddosCustomPolicies/read	Gets a DDoS customized policy definition Definition
Microsoft.Network/ddosCustomPolicies/write	Creates a DDoS customized policy or updates an existing DDoS customized policy
Microsoft.Network/ddosCustomPolicies/delete	Deletes a DDoS customized policy
Microsoft.Network/ddosProtectionPlans/read	Gets a DDoS Protection Plan
Microsoft.Network/ddosProtectionPlans/write	Creates a DDoS Protection Plan or updates a DDoS Protection Plan
Microsoft.Network/ddosProtectionPlans/delete	Deletes a DDoS Protection Plan
Microsoft.Network/ddosProtectionPlans/join/action	Joins a DDoS Protection Plan. Not alertable.
Microsoft.Network/dnsoperationresults/read	Gets results of a DNS operation
Microsoft.Network/dnsoperationstatuses/read	Gets status of a DNS operation
Microsoft.Network/dnszones/read	Get the DNS zone, in JSON format. The zone properties include tags, etag, numberofRecordSets, and maxNumberOfRecordSets. Note that this command does not retrieve the record sets contained within the zone.

ACTION	DESCRIPTION
Microsoft.Network/dnszones/write	Create or update a DNS zone within a resource group. Used to update the tags on a DNS zone resource. Note that this command can not be used to create or update record sets within the zone.
Microsoft.Network/dnszones/delete	Delete the DNS zone, in JSON format. The zone properties include tags, etag, numberOfRecordSets, and maxNumberOfRecordSets.
Microsoft.Network/dnszones/A/read	Get the record set of type 'A', in JSON format. The record set contains a list of records as well as the TTL, tags, and etag.
Microsoft.Network/dnszones/A/write	Create or update a record set of type 'A' within a DNS zone. The records specified will replace the current records in the record set.
Microsoft.Network/dnszones/A/delete	Remove the record set of a given name and type 'A' from a DNS zone.
Microsoft.Network/dnszones/AAAA/read	Get the record set of type 'AAAA', in JSON format. The record set contains a list of records as well as the TTL, tags, and etag.
Microsoft.Network/dnszones/AAAA/write	Create or update a record set of type 'AAAA' within a DNS zone. The records specified will replace the current records in the record set.
Microsoft.Network/dnszones/AAAA/delete	Remove the record set of a given name and type 'AAAA' from a DNS zone.
Microsoft.Network/dnszones/all/read	Gets DNS record sets across types
Microsoft.Network/dnszones/CAA/read	Get the record set of type 'CAA', in JSON format. The record set contains the TTL, tags, and etag.
Microsoft.Network/dnszones/CAA/write	Create or update a record set of type 'CAA' within a DNS zone. The records specified will replace the current records in the record set.
Microsoft.Network/dnszones/CAA/delete	Remove the record set of a given name and type 'CAA' from a DNS zone.
Microsoft.Network/dnszones/CNAME/read	Get the record set of type 'CNAME', in JSON format. The record set contains the TTL, tags, and etag.
Microsoft.Network/dnszones/CNAME/write	Create or update a record set of type 'CNAME' within a DNS zone. The records specified will replace the current records in the record set.
Microsoft.Network/dnszones/CNAME/delete	Remove the record set of a given name and type 'CNAME' from a DNS zone.
Microsoft.Network/dnszones/MX/read	Get the record set of type 'MX', in JSON format. The record set contains a list of records as well as the TTL, tags, and etag.

ACTION	DESCRIPTION
Microsoft.Network/dnszones/MX/write	Create or update a record set of type 'MX' within a DNS zone. The records specified will replace the current records in the record set.
Microsoft.Network/dnszones/MX/delete	Remove the record set of a given name and type 'MX' from a DNS zone.
Microsoft.Network/dnszones/NS/read	Gets DNS record set of type NS
Microsoft.Network/dnszones/NS/write	Creates or updates DNS record set of type NS
Microsoft.Network/dnszones/NS/delete	Deletes the DNS record set of type NS
Microsoft.Network/dnszones/PTR/read	Get the record set of type 'PTR', in JSON format. The record set contains a list of records as well as the TTL, tags, and etag.
Microsoft.Network/dnszones/PTR/write	Create or update a record set of type 'PTR' within a DNS zone. The records specified will replace the current records in the record set.
Microsoft.Network/dnszones/PTR/delete	Remove the record set of a given name and type 'PTR' from a DNS zone.
Microsoft.Network/dnszones/recordsets/read	Gets DNS record sets across types
Microsoft.Network/dnszones/SOA/read	Gets DNS record set of type SOA
Microsoft.Network/dnszones/SOA/write	Creates or updates DNS record set of type SOA
Microsoft.Network/dnszones/SRV/read	Get the record set of type 'SRV', in JSON format. The record set contains a list of records as well as the TTL, tags, and etag.
Microsoft.Network/dnszones/SRV/write	Create or update record set of type SRV
Microsoft.Network/dnszones/SRV/delete	Remove the record set of a given name and type 'SRV' from a DNS zone.
Microsoft.Network/dnszones/TXT/read	Get the record set of type 'TXT', in JSON format. The record set contains a list of records as well as the TTL, tags, and etag.
Microsoft.Network/dnszones/TXT/write	Create or update a record set of type 'TXT' within a DNS zone. The records specified will replace the current records in the record set.
Microsoft.Network/dnszones/TXT/delete	Remove the record set of a given name and type 'TXT' from a DNS zone.

ACTION	DESCRIPTION
Microsoft.Network/expressRouteCircuits/read	Get an ExpressRouteCircuit
Microsoft.Network/expressRouteCircuits/write	Creates or updates an existing ExpressRouteCircuit
Microsoft.Network/expressRouteCircuits/join/action	Joins an Express Route Circuit. Not alertable.
Microsoft.Network/expressRouteCircuits/delete	Deletes an ExpressRouteCircuit
Microsoft.Network/expressRouteCircuits/authorizations/read	Gets an ExpressRouteCircuit Authorization
Microsoft.Network/expressRouteCircuits/authorizations/write	Creates or updates an existing ExpressRouteCircuit Authorization
Microsoft.Network/expressRouteCircuits/authorizations/delete	Deletes an ExpressRouteCircuit Authorization
Microsoft.Network/expressRouteCircuits/peerings/read	Gets an ExpressRouteCircuit Peering
Microsoft.Network/expressRouteCircuits/peerings/write	Creates or updates an existing ExpressRouteCircuit Peering
Microsoft.Network/expressRouteCircuits/peerings/delete	Deletes an ExpressRouteCircuit Peering
Microsoft.Network/expressRouteCircuits/peerings/arpTables/read	Gets an ExpressRouteCircuit Peering ArpTable
Microsoft.Network/expressRouteCircuits/peerings/connections/read	Gets an ExpressRouteCircuit Connection
Microsoft.Network/expressRouteCircuits/peerings/connections/write	Creates or updates an existing ExpressRouteCircuit Connection Resource
Microsoft.Network/expressRouteCircuits/peerings/connections/delete	Deletes an ExpressRouteCircuit Connection
Microsoft.Network/expressRouteCircuits/peerings/peerConnections/read	Gets Peer Express Route Circuit Connection
Microsoft.Network/expressRouteCircuits/peerings/routeTables/read	Gets an ExpressRouteCircuit Peering RouteTable
Microsoft.Network/expressRouteCircuits/peerings/routeTablesSummary/read	Gets an ExpressRouteCircuit Peering RouteTable Summary
Microsoft.Network/expressRouteCircuits/peerings/stats/read	Gets an ExpressRouteCircuit Peering Stat
Microsoft.Network/expressRouteCircuits/stats/read	Gets an ExpressRouteCircuit Stat
Microsoft.Network/expressRouteCrossConnections/read	Get Express Route Cross Connection
Microsoft.Network/expressRouteCrossConnections/join/action	Joins an Express Route Cross Connection. Not alertable.

ACTION	DESCRIPTION
Microsoft.Network/expressRouteCrossConnections/peerings/read	Gets an Express Route Cross Connection Peering
Microsoft.Network/expressRouteCrossConnections/peerings/write	Creates an Express Route Cross Connection Peering or Updates an existing Express Route Cross Connection Peering
Microsoft.Network/expressRouteCrossConnections/peerings/delete	Deletes an Express Route Cross Connection Peering
Microsoft.Network/expressRouteCrossConnections/peerings/arpTables/read	Gets an Express Route Cross Connection Peering Arp Table
Microsoft.Network/expressRouteCrossConnections/peerings/routeTables/read	Gets an Express Route Cross Connection Peering Route Table
Microsoft.Network/expressRouteCrossConnections/peerings/routeTableSummary/read	Gets an Express Route Cross Connection Peering Route Table Summary
Microsoft.Network/expressRouteGateways/read	Get Express Route Gateway
Microsoft.Network/expressRouteGateways/join/action	Joins an Express Route Gateway. Not alertable.
Microsoft.Network/expressRouteGateways/expressRouteConnections/read	Gets an Express Route Connection
Microsoft.Network/expressRouteGateways/expressRouteConnections/write	Creates an Express Route Connection or Updates an existing Express Route Connection
Microsoft.Network/expressRouteGateways/expressRouteConnections/delete	Deletes an Express Route Connection
Microsoft.Network/expressRoutePorts/read	Gets ExpressRoutePorts
Microsoft.Network/expressRoutePorts/write	Creates or updates ExpressRoutePorts
Microsoft.Network/expressRoutePorts/join/action	Joins Express Route ports. Not alertable.
Microsoft.Network/expressRoutePorts/delete	Deletes ExpressRoutePorts
Microsoft.Network/expressRoutePorts/links/read	Gets ExpressRouteLink
Microsoft.Network/expressRoutePortsLocations/read	Get Express Route Ports Locations
Microsoft.Network/expressRouteServiceProviders/read	Gets Express Route Service Providers
Microsoft.Network/firewallPolicies/read	Gets a Firewall Policy
Microsoft.Network/firewallPolicies/write	Creates a Firewall Policy or Updates an existing Firewall Policy
Microsoft.Network/firewallPolicies/join/action	Joins a Firewall Policy. Not alertable.
Microsoft.Network/firewallPolicies/certificates/action	Generate Firewall Policy Certificates

ACTION	DESCRIPTION
Microsoft.Network/firewallPolicies/delete	Deletes a Firewall Policy
Microsoft.Network/firewallPolicies/ruleGroups/read	Gets a Firewall Policy Rule Group
Microsoft.Network/firewallPolicies/ruleGroups/write	Creates a Firewall Policy Rule Group or Updates an existing Firewall Policy Rule Group
Microsoft.Network/firewallPolicies/ruleGroups/delete	Deletes a Firewall Policy Rule Group
Microsoft.Network/frontDoors/read	Gets a Front Door
Microsoft.Network/frontDoors/write	Creates or updates a Front Door
Microsoft.Network/frontDoors/delete	Deletes a Front Door
Microsoft.Network/frontDoors/purge/action	Purge cached content from a Front Door
Microsoft.Network/frontDoors/validateCustomDomain/action	Validates a frontend endpoint for a Front Door
Microsoft.Network/frontDoors/backendPools/read	Gets a backend pool
Microsoft.Network/frontDoors/backendPools/write	Creates or updates a backend pool
Microsoft.Network/frontDoors/backendPools/delete	Deletes a backend pool
Microsoft.Network/frontDoors/frontendEndpoints/read	Gets a frontend endpoint
Microsoft.Network/frontDoors/frontendEndpoints/write	Creates or updates a frontend endpoint
Microsoft.Network/frontDoors/frontendEndpoints/delete	Deletes a frontend endpoint
Microsoft.Network/frontDoors/frontendEndpoints/enableHttps/action	Enables HTTPS on a Frontend Endpoint
Microsoft.Network/frontDoors/frontendEndpoints/disableHttps/action	Disables HTTPS on a Frontend Endpoint
Microsoft.Network/frontDoors/healthProbeSettings/read	Gets health probe settings
Microsoft.Network/frontDoors/healthProbeSettings/write	Creates or updates health probe settings
Microsoft.Network/frontDoors/healthProbeSettings/delete	Deletes health probe settings
Microsoft.Network/frontDoors/loadBalancingSettings/read	Gets load balancing settings
Microsoft.Network/frontDoors/loadBalancingSettings/write	Creates or updates load balancing settings
Microsoft.Network/frontDoors/loadBalancingSettings/delete	Creates or updates load balancing settings
Microsoft.Network/frontDoors/routingRules/read	Gets a routing rule

ACTION	DESCRIPTION
Microsoft.Network/frontDoors/routingRules/write	Creates or updates a routing rule
Microsoft.Network/frontDoors/routingRules/delete	Deletes a routing rule
Microsoft.Network/frontDoors/rulesEngines/read	Gets a Rules Engine
Microsoft.Network/frontDoors/rulesEngines/write	Creates or updates a Rules Engine
Microsoft.Network/frontDoors/rulesEngines/delete	Deletes a Rules Engine
Microsoft.Network/frontDoorWebApplicationFirewallManagedRuleSets/read	Gets Web Application Firewall Managed Rule Sets
Microsoft.Network/frontDoorWebApplicationFirewallPolicies/read	Gets a Web Application Firewall Policy
Microsoft.Network/frontDoorWebApplicationFirewallPolicies/write	Creates or updates a Web Application Firewall Policy
Microsoft.Network/frontDoorWebApplicationFirewallPolicies/delete	Deletes a Web Application Firewall Policy
Microsoft.Network/frontDoorWebApplicationFirewallPolicies/join/action	Joins a Web Application Firewall Policy. Not Alertable.
Microsoft.Network/ipAllocations/read	Get The IpAllocation
Microsoft.Network/ipAllocations/write	Creates A IpAllocation Or Updates An Existing IpAllocation
Microsoft.Network/ipAllocations/delete	Deletes A IpAllocation
Microsoft.Network/ipGroups/read	Gets an IpGroup
Microsoft.Network/ipGroups/write	Creates an IpGroup or Updates An Existing IpGroups
Microsoft.Network/ipGroups/validate/action	Validates an IpGroup
Microsoft.Network/ipGroups/updateReferences/action	Update references in an IpGroup
Microsoft.Network/ipGroups/join/action	Joins an IpGroup. Not alertable.
Microsoft.Network/ipGroups/delete	Deletes an IpGroup
Microsoft.Network/loadBalancers/read	Gets a load balancer definition
Microsoft.Network/loadBalancers/write	Creates a load balancer or updates an existing load balancer
Microsoft.Network/loadBalancers/delete	Deletes a load balancer
Microsoft.Network/loadBalancers/backendAddressPools/read	Gets a load balancer backend address pool definition

ACTION	DESCRIPTION
Microsoft.Network/loadBalancers/backendAddressPools/write	Creates a load balancer backend address pool or updates an existing load balancer backend address pool
Microsoft.Network/loadBalancers/backendAddressPools/delete	Deletes a load balancer backend address pool
Microsoft.Network/loadBalancers/backendAddressPools/join/action	Joins a load balancer backend address pool. Not Alertable.
Microsoft.Network/loadBalancers/frontendIPConfigurations/read	Gets a load balancer frontend IP configuration definition
Microsoft.Network/loadBalancers/frontendIPConfigurations/join/action	Joins a Load Balancer Frontend IP Configuration. Not alertable.
Microsoft.Network/loadBalancers/inboundNatPools/read	Gets a load balancer inbound nat pool definition
Microsoft.Network/loadBalancers/inboundNatPools/join/action	Joins a load balancer inbound NAT pool. Not alertable.
Microsoft.Network/loadBalancers/inboundNatRules/read	Gets a load balancer inbound nat rule definition
Microsoft.Network/loadBalancers/inboundNatRules/write	Creates a load balancer inbound nat rule or updates an existing load balancer inbound nat rule
Microsoft.Network/loadBalancers/inboundNatRules/delete	Deletes a load balancer inbound nat rule
Microsoft.Network/loadBalancers/inboundNatRules/join/action	Joins a load balancer inbound nat rule. Not Alertable.
Microsoft.Network/loadBalancers/loadBalancingRules/read	Gets a load balancer load balancing rule definition
Microsoft.Network/loadBalancers/networkInterfaces/read	Gets references to all the network interfaces under a load balancer
Microsoft.Network/loadBalancers/outboundRules/read	Gets a load balancer outbound rule definition
Microsoft.Network/loadBalancers/probes/read	Gets a load balancer probe
Microsoft.Network/loadBalancers/probes/join/action	Allows using probes of a load balancer. For example, with this permission healthProbe property of VM scale set can reference the probe. Not alertable.
Microsoft.Network/loadBalancers/virtualMachines/read	Gets references to all the virtual machines under a load balancer
Microsoft.Network/localnetworkgateways/read	Gets LocalNetworkGateway
Microsoft.Network/localnetworkgateways/write	Creates or updates an existing LocalNetworkGateway
Microsoft.Network/localnetworkgateways/delete	Deletes LocalNetworkGateway

ACTION	DESCRIPTION
Microsoft.Network/locations/checkAcceleratedNetworkingSupport/action	Checks Accelerated Networking support
Microsoft.Network/locations/checkPrivateLinkServiceVisibility /action	Checks Private Link Service Visibility
Microsoft.Network/locations/bareMetalTenants/action	Allocates or validates a Bare Metal Tenant
Microsoft.Network/locations/autoApprovedPrivateLinkServices/read	Gets Auto Approved Private Link Services
Microsoft.Network/locations/availableDelegations/read	Gets Available Delegations
Microsoft.Network/locations/availablePrivateEndpointTypes/read	Gets available Private Endpoint resources
Microsoft.Network/locations/availableServiceAliases/read	Gets Available Service Aliases
Microsoft.Network/locations/checkDnsNameAvailability/read	Checks if dns label is available at the specified location
Microsoft.Network/locations/operationResults/read	Gets operation result of an async POST or DELETE operation
Microsoft.Network/locations/operations/read	Gets operation resource that represents status of an asynchronous operation
Microsoft.Network/locations/serviceTags/read	Get Service Tags
Microsoft.Network/locations/supportedVirtualMachineSizes/read	Gets supported virtual machines sizes
Microsoft.Network/locations/usages/read	Gets the resources usage metrics
Microsoft.Network/locations/virtualNetworkAvailableEndpointServices/read	Gets a list of available Virtual Network Endpoint Services
Microsoft.Network/masterCustomIpPrefixes/read	Gets a Master Custom Ip Prefix Definition
Microsoft.Network/masterCustomIpPrefixes/write	Creates A Master Custom Ip Prefix Or Updates An Existing Master Custom Ip Prefix
Microsoft.Network/masterCustomIpPrefixes/delete	Deletes A Master Custom Ip Prefix
Microsoft.Network/natGateways/join/action	Joins a NAT Gateway
Microsoft.Network/natRuleCollections/read	Gets Azure Firewall NatRuleCollection
Microsoft.Network/natRuleCollections/write	CreatesOrUpdates Azure Firewall NatRuleCollection
Microsoft.Network/natRuleCollections/delete	Deletes Azure Firewall NatRuleCollection
Microsoft.Network/networkExperimentProfiles/read	Get an Internet Analyzer profile

ACTION	DESCRIPTION
Microsoft.Network/networkExperimentProfiles/write	Create or update an Internet Analyzer profile
Microsoft.Network/networkExperimentProfiles/delete	Delete an Internet Analyzer profile
Microsoft.Network/networkExperimentProfiles/experiments/read	Get an Internet Analyzer test
Microsoft.Network/networkExperimentProfiles/experiments/write	Create or update an Internet Analyzer test
Microsoft.Network/networkExperimentProfiles/experiments/delete	Delete an Internet Analyzer test
Microsoft.Network/networkExperimentProfiles/experiments/timeseries/action	Get an Internet Analyzer test's time series
Microsoft.Network/networkExperimentProfiles/experiments/latencyScorecard/action	Get an Internet Analyzer test's latency scorecard
Microsoft.Network/networkExperimentProfiles/preconfiguredEndpoints/read	Get an Internet Analyzer profile's pre-configured endpoints
Microsoft.Network/networkIntentPolicies/read	Gets an Network Intent Policy Description
Microsoft.Network/networkIntentPolicies/write	Creates an Network Intent Policy or updates an existing Network Intent Policy
Microsoft.Network/networkIntentPolicies/delete	Deletes an Network Intent Policy
Microsoft.Network/networkInterfaces/read	Gets a network interface definition.
Microsoft.Network/networkInterfaces/write	Creates a network interface or updates an existing network interface.
Microsoft.Network/networkInterfaces/join/action	Joins a Virtual Machine to a network interface. Not Alertable.
Microsoft.Network/networkInterfaces/delete	Deletes a network interface
Microsoft.Network/networkInterfaces/effectiveRouteTable/action	Get Route Table configured On Network Interface Of The Vm
Microsoft.Network/networkInterfaces/effectiveNetworkSecurityGroups/action	Get Network Security Groups configured On Network Interface Of The Vm
Microsoft.Network/networkInterfaces/UpdateParentNicAttachmentOnElasticNic/action	Updates the parent NIC associated to the elastic NIC
Microsoft.Network/networkInterfaces/ipconfigurations/read	Gets a network interface ip configuration definition.
Microsoft.Network/networkInterfaces/ipconfigurations/join/action	Joins a Network Interface IP Configuration. Not alertable.

ACTION	DESCRIPTION
Microsoft.Network/networkInterfaces/loadBalancers/read	Gets all the load balancers that the network interface is part of
Microsoft.Network/networkInterfaces/tapConfigurations/read	Gets a Network Interface Tap Configuration.
Microsoft.Network/networkInterfaces/tapConfigurations/write	Creates a Network Interface Tap Configuration or updates an existing Network Interface Tap Configuration.
Microsoft.Network/networkInterfaces/tapConfigurations/delete	Deletes a Network Interface Tap Configuration.
Microsoft.Network/networkProfiles/read	Gets a Network Profile
Microsoft.Network/networkProfiles/write	Creates or updates a Network Profile
Microsoft.Network/networkProfiles/delete	Deletes a Network Profile
Microsoft.Network/networkProfiles/setContainers/action	Sets Containers
Microsoft.Network/networkProfiles/removeContainers/action	Removes Containers
Microsoft.Network/networkProfiles/setNetworkInterfaces/acti on	Sets Container Network Interfaces
Microsoft.Network/networkRuleCollections/read	Gets Azure Firewall NetworkRuleCollection
Microsoft.Network/networkRuleCollections/write	CreatesOrUpdates Azure Firewall NetworkRuleCollection
Microsoft.Network/networkRuleCollections/delete	Deletes Azure Firewall NetworkRuleCollection
Microsoft.Network/networkSecurityGroups/read	Gets a network security group definition
Microsoft.Network/networkSecurityGroups/write	Creates a network security group or updates an existing network security group
Microsoft.Network/networkSecurityGroups/delete	Deletes a network security group
Microsoft.Network/networkSecurityGroups/join/action	Joins a network security group. Not Alertable.
Microsoft.Network/networkSecurityGroups/defaultSecurityRu les/read	Gets a default security rule definition
Microsoft.Network/networkSecurityGroups/securityRules/re ad	Gets a security rule definition
Microsoft.Network/networkSecurityGroups/securityRules/wri te	Creates a security rule or updates an existing security rule
Microsoft.Network/networkSecurityGroups/securityRules/del ete	Deletes a security rule

ACTION	DESCRIPTION
Microsoft.Network/networkWatchers/read	Get the network watcher definition
Microsoft.Network/networkWatchers/write	Creates a network watcher or updates an existing network watcher
Microsoft.Network/networkWatchers/delete	Deletes a network watcher
Microsoft.Network/networkWatchers/configureFlowLog/action	Configures flow logging for a target resource.
Microsoft.Network/networkWatchers/ipFlowVerify/action	Returns whether the packet is allowed or denied to or from a particular destination.
Microsoft.Network/networkWatchers/nextHop/action	For a specified target and destination IP address, return the next hop type and next hope IP address.
Microsoft.Network/networkWatchers/queryFlowLogStatus/action	Gets the status of flow logging on a resource.
Microsoft.Network/networkWatchers/queryTroubleshootResult/action	Gets the troubleshooting result from the previously run or currently running troubleshooting operation.
Microsoft.Network/networkWatchers/securityGroupView/action	View the configured and effective network security group rules applied on a VM.
Microsoft.Network/networkWatchers/networkConfigurationDiagnostic/action	Diagnostic of network configuration.
Microsoft.Network/networkWatchers/queryConnectionMonitors/action	Batch query monitoring connectivity between specified endpoints
Microsoft.Network/networkWatchers/topology/action	Gets a network level view of resources and their relationships in a resource group.
Microsoft.Network/networkWatchers/troubleshoot/action	Starts troubleshooting on a Networking resource in Azure.
Microsoft.Network/networkWatchers/connectivityCheck/action	Verifies the possibility of establishing a direct TCP connection from a virtual machine to a given endpoint including another VM or an arbitrary remote server.
Microsoft.Network/networkWatchers/azureReachabilityReport/action	Returns the relative latency score for internet service providers from a specified location to Azure regions.
Microsoft.Network/networkWatchers/availableProvidersList/action	Returns all available internet service providers for a specified Azure region.
Microsoft.Network/networkWatchers/connectionMonitors/start/action	Start monitoring connectivity between specified endpoints
Microsoft.Network/networkWatchers/connectionMonitors/stop/action	Stop/pause monitoring connectivity between specified endpoints

ACTION	DESCRIPTION
Microsoft.Network/networkWatchers/connectionMonitors/query/action	Query monitoring connectivity between specified endpoints
Microsoft.Network/networkWatchers/connectionMonitors/read	Get Connection Monitor details
Microsoft.Network/networkWatchers/connectionMonitors/write	Creates a Connection Monitor
Microsoft.Network/networkWatchers/connectionMonitors/delete	Deletes a Connection Monitor
Microsoft.Network/networkWatchers/flowLogs/read	Get Flow Log details
Microsoft.Network/networkWatchers/flowLogs/write	Creates a Flow Log
Microsoft.Network/networkWatchers/flowLogs/delete	Deletes a Flow Log
Microsoft.Network/networkWatchers/lenses/start/action	Start monitoring network traffic on a specified endpoint
Microsoft.Network/networkWatchers/lenses/stop/action	Stop/pause monitoring network traffic on a specified endpoint
Microsoft.Network/networkWatchers/lenses/query/action	Query monitoring network traffic on a specified endpoint
Microsoft.Network/networkWatchers/lenses/read	Get Lens details
Microsoft.Network/networkWatchers/lenses/write	Creates a Lens
Microsoft.Network/networkWatchers/lenses/delete	Deletes a Lens
Microsoft.Network/networkWatchers/packetCaptures/queryStatus/action	Gets information about properties and status of a packet capture resource.
Microsoft.Network/networkWatchers/packetCaptures/stop/action	Stop the running packet capture session.
Microsoft.Network/networkWatchers/packetCaptures/read	Get the packet capture definition
Microsoft.Network/networkWatchers/packetCaptures/write	Creates a packet capture
Microsoft.Network/networkWatchers/packetCaptures/delete	Deletes a packet capture
Microsoft.Network/networkWatchers/pingMeshes/start/action	Start PingMesh between specified VMs
Microsoft.Network/networkWatchers/pingMeshes/stop/action	Stop PingMesh between specified VMs
Microsoft.Network/networkWatchers/pingMeshes/read	Get PingMesh details
Microsoft.Network/networkWatchers/pingMeshes/write	Creates a PingMesh

ACTION	DESCRIPTION
Microsoft.Network/networkWatchers/pingMeshes/delete	Deletes a PingMesh
Microsoft.Network/operations/read	Get Available Operations
Microsoft.Network/p2sVpnGateways/read	Gets a P2SVpnGateway.
Microsoft.Network/p2sVpnGateways/write	Puts a P2SVpnGateway.
Microsoft.Network/p2sVpnGateways/delete	Deletes a P2SVpnGateway.
Microsoft.Network/p2sVpnGateways/generatevpnprofile/action	Generate Vpn Profile for P2SVpnGateway
Microsoft.Network/p2sVpnGateways/getp2svpnconnectionhealth/action	Gets a P2S Vpn Connection health for P2SVpnGateway
Microsoft.Network/p2sVpnGateways/getp2svpnconnectionhealthdetailed/action	Gets a P2S Vpn Connection health detailed for P2SVpnGateway
Microsoft.Network/p2sVpnGateways/disconnectp2svpnconnections/action	Disconnect p2s vpn connections
Microsoft.Network/privateDnsOperationResults/read	Gets results of a Private DNS operation
Microsoft.Network/privateDnsOperationStatuses/read	Gets status of a Private DNS operation
Microsoft.Network/privateDnsZones/read	Get the Private DNS zone properties, in JSON format. Note that this command does not retrieve the virtual networks to which the Private DNS zone is linked or the record sets contained within the zone.
Microsoft.Network/privateDnsZones/write	Create or update a Private DNS zone within a resource group. Note that this command cannot be used to create or update virtual network links or record sets within the zone.
Microsoft.Network/privateDnsZones/delete	Delete a Private DNS zone.
Microsoft.Network/privateDnsZones/join/action	Joins a Private DNS Zone
Microsoft.Network/privateDnsZones/A/read	Get the record set of type 'A' within a Private DNS zone, in JSON format. The record set contains a list of records as well as the TTL, tags, and etag.
Microsoft.Network/privateDnsZones/A/write	Create or update a record set of type 'A' within a Private DNS zone. The records specified will replace the current records in the record set.
Microsoft.Network/privateDnsZones/A/delete	Remove the record set of a given name and type 'A' from a Private DNS zone.
Microsoft.Network/privateDnsZones/AAAA/read	Get the record set of type 'AAAA' within a Private DNS zone, in JSON format. The record set contains a list of records as well as the TTL, tags, and etag.

ACTION	DESCRIPTION
Microsoft.Network/privateDnsZones/AAAA/write	Create or update a record set of type 'AAAA' within a Private DNS zone. The records specified will replace the current records in the record set.
Microsoft.Network/privateDnsZones/AAAA/delete	Remove the record set of a given name and type 'AAAA' from a Private DNS zone.
Microsoft.Network/privateDnsZones/ALL/read	Gets Private DNS record sets across types
Microsoft.Network/privateDnsZones/CNAME/read	Get the record set of type 'CNAME' within a Private DNS zone, in JSON format.
Microsoft.Network/privateDnsZones/CNAME/write	Create or update a record set of type 'CNAME' within a Private DNS zone.
Microsoft.Network/privateDnsZones/CNAME/delete	Remove the record set of a given name and type 'CNAME' from a Private DNS zone.
Microsoft.Network/privateDnsZones/MX/read	Get the record set of type 'MX' within a Private DNS zone, in JSON format. The record set contains a list of records as well as the TTL, tags, and etag.
Microsoft.Network/privateDnsZones/MX/write	Create or update a record set of type 'MX' within a Private DNS zone. The records specified will replace the current records in the record set.
Microsoft.Network/privateDnsZones/MX/delete	Remove the record set of a given name and type 'MX' from a Private DNS zone.
Microsoft.Network/privateDnsZones/PTR/read	Get the record set of type 'PTR' within a Private DNS zone, in JSON format. The record set contains a list of records as well as the TTL, tags, and etag.
Microsoft.Network/privateDnsZones/PTR/write	Create or update a record set of type 'PTR' within a Private DNS zone. The records specified will replace the current records in the record set.
Microsoft.Network/privateDnsZones/PTR/delete	Remove the record set of a given name and type 'PTR' from a Private DNS zone.
Microsoft.Network/privateDnsZones/recordsets/read	Gets Private DNS record sets across types
Microsoft.Network/privateDnsZones/SOA/read	Get the record set of type 'SOA' within a Private DNS zone, in JSON format.
Microsoft.Network/privateDnsZones/SOA/write	Update a record set of type 'SOA' within a Private DNS zone.
Microsoft.Network/privateDnsZones/SRV/read	Get the record set of type 'SRV' within a Private DNS zone, in JSON format. The record set contains a list of records as well as the TTL, tags, and etag.
Microsoft.Network/privateDnsZones/SRV/write	Create or update a record set of type 'SRV' within a Private DNS zone. The records specified will replace the current records in the record set.

ACTION	DESCRIPTION
Microsoft.Network/privateDnsZones/SRV/delete	Remove the record set of a given name and type 'SRV' from a Private DNS zone.
Microsoft.Network/privateDnsZones/TXT/read	Get the record set of type 'TXT' within a Private DNS zone, in JSON format. The record set contains a list of records as well as the TTL, tags, and etag.
Microsoft.Network/privateDnsZones/TXT/write	Create or update a record set of type 'TXT' within a Private DNS zone. The records specified will replace the current records in the record set.
Microsoft.Network/privateDnsZones/TXT/delete	Remove the record set of a given name and type 'TXT' from a Private DNS zone.
Microsoft.Network/privateDnsZones/virtualNetworkLinks/read	Get the Private DNS zone link to virtual network properties, in JSON format.
Microsoft.Network/privateDnsZones/virtualNetworkLinks/write	Create or update a Private DNS zone link to virtual network.
Microsoft.Network/privateDnsZones/virtualNetworkLinks/delete	Delete a Private DNS zone link to virtual network.
Microsoft.Network/privateEndpointRedirectMaps/read	Gets a Private Endpoint RedirectMap
Microsoft.Network/privateEndpointRedirectMaps/write	Creates Private Endpoint RedirectMap Or Updates An Existing Private Endpoint RedirectMap
Microsoft.Network/privateEndpoints/read	Gets an private endpoint resource.
Microsoft.Network/privateEndpoints/write	Creates a new private endpoint, or updates an existing private endpoint.
Microsoft.Network/privateEndpoints/delete	Deletes an private endpoint resource.
Microsoft.Network/privateEndpoints/privateDnsZoneGroups/read	Gets a Private DNS Zone Group
Microsoft.Network/privateEndpoints/privateDnsZoneGroups/write	Puts a Private DNS Zone Group
Microsoft.Network/privateLinkServices/read	Gets an private link service resource.
Microsoft.Network/privateLinkServices/write	Creates a new private link service, or updates an existing private link service.
Microsoft.Network/privateLinkServices/delete	Deletes an private link service resource.
Microsoft.Network/privateLinkServices/privateEndpointConnections/read	Gets an private endpoint connection definition.
Microsoft.Network/privateLinkServices/privateEndpointConnections/write	Creates a new private endpoint connection, or updates an existing private endpoint connection.

ACTION	DESCRIPTION
Microsoft.Network/privateLinkServices/privateEndpointConnections/delete	Deletes an private endpoint connection.
Microsoft.Network/publicIPAddresses/read	Gets a public ip address definition.
Microsoft.Network/publicIPAddresses/write	Creates a public Ip address or updates an existing public Ip address.
Microsoft.Network/publicIPAddresses/delete	Deletes a public Ip address.
Microsoft.Network/publicIPAddresses/join/action	Joins a public ip address. Not Alertable.
Microsoft.Network/publicIPPrefixes/read	Gets a Public Ip Prefix Definition
Microsoft.Network/publicIPPrefixes/write	Creates A Public Ip Prefix Or Updates An Existing Public Ip Prefix
Microsoft.Network/publicIPPrefixes/delete	Deletes A Public Ip Prefix
Microsoft.Network/publicIPPrefixes/join/action	Joins a PublicIPPrefix. Not alertable.
Microsoft.Network/routeFilters/read	Gets a route filter definition
Microsoft.Network/routeFilters/join/action	Joins a route filter. Not Alertable.
Microsoft.Network/routeFilters/delete	Deletes a route filter definition
Microsoft.Network/routeFilters/write	Creates a route filter or Updates an existing route filter
Microsoft.Network/routeFilters/routeFilterRules/read	Gets a route filter rule definition
Microsoft.Network/routeFilters/routeFilterRules/write	Creates a route filter rule or Updates an existing route filter rule
Microsoft.Network/routeFilters/routeFilterRules/delete	Deletes a route filter rule definition
Microsoft.Network/routeTables/read	Gets a route table definition
Microsoft.Network/routeTables/write	Creates a route table or Updates an existing route table
Microsoft.Network/routeTables/delete	Deletes a route table definition
Microsoft.Network/routeTables/join/action	Joins a route table. Not Alertable.
Microsoft.Network/routeTables/routes/read	Gets a route definition
Microsoft.Network/routeTables/routes/write	Creates a route or Updates an existing route
Microsoft.Network/routeTables/routes/delete	Deletes a route definition
Microsoft.Network/securityPartnerProviders/read	Gets a SecurityPartnerProvider

ACTION	DESCRIPTION
Microsoft.Network/securityPartnerProviders/write	Creates a SecurityPartnerProvider or Updates An Existing SecurityPartnerProvider
Microsoft.Network/securityPartnerProviders/validate/action	Validates a SecurityPartnerProvider
Microsoft.Network/securityPartnerProviders/updateReferences/action	Update references in a SecurityPartnerProvider
Microsoft.Network/securityPartnerProviders/join/action	Joins a SecurityPartnerProvider. Not alertable.
Microsoft.Network/securityPartnerProviders/delete	Deletes a SecurityPartnerProvider
Microsoft.Network/serviceEndpointPolicies/read	Gets a Service Endpoint Policy Description
Microsoft.Network/serviceEndpointPolicies/write	Creates a Service Endpoint Policy or updates an existing Service Endpoint Policy
Microsoft.Network/serviceEndpointPolicies/delete	Deletes a Service Endpoint Policy
Microsoft.Network/serviceEndpointPolicies/join/action	Joins a Service Endpoint Policy. Not alertable.
Microsoft.Network/serviceEndpointPolicies/joinSubnet/action	Joins a Subnet To Service Endpoint Policies. Not alertable.
Microsoft.Network/serviceEndpointPolicies/serviceEndpointPolicyDefinitions/read	Gets a Service Endpoint Policy Definition Description
Microsoft.Network/serviceEndpointPolicies/serviceEndpointPolicyDefinitions/write	Creates a Service Endpoint Policy Definition or updates an existing Service Endpoint Policy Definition
Microsoft.Network/serviceEndpointPolicies/serviceEndpointPolicyDefinitions/delete	Deletes a Service Endpoint Policy Definition
Microsoft.Network/trafficManagerGeographicHierarchies/read	Gets the Traffic Manager Geographic Hierarchy containing regions which can be used with the Geographic traffic routing method
Microsoft.Network/trafficManagerProfiles/read	Get the Traffic Manager profile configuration. This includes DNS settings, traffic routing settings, endpoint monitoring settings, and the list of endpoints routed by this Traffic Manager profile.
Microsoft.Network/trafficManagerProfiles/write	Create a Traffic Manager profile, or modify the configuration of an existing Traffic Manager profile. This includes enabling or disabling a profile and modifying DNS settings, traffic routing settings, or endpoint monitoring settings. Endpoints routed by the Traffic Manager profile can be added, removed, enabled or disabled.
Microsoft.Network/trafficManagerProfiles/delete	Delete the Traffic Manager profile. All settings associated with the Traffic Manager profile will be lost, and the profile can no longer be used to route traffic.

ACTION	DESCRIPTION
Microsoft.Network/trafficManagerProfiles/azureEndpoints/read	Gets an Azure Endpoint which belongs to a Traffic Manager Profile, including all the properties of that Azure Endpoint.
Microsoft.Network/trafficManagerProfiles/azureEndpoints/write	Add a new Azure Endpoint in an existing Traffic Manager Profile or update the properties of an existing Azure Endpoint in that Traffic Manager Profile.
Microsoft.Network/trafficManagerProfiles/azureEndpoints/delete	Deletes an Azure Endpoint from an existing Traffic Manager Profile. Traffic Manager will stop routing traffic to the deleted Azure Endpoint.
Microsoft.Network/trafficManagerProfiles/externalEndpoints/read	Gets an External Endpoint which belongs to a Traffic Manager Profile, including all the properties of that External Endpoint.
Microsoft.Network/trafficManagerProfiles/externalEndpoints/write	Add a new External Endpoint in an existing Traffic Manager Profile or update the properties of an existing External Endpoint in that Traffic Manager Profile.
Microsoft.Network/trafficManagerProfiles/externalEndpoints/delete	Deletes an External Endpoint from an existing Traffic Manager Profile. Traffic Manager will stop routing traffic to the deleted External Endpoint.
Microsoft.Network/trafficManagerProfiles/heatMaps/read	Gets the Traffic Manager Heat Map for the given Traffic Manager profile which contains query counts and latency data by location and source IP.
Microsoft.Network/trafficManagerProfiles/nestedEndpoints/read	Gets an Nested Endpoint which belongs to a Traffic Manager Profile, including all the properties of that Nested Endpoint.
Microsoft.Network/trafficManagerProfiles/nestedEndpoints/write	Add a new Nested Endpoint in an existing Traffic Manager Profile or update the properties of an existing Nested Endpoint in that Traffic Manager Profile.
Microsoft.Network/trafficManagerProfiles/nestedEndpoints/delete	Deletes an Nested Endpoint from an existing Traffic Manager Profile. Traffic Manager will stop routing traffic to the deleted Nested Endpoint.
Microsoft.Network/trafficManagerUserMetricsKeys/read	Gets the subscription-level key used for Realtime User Metrics collection.
Microsoft.Network/trafficManagerUserMetricsKeys/write	Creates a new subscription-level key to be used for Realtime User Metrics collection.
Microsoft.Network/trafficManagerUserMetricsKeys/delete	Deletes the subscription-level key used for Realtime User Metrics collection.
Microsoft.Network/virtualHubs/delete	Deletes a Virtual Hub
Microsoft.Network/virtualHubs/read	Get a Virtual Hub
Microsoft.Network/virtualHubs/write	Create or update a Virtual Hub
Microsoft.Network/virtualHubs/effectiveRoutes/action	Gets effective route configured on Virtual Hub

ACTION	DESCRIPTION
Microsoft.Network/virtualHubs/hubRouteTables/read	Gets a Route Table child resource of Virtual Hub
Microsoft.Network/virtualHubs/hubRouteTables/write	Creates or Updates a Route Table child resource of Virtual Hub
Microsoft.Network/virtualHubs/hubRouteTables/delete	Deletes a Route Table child resource of Virtual Hub
Microsoft.Network/virtualHubs/hubVirtualNetworkConnections/read	Get a HubVirtualNetworkConnection
Microsoft.Network/virtualHubs/hubVirtualNetworkConnections/write	Create or update a HubVirtualNetworkConnection
Microsoft.Network/virtualHubs/hubVirtualNetworkConnections/delete	Deletes a HubVirtualNetworkConnection
Microsoft.Network/virtualHubs/routeTables/read	Get a VirtualHubRouteTableV2
Microsoft.Network/virtualHubs/routeTables/write	Create or Update a VirtualHubRouteTableV2
Microsoft.Network/virtualHubs/routeTables/delete	Delete a VirtualHubRouteTableV2
Microsoft.Network/virtualnetworkgateways/supportedvpndevices/action	Lists Supported Vpn Devices
Microsoft.Network/virtualNetworkGateways/read	Gets a VirtualNetworkGateway
Microsoft.Network/virtualNetworkGateways/write	Creates or updates a VirtualNetworkGateway
Microsoft.Network/virtualNetworkGateways/delete	Deletes a virtualNetworkGateway
microsoft.network/virtualnetworkgateways/generatevpnclientpackage/action	Generate VpnClient package for virtualNetworkGateway
microsoft.network/virtualnetworkgateways/generatevpnprofile/action	Generate VpnProfile package for VirtualNetworkGateway
microsoft.network/virtualnetworkgateways/getvpnclientconnectionhealth/action	Get Per Vpn Client Connection Health for VirtualNetworkGateway
microsoft.network/virtualnetworkgateways/disconnectvirtualnetworkgatewayvpnconnections/action	Disconnect virtual network gateway vpn connections
microsoft.network/virtualnetworkgateways/getvpnprofilepackageurl/action	Gets the URL of a pre-generated vpn client profile package
microsoft.network/virtualnetworkgateways/setvpnclientipsecparameters/action	Set Vpnclient Ipsec parameters for VirtualNetworkGateway P2S client.
microsoft.network/virtualnetworkgateways/getvpnclientipsecparameters/action	Get Vpnclient Ipsec parameters for VirtualNetworkGateway P2S client.

ACTION	DESCRIPTION
microsoft.network/virtualnetworkgateways/resetvpnclientshardkey/action	Reset Vpnclient shared key for VirtualNetworkGateway P2S client.
microsoft.network/virtualnetworkgateways/reset/action	Resets a virtualNetworkGateway
microsoft.network/virtualnetworkgateways/getadvertisedroutes/action	Gets virtualNetworkGateway advertised routes
microsoft.network/virtualnetworkgateways/getbgppeerstatus/action	Gets virtualNetworkGateway bgp peer status
microsoft.network/virtualnetworkgateways/getlearnedroutes /action	Gets virtualnetworkgateway learned routes
microsoft.network/virtualnetworkgateways/startpacketcapture /action	Starts a Virtual Network Gateway Packet Capture.
microsoft.network/virtualnetworkgateways/stoppacketcapture /action	Stops a Virtual Network Gateway Packet Capture.
microsoft.network/virtualnetworkgateways/connections/read	Get VirtualNetworkGatewayConnection
Microsoft.Network/virtualNetworks/read	Get the virtual network definition
Microsoft.Network/virtualNetworks/write	Creates a virtual network or updates an existing virtual network
Microsoft.Network/virtualNetworks/delete	Deletes a virtual network
Microsoft.Network/virtualNetworks/joinLoadBalancer/action	Joins a load balancer to virtual networks
Microsoft.Network/virtualNetworks/peer/action	Peers a virtual network with another virtual network
Microsoft.Network/virtualNetworks/join/action	Joins a virtual network. Not Alertable.
Microsoft.Network/virtualNetworks/BastionHosts/action	Gets Bastion Host references in a Virtual Network.
Microsoft.Network/virtualNetworks/bastionHosts/default/acti on	Gets Bastion Host references in a Virtual Network.
Microsoft.Network/virtualNetworks/checkIpAddressAvailability/read	Check if Ip Address is available at the specified virtual network
Microsoft.Network/virtualNetworks/subnets/read	Gets a virtual network subnet definition
Microsoft.Network/virtualNetworks/subnets/write	Creates a virtual network subnet or updates an existing virtual network subnet
Microsoft.Network/virtualNetworks/subnets/delete	Deletes a virtual network subnet
Microsoft.Network/virtualNetworks/subnets/join/action	Joins a virtual network. Not Alertable.

ACTION	DESCRIPTION
Microsoft.Network/virtualNetworks/subnets/joinViaServiceEndpoint/action	Joins resource such as storage account or SQL database to a subnet. Not alertable.
Microsoft.Network/virtualNetworks/subnets/prepareNetworkPolicies/action	Prepares a subnet by applying necessary Network Policies
Microsoft.Network/virtualNetworks/subnets/unprepareNetworkPolicies/action	Unprepare a subnet by removing the applied Network Policies
Microsoft.Network/virtualNetworks/subnets/contextualServiceEndpointPolicies/read	Gets Contextual Service Endpoint Policies
Microsoft.Network/virtualNetworks/subnets/contextualServiceEndpointPolicies/write	Creates a Contextual Service Endpoint Policy or updates an existing Contextual Service Endpoint Policy
Microsoft.Network/virtualNetworks/subnets/contextualServiceEndpointPolicies/delete	Deletes A Contextual Service Endpoint Policy
Microsoft.Network/virtualNetworks/subnets/virtualMachines/read	Gets references to all the virtual machines in a virtual network subnet
Microsoft.Network/virtualNetworks/usages/read	Get the IP usages for each subnet of the virtual network
Microsoft.Network/virtualNetworks/virtualMachines/read	Gets references to all the virtual machines in a virtual network
Microsoft.Network/virtualNetworks/virtualNetworkPeerings/read	Gets a virtual network peering definition
Microsoft.Network/virtualNetworks/virtualNetworkPeerings/write	Creates a virtual network peering or updates an existing virtual network peering
Microsoft.Network/virtualNetworks/virtualNetworkPeerings/delete	Deletes a virtual network peering
Microsoft.Network/virtualNetworkTaps/read	Get Virtual Network Tap
Microsoft.Network/virtualNetworkTaps/join/action	Joins a virtual network tap. Not Alertable.
Microsoft.Network/virtualNetworkTaps/delete	Delete Virtual Network Tap
Microsoft.Network/virtualNetworkTaps/write	Create or Update Virtual Network Tap
Microsoft.Network/virtualRouters/read	Gets A VirtualRouter
Microsoft.Network/virtualRouters/write	Creates A VirtualRouter or Updates An Existing VirtualRouter
Microsoft.Network/virtualRouters/delete	Deletes A VirtualRouter
Microsoft.Network/virtualRouters/join/action	Joins A VirtualRouter. Not alertable.
Microsoft.Network/virtualRouters/peerings/read	Gets A VirtualRouterPeering

ACTION	DESCRIPTION
Microsoft.Network/virtualRouters/peerings/write	Creates A VirtualRouterPeering or Updates An Existing VirtualRouterPeering
Microsoft.Network/virtualRouters/peerings/delete	Deletes A VirtualRouterPeering
Microsoft.Network/virtualWans/delete	Deletes a Virtual Wan
Microsoft.Network/virtualWans/read	Get a Virtual Wan
Microsoft.Network/virtualWans/write	Create or update a Virtual Wan
Microsoft.Network/virtualwans/vpnconfiguration/action	Gets a Vpn Configuration
Microsoft.Network/virtualwans/vpnServerConfigurations/acti on	Get VirtualWanVpnServerConfigurations
Microsoft.Network/virtualwans/generateVpnProfile/action	Generate VirtualWanVpnServerConfiguration VpnProfile
Microsoft.Network/virtualWans/p2sVpnServerConfigurations /read	Gets a virtual Wan P2SVpnServerConfiguration
Microsoft.network/virtualWans/p2sVpnServerConfigurations /write	Creates a virtual Wan P2SVpnServerConfiguration or updates an existing virtual Wan P2SVpnServerConfiguration
Microsoft.network/virtualWans/p2sVpnServerConfigurations /delete	Deletes a virtual Wan P2SVpnServerConfiguration
Microsoft.Network/virtualwans/supportedSecurityProviders/r ead	Gets supported VirtualWan Security Providers.
Microsoft.Network/virtualWans/virtualHubs/read	Gets all Virtual Hubs that reference a Virtual Wan.
Microsoft.Network/virtualWans/vpnSites/read	Gets all VPN Sites that reference a Virtual Wan.
Microsoft.Network/vpnGateways/read	Gets a VpnGateway.
Microsoft.Network/vpnGateways/write	Puts a VpnGateway.
Microsoft.Network/vpnGateways/delete	Deletes a VpnGateway.
microsoft.network/vpngateways/reset/action	Resets a VpnGateway
microsoft.network/vpngateways/startpacketcapture/action	Start Vpn gateway Packet Capture with according resource
microsoft.network/vpngateways/stoppacketcapture/action	Stop Vpn gateway Packet Capture with sasURL
microsoft.network/vpngateways/listvpnconnectionshealth/ac tion	Gets connection health for all or a subset of connections on a VpnGateway
microsoft.network/vpnGateways/vpnConnections/read	Gets a VpnConnection.

ACTION	DESCRIPTION
microsoft.network/vpnGateways/vpnConnections/write	Puts a VpnConnection.
microsoft.network/vpnGateways/vpnConnections/delete	Deletes a VpnConnection.
microsoft.network/vpnGateways/vpnConnections/vpnLinkConnections/read	Gets a Vpn Link Connection
Microsoft.Network/vpnServerConfigurations/read	Get VpnServerConfiguration
Microsoft.Network/vpnServerConfigurations/write	Create or Update VpnServerConfiguration
Microsoft.Network/vpnServerConfigurations/delete	Delete VpnServerConfiguration
Microsoft.Network/vpnsites/read	Gets a Vpn Site resource.
Microsoft.Network/vpnsites/write	Creates or updates a Vpn Site resource.
Microsoft.Network/vpnsites/delete	Deletes a Vpn Site resource.
microsoft.network/vpnSites/vpnSiteLinks/read	Gets a Vpn Site Link

## Storage

### Microsoft.ClassicStorage

Azure service: Classic deployment model storage

ACTION	DESCRIPTION
Microsoft.ClassicStorage/register/action	Register to Classic Storage
Microsoft.ClassicStorage/checkStorageAccountAvailability/aktion	Checks for the availability of a storage account.
Microsoft.ClassicStorage/capabilities/read	Shows the capabilities
Microsoft.ClassicStorage/checkStorageAccountAvailability/read	Get the availability of a storage account.
Microsoft.ClassicStorage/disks/read	Returns the storage account disk.
Microsoft.ClassicStorage/images/read	Returns the image.
Microsoft.ClassicStorage/images/operationstatuses/read	Gets Image Operation Status.
Microsoft.ClassicStorage/operations/read	Gets classic storage operations
Microsoft.ClassicStorage/osImages/read	Returns the operating system image.
Microsoft.ClassicStorage/osPlatformImages/read	Gets the operating system platform image.

ACTION	DESCRIPTION
Microsoft.ClassicStorage/publicImages/read	Gets the public virtual machine image.
Microsoft.ClassicStorage/quotas/read	Get the quota for the subscription.
Microsoft.ClassicStorage/storageAccounts/read	Return the storage account with the given account.
Microsoft.ClassicStorage/storageAccounts/write	Adds a new storage account.
Microsoft.ClassicStorage/storageAccounts/delete	Delete the storage account.
Microsoft.ClassicStorage/storageAccounts/listKeys/action	Lists the access keys for the storage accounts.
Microsoft.ClassicStorage/storageAccounts/regenerateKey/action	Regenerates the existing access keys for the storage account.
Microsoft.ClassicStorage/storageAccounts/validateMigration/action	Validates migration of a storage account.
Microsoft.ClassicStorage/storageAccounts/prepareMigration/action	Prepares migration of a storage account.
Microsoft.ClassicStorage/storageAccounts/commitMigration/action	Commits migration of a storage account.
Microsoft.ClassicStorage/storageAccounts/abortMigration/action	Aborts migration of a storage account.
Microsoft.ClassicStorage/storageAccounts/blobServices/providers/Microsoft.Insights/diagnosticSettings/read	Get the diagnostics settings.
Microsoft.ClassicStorage/storageAccounts/blobServices/providers/Microsoft.Insights/diagnosticSettings/write	Add or modify diagnostics settings.
Microsoft.ClassicStorage/storageAccounts/blobServices/providers/Microsoft.Insights/metricDefinitions/read	Gets the metrics definitions.
Microsoft.ClassicStorage/storageAccounts/disks/read	Returns the storage account disk.
Microsoft.ClassicStorage/storageAccounts/disks/write	Adds a storage account disk.
Microsoft.ClassicStorage/storageAccounts/disks/delete	Deletes a given storage account disk.
Microsoft.ClassicStorage/storageAccounts/disks/operationStatuses/read	Reads the operation status for the resource.
Microsoft.ClassicStorage/storageAccounts/fileServices/providers/Microsoft.Insights/diagnosticSettings/read	Get the diagnostics settings.
Microsoft.ClassicStorage/storageAccounts/fileServices/providers/Microsoft.Insights/diagnosticSettings/write	Add or modify diagnostics settings.

ACTION	DESCRIPTION
Microsoft.ClassicStorage/storageAccounts/fileServices/providers/Microsoft.Insights/metricDefinitions/read	Gets the metrics definitions.
Microsoft.ClassicStorage/storageAccounts/images/read	Returns the storage account image. (Deprecated. Use 'Microsoft.ClassicStorage/storageAccounts/vmImages')
Microsoft.ClassicStorage/storageAccounts/images/delete	Deletes a given storage account image. (Deprecated. Use 'Microsoft.ClassicStorage/storageAccounts/vmImages')
Microsoft.ClassicStorage/storageAccounts/images/operations/statuses/read	Returns the storage account image operation status.
Microsoft.ClassicStorage/storageAccounts/operationStatuses/read	Reads the operation status for the resource.
Microsoft.ClassicStorage/storageAccounts/osImages/read	Returns the storage account operating system image.
Microsoft.ClassicStorage/storageAccounts/osImages/write	Adds a given storage account operating system image.
Microsoft.ClassicStorage/storageAccounts/osImages/delete	Deletes a given storage account operating system image.
Microsoft.ClassicStorage/storageAccounts/providers/Microsoft.Insights/diagnosticSettings/read	Get the diagnostics settings.
Microsoft.ClassicStorage/storageAccounts/providers/Microsoft.Insights/diagnosticSettings/write	Add or modify diagnostics settings.
Microsoft.ClassicStorage/storageAccounts/providers/Microsoft.Insights/metricDefinitions/read	Gets the metrics definitions.
Microsoft.ClassicStorage/storageAccounts/queueServices/providers/Microsoft.Insights/diagnosticSettings/read	Get the diagnostics settings.
Microsoft.ClassicStorage/storageAccounts/queueServices/providers/Microsoft.Insights/diagnosticSettings/write	Add or modify diagnostics settings.
Microsoft.ClassicStorage/storageAccounts/queueServices/providers/Microsoft.Insights/metricDefinitions/read	Gets the metrics definitions.
Microsoft.ClassicStorage/storageAccounts/services/read	Get the available services.
Microsoft.ClassicStorage/storageAccounts/services/diagnosticsSettings/read	Get the diagnostics settings.
Microsoft.ClassicStorage/storageAccounts/services/diagnosticsSettings/write	Add or modify diagnostics settings.
Microsoft.ClassicStorage/storageAccounts/services/metricDefinitions/read	Gets the metrics definitions.
Microsoft.ClassicStorage/storageAccounts/services/metrics/read	Gets the metrics.

ACTION	DESCRIPTION
Microsoft.ClassicStorage/storageAccounts/tableServices/providers/Microsoft.Insights/diagnosticSettings/read	Get the diagnostics settings.
Microsoft.ClassicStorage/storageAccounts/tableServices/providers/Microsoft.Insights/diagnosticSettings/write	Add or modify diagnostics settings.
Microsoft.ClassicStorage/storageAccounts/tableServices/providers/Microsoft.Insights/metricDefinitions/read	Gets the metrics definitions.
Microsoft.ClassicStorage/storageAccounts/vmImages/read	Returns the virtual machine image.
Microsoft.ClassicStorage/storageAccounts/vmImages/write	Adds a given virtual machine image.
Microsoft.ClassicStorage/storageAccounts/vmImages/delete	Deletes a given virtual machine image.
Microsoft.ClassicStorage/storageAccounts/vmImages/operationstatuses/read	Gets a given virtual machine image operation status.
Microsoft.ClassicStorage/vmImages/read	Lists virtual machine images.

## Microsoft.DataBox

Azure service: [Azure Data Box](#)

ACTION	DESCRIPTION
Microsoft.DataBox/register/action	Register Provider Microsoft.Databox
Microsoft.DataBox/unregister/action	Un-Register Provider Microsoft.Databox
Microsoft.DataBox/jobs/cancel/action	Cancels an order in progress.
Microsoft.DataBox/jobs/bookShipmentPickUp/action	Allows to book a pick up for return shipments.
Microsoft.DataBox/jobs/read	List or get the Orders
Microsoft.DataBox/jobs/delete	Delete the Orders
Microsoft.DataBox/jobs/write	Create or update the Orders
Microsoft.DataBox/jobs/listCredentials/action	Lists the unencrypted credentials related to the order.
Microsoft.DataBox/locations/validateInputs/action	This method does all type of validations.
Microsoft.DataBox/locations/validateAddress/action	Validates the shipping address and provides alternate addresses if any.
Microsoft.DataBox/locations/availableSkus/action	This method returns the list of available skus.
Microsoft.DataBox/locations/regionConfiguration/action	This method returns the configurations for the region.
Microsoft.DataBox/locations/availableSkus/read	List or get the Available Skus

ACTION	DESCRIPTION
Microsoft.DataBox/locations/operationResults/read	List or get the Operation Results
Microsoft.DataBox/operations/read	List or get the Operations
Microsoft.DataBox/subscriptions/resourceGroups/moveResources/action	This method performs the resource move.
Microsoft.DataBox/subscriptions/resourceGroups/validateMoveResources/action	This method validates whether resource move is allowed or not.

## Microsoft.ImportExport

Azure service: [Azure Import/Export](#)

ACTION	DESCRIPTION
Microsoft.ImportExport/register/action	Registers the subscription for the import/export resource provider and enables the creation of import/export jobs.
Microsoft.ImportExport/jobs/write	Creates a job with the specified parameters or update the properties or tags for the specified job.
Microsoft.ImportExport/jobs/read	Gets the properties for the specified job or returns the list of jobs.
Microsoft.ImportExport/jobs/listBitLockerKeys/action	Gets the BitLocker keys for the specified job.
Microsoft.ImportExport/jobs/delete	Deletes an existing job.
Microsoft.ImportExport/locations/read	Gets the properties for the specified location or returns the list of locations.
Microsoft.ImportExport/operations/read	Gets the operations supported by the Resource Provider.

## Microsoft.NetApp

Azure service: [Azure NetApp Files](#)

ACTION	DESCRIPTION
Microsoft.NetApp/register/action	Subscription Registration Action
Microsoft.NetApp/unregister/action	Unregisters Subscription with Microsoft.NetApp resource provider
Microsoft.NetApp/locations/read	Reads an availability check resource.
Microsoft.NetApp/locations/checknameavailability/action	Check if resource name is available
Microsoft.NetApp/locations/checkfilepathavailability/action	Check if file path is available
Microsoft.NetApp/locations/operationresults/read	Reads an operation result resource.

ACTION	DESCRIPTION
Microsoft.NetApp/netAppAccounts/read	Reads an account resource.
Microsoft.NetApp/netAppAccounts/write	Writes an account resource.
Microsoft.NetApp/netAppAccounts/delete	Deletes an account resource.
Microsoft.NetApp/netAppAccounts/accountBackups/read	Reads an account backup resource.
Microsoft.NetApp/netAppAccounts/accountBackups/write	Writes an account backup resource.
Microsoft.NetApp/netAppAccounts/accountBackups/delete	Deletes an account backup resource.
Microsoft.NetApp/netAppAccounts/backupPolicies/read	Reads a backup policy resource.
Microsoft.NetApp/netAppAccounts/backupPolicies/write	Writes a backup policy resource.
Microsoft.NetApp/netAppAccounts/backupPolicies/delete	Deletes a backup policy resource.
Microsoft.NetApp/netAppAccounts/capacityPools/read	Reads a pool resource.
Microsoft.NetApp/netAppAccounts/capacityPools/write	Writes a pool resource.
Microsoft.NetApp/netAppAccounts/capacityPools/delete	Deletes a pool resource.
Microsoft.NetApp/netAppAccounts/capacityPools/volumes/read	Reads a volume resource.
Microsoft.NetApp/netAppAccounts/capacityPools/volumes/write	Writes a volume resource.
Microsoft.NetApp/netAppAccounts/capacityPools/volumes/delete	Deletes a volume resource.
Microsoft.NetApp/netAppAccounts/capacityPools/volumes/Revert/action	Revert volume to specific snapshot
Microsoft.NetApp/netAppAccounts/capacityPools/volumes/BreakReplication/action	Break volume replication relations
Microsoft.NetApp/netAppAccounts/capacityPools/volumes/ReplicationStatus/action	Reads the statuses of the Volume Replication.
Microsoft.NetApp/netAppAccounts/capacityPools/volumes/ReInitializeReplication/action	Attempts to re-initialize an uninitialized replication
Microsoft.NetApp/netAppAccounts/capacityPools/volumes/AuthorizeReplication/action	Authorize the source volume replication
Microsoft.NetApp/netAppAccounts/capacityPools/volumes/ResyncReplication/action	Resync the replication on the destination volume

ACTION	DESCRIPTION
Microsoft.NetApp/netAppAccounts/capacityPools/volumes/DeleteReplication/action	Delete the replication on the destination volume
Microsoft.NetApp/netAppAccounts/capacityPools/volumes/backups/read	Reads a backup resource.
Microsoft.NetApp/netAppAccounts/capacityPools/volumes/backups/write	Writes a backup resource.
Microsoft.NetApp/netAppAccounts/capacityPools/volumes/backups/delete	Deletes a backup resource.
Microsoft.NetApp/netAppAccounts/capacityPools/volumes/MountTargets/read	Reads a mount target resource.
Microsoft.NetApp/netAppAccounts/capacityPools/volumes/ReplicationStatus/read	Reads the statuses of the Volume Replication.
Microsoft.NetApp/netAppAccounts/capacityPools/volumes/snapshots/read	Reads a snapshot resource.
Microsoft.NetApp/netAppAccounts/capacityPools/volumes/snapshots/write	Writes a snapshot resource.
Microsoft.NetApp/netAppAccounts/capacityPools/volumes/snapshots/delete	Deletes a snapshot resource.
Microsoft.NetApp/netAppAccounts/snapshotPolicies/read	Reads a snapshot policy resource.
Microsoft.NetApp/netAppAccounts/snapshotPolicies/write	Writes a snapshot policy resource.
Microsoft.NetApp/netAppAccounts/snapshotPolicies/delete	Deletes a snapshot policy resource.
Microsoft.NetApp/netAppAccounts/snapshotPolicies/ListVolumes/action	List volumes connected to snapshot policy
Microsoft.NetApp/netAppAccounts/vaults/read	Reads a vault resource.
Microsoft.NetApp/Operations/read	Reads an operation resources.

## Microsoft.Storage

Azure service: [Storage](#)

ACTION	DESCRIPTION
Microsoft.Storage/register/action	Registers the subscription for the storage resource provider and enables the creation of storage accounts.
Microsoft.Storage/checknameavailability/read	Checks that account name is valid and is not in use.
Microsoft.Storage/deletedAccounts/read	

ACTION	DESCRIPTION
Microsoft.Storage/locations/deleteVirtualNetworkOrSubnets/action	Notifies Microsoft.Storage that virtual network or subnet is being deleted
Microsoft.Storage/locations/checknameavailability/read	Checks that account name is valid and is not in use.
Microsoft.Storage/locations/usages/read	Returns the limit and the current usage count for resources in the specified subscription
Microsoft.Storage/operations/read	Polls the status of an asynchronous operation.
Microsoft.Storage/skus/read	Lists the Skus supported by Microsoft.Storage.
Microsoft.Storage/storageAccounts/restoreBlobRanges/action	Restore blob ranges to the state of the specified time
Microsoft.Storage/storageAccounts/PrivateEndpointConnectionsApproval/action	Approve Private Endpoint Connections
Microsoft.Storage/storageAccounts/failover/action	Customer is able to control the failover in case of availability issues
Microsoft.Storage/storageAccounts/listkeys/action	Returns the access keys for the specified storage account.
Microsoft.Storage/storageAccounts/regeneratekey/action	Regenerates the access keys for the specified storage account.
Microsoft.Storage/storageAccounts/revokeUserDelegationKeys/action	Revokes all the user delegation keys for the specified storage account.
Microsoft.Storage/storageAccounts/delete	Deletes an existing storage account.
Microsoft.Storage/storageAccounts/read	Returns the list of storage accounts or gets the properties for the specified storage account.
Microsoft.Storage/storageAccounts/listAccountSas/action	Returns the Account SAS token for the specified storage account.
Microsoft.Storage/storageAccounts/listServiceSas/action	Returns the Service SAS token for the specified storage account.
Microsoft.Storage/storageAccounts/write	Creates a storage account with the specified parameters or update the properties or tags or adds custom domain for the specified storage account.
Microsoft.Storage/storageAccounts/blobServices/read	List blob services
Microsoft.Storage/storageAccounts/blobServices/generateUserDelegationKey/action	Returns a user delegation key for the blob service
Microsoft.Storage/storageAccounts/blobServices/write	Returns the result of put blob service properties
Microsoft.Storage/storageAccounts/blobServices/read	Returns blob service properties or statistics

ACTION	DESCRIPTION
Microsoft.Storage/storageAccounts/blobServices/containers/write	Returns the result of patch blob container
Microsoft.Storage/storageAccounts/blobServices/containers/delete	Returns the result of deleting a container
Microsoft.Storage/storageAccounts/blobServices/containers/read	Returns a container
Microsoft.Storage/storageAccounts/blobServices/containers/read	Returns list of containers
Microsoft.Storage/storageAccounts/blobServices/containers/lease/action	Returns the result of leasing blob container
Microsoft.Storage/storageAccounts/blobServices/containers/write	Returns the result of put blob container
Microsoft.Storage/storageAccounts/blobServices/containers/clearLegalHold/action	Clear blob container legal hold
Microsoft.Storage/storageAccounts/blobServices/containers/setLegalHold/action	Set blob container legal hold
Microsoft.Storage/storageAccounts/blobServices/containers/immutabilityPolicies/extend/action	Extend blob container immutability policy
Microsoft.Storage/storageAccounts/blobServices/containers/immutabilityPolicies/delete	Delete blob container immutability policy
Microsoft.Storage/storageAccounts/blobServices/containers/immutabilityPolicies/write	Put blob container immutability policy
Microsoft.Storage/storageAccounts/blobServices/containers/immutabilityPolicies/lock/action	Lock blob container immutability policy
Microsoft.Storage/storageAccounts/blobServices/containers/immutabilityPolicies/read	Get blob container immutability policy
Microsoft.Storage/storageAccounts/dataSharePolicies/delete	
Microsoft.Storage/storageAccounts/dataSharePolicies/read	
Microsoft.Storage/storageAccounts/dataSharePolicies/read	
Microsoft.Storage/storageAccounts/dataSharePolicies/write	
Microsoft.Storage/storageAccounts/encryptionScopes/read	
Microsoft.Storage/storageAccounts/encryptionScopes/read	
Microsoft.Storage/storageAccounts/encryptionScopes/write	

ACTION	DESCRIPTION
Microsoft.Storage/storageAccounts/encryptionScopes/write	
Microsoft.Storage/storageAccounts/fileServices/shares/action	Restore file share
Microsoft.Storage/storageAccounts/fileServices/read	List file services
Microsoft.Storage/storageAccounts/fileServices/write	Put file service properties
Microsoft.Storage/storageAccounts/fileServices/read	Get file service properties
Microsoft.Storage/storageAccounts/fileServices/shares/delete	Delete file share
Microsoft.Storage/storageAccounts/fileServices/shares/read	Get file share
Microsoft.Storage/storageAccounts/fileServices/shares/read	List file shares
Microsoft.Storage/storageAccounts/fileServices/shares/write	Create or update file share
Microsoft.Storage/storageAccounts/inventoryPolicies/delete	
Microsoft.Storage/storageAccounts/inventoryPolicies/read	
Microsoft.Storage/storageAccounts/inventoryPolicies/write	
Microsoft.Storage/storageAccounts/localUsers/delete	Delete local user
Microsoft.Storage/storageAccounts/localusers/listKeys/action	List local user keys
Microsoft.Storage/storageAccounts/localusers/read	List local users
Microsoft.Storage/storageAccounts/localusers/read	Get local user
Microsoft.Storage/storageAccounts/localusers/write	Create or update local user
Microsoft.Storage/storageAccounts/managementPolicies/delete	Delete storage account management policies
Microsoft.Storage/storageAccounts/managementPolicies/read	Get storage management account policies
Microsoft.Storage/storageAccounts/managementPolicies/write	Put storage account management policies
Microsoft.Storage/storageAccounts/objectReplicationPolicies/delete	Delete object replication policy
Microsoft.Storage/storageAccounts/objectReplicationPolicies/read	Get object replication policy
Microsoft.Storage/storageAccounts/objectReplicationPolicies/read	List object replication policies

ACTION	DESCRIPTION
Microsoft.Storage/storageAccounts/objectReplicationPolicies/write	Create or update object replication policy
Microsoft.Storage/storageAccounts/privateEndpointConnectionProxies/read	Get Private Endpoint Connection Proxy
Microsoft.Storage/storageAccounts/privateEndpointConnectionProxies/delete	Delete Private Endpoint Connection Proxies
Microsoft.Storage/storageAccounts/privateEndpointConnectionProxies/write	Put Private Endpoint Connection Proxies
Microsoft.Storage/storageAccounts/privateEndpointConnections/read	List Private Endpoint Connections
Microsoft.Storage/storageAccounts/privateEndpointConnections/delete	Delete Private Endpoint Connection
Microsoft.Storage/storageAccounts/privateEndpointConnections/read	Get Private Endpoint Connection
Microsoft.Storage/storageAccounts/privateEndpointConnections/write	Put Private Endpoint Connection
Microsoft.Storage/storageAccounts/privateLinkResources/read	Get StorageAccount groupids
Microsoft.Storage/storageAccounts/queueServices/read	
Microsoft.Storage/storageAccounts/queueServices/write	
Microsoft.Storage/storageAccounts/queueServices/read	Get Queue service properties
Microsoft.Storage/storageAccounts/queueServices/read	Returns queue service properties or statistics.
Microsoft.Storage/storageAccounts/queueServices/write	Returns the result of setting queue service properties
Microsoft.Storage/storageAccounts/queueServices/queues/delete	
Microsoft.Storage/storageAccounts/queueServices/queues/read	
Microsoft.Storage/storageAccounts/queueServices/queues/read	
Microsoft.Storage/storageAccounts/queueServices/queues/write	
Microsoft.Storage/storageAccounts/queueServices/queues/read	Returns a queue or a list of queues.

ACTION	DESCRIPTION
Microsoft.Storage/storageAccounts/queueServices/queues/write	Returns the result of writing a queue
Microsoft.Storage/storageAccounts/queueServices/queues/delete	Returns the result of deleting a queue
Microsoft.Storage/storageAccounts/services/diagnosticSettings/write	Create/Update storage account diagnostic settings.
Microsoft.Storage/storageAccounts/tableServices/read	
Microsoft.Storage/storageAccounts/tableServices/read	Get Table service properties
Microsoft.Storage/storageAccounts/tableServices/write	
Microsoft.Storage/storageAccounts/tableServices/tables/delete	
Microsoft.Storage/storageAccounts/tableServices/tables/read	
Microsoft.Storage/storageAccounts/tableServices/tables/read	
Microsoft.Storage/storageAccounts/tableServices/tables/write	
Microsoft.Storage/usages/read	Returns the limit and the current usage count for resources in the specified subscription
DataAction	Description
Microsoft.Storage/storageAccounts/blobServices/containers/blobs/read	Returns a blob or a list of blobs
Microsoft.Storage/storageAccounts/blobServices/containers/blobs/write	Returns the result of writing a blob
Microsoft.Storage/storageAccounts/blobServices/containers/blobs/delete	Returns the result of deleting a blob
Microsoft.Storage/storageAccounts/blobServices/containers/blobs/deleteBlobVersion/action	Returns the result of deleting a blob version
Microsoft.Storage/storageAccounts/blobServices/containers/blobs/add/action	Returns the result of adding blob content
Microsoft.Storage/storageAccounts/blobServices/containers/blobs/filter/action	Returns the list of blobs under an account with matching tags filter
Microsoft.Storage/storageAccounts/blobServices/containers/blobs/move/action	Moves the blob from one path to another
Microsoft.Storage/storageAccounts/blobServices/containers/blobs/manageOwnership/action	Changes ownership of the blob

ACTION	DESCRIPTION
Microsoft.Storage/storageAccounts/blobServices/containers/blobs/modifyPermissions/action	Modifies permissions of the blob
Microsoft.Storage/storageAccounts/blobServices/containers/blobs/runAsSuperUser/action	Returns the result of the blob command
Microsoft.Storage/storageAccounts/blobServices/containers/blobs/tags/read	Returns the result of reading blob tags
Microsoft.Storage/storageAccounts/blobServices/containers/blobs/tags/write	Returns the result of writing blob tags
Microsoft.Storage/storageAccounts/fileServices/fileshares/files/read	Returns a file/folder or a list of files/folders
Microsoft.Storage/storageAccounts/fileServices/fileshares/files/write	Returns the result of writing a file or creating a folder
Microsoft.Storage/storageAccounts/fileServices/fileshares/files/delete	Returns the result of deleting a file/folder
Microsoft.Storage/storageAccounts/fileServices/fileshares/files/modifypermissions/action	Returns the result of modifying permission on a file/folder
Microsoft.Storage/storageAccounts/fileServices/fileshares/files/actassuperuser/action	Get File Admin Privileges
Microsoft.Storage/storageAccounts/queueServices/queues/messages/read	Returns a message
Microsoft.Storage/storageAccounts/queueServices/queues/messages/write	Returns the result of writing a message
Microsoft.Storage/storageAccounts/queueServices/queues/messages/delete	Returns the result of deleting a message
Microsoft.Storage/storageAccounts/queueServices/queues/messages/add/action	Returns the result of adding a message
Microsoft.Storage/storageAccounts/queueServices/queues/messages/process/action	Returns the result of processing a message

## microsoft.storagesync

Azure service: [Storage](#)

ACTION	DESCRIPTION
microsoft.storagesync/register/action	Registers the subscription for the Storage Sync Provider
microsoft.storagesync/unregister/action	Unregisters the subscription for the Storage Sync Provider
microsoft.storagesync/locations/checkNameAvailability/action	Checks that storage sync service name is valid and is not in use.

ACTION	DESCRIPTION
microsoft.storagesync/locations/operationresults/read	Gets the result for an asynchronous operation
microsoft.storagesync/locations/operations/read	Gets the status for an azure asynchronous operation
microsoft.storagesync/locations/workflows/operations/read	Gets the status of an asynchronous operation
microsoft.storagesync/operations/read	Gets a list of the Supported Operations
microsoft.storagesync/storageSyncServices/read	Read any Storage Sync Services
microsoft.storagesync/storageSyncServices/write	Create or Update any Storage Sync Services
microsoft.storagesync/storageSyncServices/delete	Delete any Storage Sync Services
microsoft.storagesync/storageSyncServices/privateEndpointConnectionProxies/validate/action	Validate any Private Endpoint ConnectionProxies
microsoft.storagesync/storageSyncServices/privateEndpointConnectionProxies/read	Read any Private Endpoint ConnectionProxies
microsoft.storagesync/storageSyncServices/privateEndpointConnectionProxies/write	Create or Update any Private Endpoint ConnectionProxies
microsoft.storagesync/storageSyncServices/privateEndpointConnectionProxies/delete	Delete any Private Endpoint ConnectionProxies
microsoft.storagesync/storageSyncServices/privateEndpointConnections/read	Read any Private Endpoint Connections
microsoft.storagesync/storageSyncServices/privateEndpointConnections/write	Create or Update any Private Endpoint Connections
microsoft.storagesync/storageSyncServices/privateEndpointConnections/delete	Delete any Private Endpoint Connections
microsoft.storagesync/storageSyncServices/privateLinkResources/read	Read any Private Link Resources
microsoft.storagesync/storageSyncServices/providers/Microsoft.Insights/metricDefinitions/read	Gets the available metrics for Storage Sync Services
microsoft.storagesync/storageSyncServices/registeredServers/read	Read any Registered Server
microsoft.storagesync/storageSyncServices/registeredServers/write	Create or Update any Registered Server
microsoft.storagesync/storageSyncServices/registeredServers/delete	Delete any Registered Server
microsoft.storagesync/storageSyncServices/registeredServers/providers/Microsoft.Insights/metricDefinitions/read	Gets the available metrics for Registered Server

ACTION	DESCRIPTION
microsoft.storagesync/storageSyncServices/syncGroups/read	Read any Sync Groups
microsoft.storagesync/storageSyncServices/syncGroups/write	Create or Update any Sync Groups
microsoft.storagesync/storageSyncServices/syncGroups/delete	Delete any Sync Groups
microsoft.storagesync/storageSyncServices/syncGroups/cloudEndpoints/read	Read any Cloud Endpoints
microsoft.storagesync/storageSyncServices/syncGroups/cloudEndpoints/write	Create or Update any Cloud Endpoints
microsoft.storagesync/storageSyncServices/syncGroups/cloudEndpoints/delete	Delete any Cloud Endpoints
microsoft.storagesync/storageSyncServices/syncGroups/cloudEndpoints/prebackup/action	Call this action before backup
microsoft.storagesync/storageSyncServices/syncGroups/cloudEndpoints/postbackup/action	Call this action after backup
microsoft.storagesync/storageSyncServices/syncGroups/cloudEndpoints/prerestore/action	Call this action before restore
microsoft.storagesync/storageSyncServices/syncGroups/cloudEndpoints/postrestore/action	Call this action after restore
microsoft.storagesync/storageSyncServices/syncGroups/cloudEndpoints/restoreheartbeat/action	Restore heartbeat
microsoft.storagesync/storageSyncServices/syncGroups/cloudEndpoints/triggerChangeDetection/action	Call this action to trigger detection of changes on a cloud endpoint's file share
microsoft.storagesync/storageSyncServices/syncGroups/cloudEndpoints/operationresults/read	Gets the status of an asynchronous backup/restore operation
microsoft.storagesync/storageSyncServices/syncGroups/providers/Microsoft.Insights/metricDefinitions/read	Gets the available metrics for Sync Groups
microsoft.storagesync/storageSyncServices/syncGroups/serverEndpoints/read	Read any Server Endpoints
microsoft.storagesync/storageSyncServices/syncGroups/serverEndpoints/write	Create or Update any Server Endpoints
microsoft.storagesync/storageSyncServices/syncGroups/serverEndpoints/delete	Delete any Server Endpoints
microsoft.storagesync/storageSyncServices/syncGroups/serverEndpoints/recallAction/action	Call this action to recall files to a server

ACTION	DESCRIPTION
microsoft.storagesync/storageSyncServices/syncGroups/serverEndpoints/providers/Microsoft.Insights/metricDefinitions/read	Gets the available metrics for Server Endpoints
microsoft.storagesync/storageSyncServices/workflows/read	Read Workflows
microsoft.storagesync/storageSyncServices/workflows/operationresults/read	Gets the status of an asynchronous operation
microsoft.storagesync/storageSyncServices/workflows/operations/read	Gets the status of an asynchronous operation

## Microsoft.StorSimple

Azure service: [StorSimple](#)

ACTION	DESCRIPTION
Microsoft.StorSimple/register/action	Register Provider Microsoft.StorSimple
Microsoft.StorSimple/managers/clearAlerts/action	Clear all the alerts associated with the device manager.
Microsoft.StorSimple/managers/getEncryptionKey/action	Get encryption key for the device manager.
Microsoft.StorSimple/managers/read	Lists or gets the Device Managers
Microsoft.StorSimple/managers/delete	Deletes the Device Managers
Microsoft.StorSimple/managers/write	Create or update the Device Managers
Microsoft.StorSimple/managers/configureDevice/action	Configures a device
Microsoft.StorSimple/managers/migrateClassicToResourceManager/action	Migrate from Classic to Resource Manager
Microsoft.StorSimple/managers/listActivationKey/action	Gets the activation key of the StorSimple Device Manager.
Microsoft.StorSimple/managers/regenerateActivationKey/acti on	Regenerate the Activation key for an existing StorSimple Device Manager.
Microsoft.StorSimple/managers/listPublicEncryptionKey/actio n	List public encryption keys of a StorSimple Device Manager.
Microsoft.StorSimple/managers/provisionCloudAppliance/acti on	Create a new cloud appliance.
Microsoft.StorSimple/Managers/write	Create Vault operation creates an Azure resource of type 'vault'
Microsoft.StorSimple/Managers/read	The Get Vault operation gets an object representing the Azure resource of type 'vault'

ACTION	DESCRIPTION
Microsoft.StorSimple/Managers/delete	The Delete Vault operation deletes the specified Azure resource of type 'vault'
Microsoft.StorSimple/managers/accessControlRecords/read	Lists or gets the Access Control Records
Microsoft.StorSimple/managers/accessControlRecords/write	Create or update the Access Control Records
Microsoft.StorSimple/managers/accessControlRecords/delete	Deletes the Access Control Records
Microsoft.StorSimple/managers/accessControlRecords/operationResults/read	Lists or gets the Operation Results
Microsoft.StorSimple/managers/alerts/read	Lists or gets the Alerts
Microsoft.StorSimple/managers/backups/read	Lists or gets the Backup Set
Microsoft.StorSimple/managers/bandwidthSettings/read	List the Bandwidth Settings (8000 Series Only)
Microsoft.StorSimple/managers/bandwidthSettings/write	Creates a new or updates Bandwidth Settings (8000 Series Only)
Microsoft.StorSimple/managers/bandwidthSettings/delete	Deletes an existing Bandwidth Settings (8000 Series Only)
Microsoft.StorSimple/managers/bandwidthSettings/operationResults/read	List the Operation Results
Microsoft.StorSimple/managers/certificates/write	Create or update the Certificates
Microsoft.StorSimple/Managers/certificates/write	The Update Resource Certificate operation updates the resource/vault credential certificate.
Microsoft.StorSimple/managers/cloudApplianceConfigurations/read	List the Cloud Appliance Supported Configurations
Microsoft.StorSimple/managers/devices/sendTestAlertEmail/action	Send test alert email to configured email recipients.
Microsoft.StorSimple/managers/devices/scanForUpdates/action	Scan for updates in a device.
Microsoft.StorSimple/managers/devices/download/action	Download updates for a device.
Microsoft.StorSimple/managers/devices/install/action	Install updates on a device.
Microsoft.StorSimple/managers/devices/read	Lists or gets the Devices
Microsoft.StorSimple/managers/devices/write	Create or update the Devices
Microsoft.StorSimple/managers/devices/delete	Deletes the Devices
Microsoft.StorSimple/managers/devices/deactivate/action	Deactivates a device.

ACTION	DESCRIPTION
Microsoft.StorSimple/managers/devices/failover/action	Failover of the device.
Microsoft.StorSimple/managers/devices/publishSupportPacka ge/action	Publish the support package for an existing device. A StorSimple support package is an easy-to-use mechanism that collects all relevant logs to assist Microsoft Support with troubleshooting any StorSimple device issues.
Microsoft.StorSimple/managers/devices/authorizeForServiceE ncryptionKeyRollover/action	Authorize for Service Encryption Key Rollover of Devices
Microsoft.StorSimple/managers/devices/installUpdates/action	Installs updates on the devices (8000 Series Only).
Microsoft.StorSimple/managers/devices/listFailoverSets/actio n	List the failover sets for an existing device (8000 Series Only).
Microsoft.StorSimple/managers/devices/listFailoverTargets/ac tion	List failover targets of the devices (8000 Series Only).
Microsoft.StorSimple/managers/devices/publicEncryptionKey /action	List public encryption key of the device manager
Microsoft.StorSimple/managers/devices/alertSettings/read	Lists or gets the Alert Settings
Microsoft.StorSimple/managers/devices/alertSettings/write	Create or update the Alert Settings
Microsoft.StorSimple/managers/devices/alertSettings/operati onResults/read	Lists or gets the Operation Results
Microsoft.StorSimple/managers/devices/backupPolicies/write	Creates a new or updates Backup Polices (8000 Series Only)
Microsoft.StorSimple/managers/devices/backupPolicies/read	List the Backup Polices (8000 Series Only)
Microsoft.StorSimple/managers/devices/backupPolicies/delet e	Deletes an existing Backup Polices (8000 Series Only)
Microsoft.StorSimple/managers/devices/backupPolicies/backu p/action	Take a manual backup to create an on-demand backup of all the volumes protected by the policy.
Microsoft.StorSimple/managers/devices/backupPolicies/operationResults/read	List the Operation Results
Microsoft.StorSimple/managers/devices/backupPolicies/sched ules/write	Creates a new or updates Schedules
Microsoft.StorSimple/managers/devices/backupPolicies/sched ules/read	List the Schedules
Microsoft.StorSimple/managers/devices/backupPolicies/sched ules/delete	Deletes an existing Schedules
Microsoft.StorSimple/managers/devices/backupPolicies/sched ules/operationResults/read	List the Operation Results

ACTION	DESCRIPTION
Microsoft.StorSimple/managers/devices/backups/read	Lists or gets the Backup Set
Microsoft.StorSimple/managers/devices/backups/delete	Deletes the Backup Set
Microsoft.StorSimple/managers/devices/backups/restore/action	Restore all the volumes from a backup set.
Microsoft.StorSimple/managers/devices/backups/elements/clone/action	Clone a share or volume using a backup element.
Microsoft.StorSimple/managers/devices/backups/elements/operationResults/read	Lists or gets the Operation Results
Microsoft.StorSimple/managers/devices/backups/operationResults/read	Lists or gets the Operation Results
Microsoft.StorSimple/managers/devices/backupScheduleGroups/read	Lists or gets the Backup Schedule Groups
Microsoft.StorSimple/managers/devices/backupScheduleGroups/write	Create or update the Backup Schedule Groups
Microsoft.StorSimple/managers/devices/backupScheduleGroups/delete	Deletes the Backup Schedule Groups
Microsoft.StorSimple/managers/devices/backupScheduleGroups/operationResults/read	Lists or gets the Operation Results
Microsoft.StorSimple/managers/devices/chapSettings/write	Create or update the Chap Settings
Microsoft.StorSimple/managers/devices/chapSettings/read	Lists or gets the Chap Settings
Microsoft.StorSimple/managers/devices/chapSettings/delete	Deletes the Chap Settings
Microsoft.StorSimple/managers/devices/chapSettings/operationResults/read	Lists or gets the Operation Results
Microsoft.StorSimple/managers/devices/disks/read	Lists or gets the Disks
Microsoft.StorSimple/managers/devices/failover/operationResults/read	Lists or gets the Operation Results
Microsoft.StorSimple/managers/devices/failoverTargets/read	Lists or gets the Failover targets of the devices
Microsoft.StorSimple/managers/devices/fileservers/read	Lists or gets the File Servers
Microsoft.StorSimple/managers/devices/fileservers/write	Create or update the File Servers
Microsoft.StorSimple/managers/devices/fileservers/delete	Deletes the File Servers
Microsoft.StorSimple/managers/devices/fileservers/backup/action	Take backup of an File Server.

ACTION	DESCRIPTION
Microsoft.StorSimple/managers/devices/fileservers/metrics/read	Lists or gets the Metrics
Microsoft.StorSimple/managers/devices/fileservers/metricsDefinitions/read	Lists or gets the Metrics Definitions
Microsoft.StorSimple/managers/devices/fileservers/operationResults/read	Lists or gets the Operation Results
Microsoft.StorSimple/managers/devices/fileservers/shares/write	Create or update the Shares
Microsoft.StorSimple/managers/devices/fileservers/shares/read	Lists or gets the Shares
Microsoft.StorSimple/managers/devices/fileservers/shares/delete	Deletes the Shares
Microsoft.StorSimple/managers/devices/fileservers/shares/metrics/read	Lists or gets the Metrics
Microsoft.StorSimple/managers/devices/fileservers/shares/metricsDefinitions/read	Lists or gets the Metrics Definitions
Microsoft.StorSimple/managers/devices/fileservers/shares/operationResults/read	Lists or gets the Operation Results
Microsoft.StorSimple/managers/devices/hardwareComponentGroups/read	List the Hardware Component Groups
Microsoft.StorSimple/managers/devices/hardwareComponentGroups/changeControllerPowerState/action	Change controller power state of hardware component groups
Microsoft.StorSimple/managers/devices/hardwareComponentGroups/operationResults/read	List the Operation Results
Microsoft.StorSimple/managers/devices/iscsiservers/read	Lists or gets the iSCSI Servers
Microsoft.StorSimple/managers/devices/iscsiservers/write	Create or update the iSCSI Servers
Microsoft.StorSimple/managers/devices/iscsiservers/delete	Deletes the iSCSI Servers
Microsoft.StorSimple/managers/devices/iscsiservers/backup/action	Take backup of an iSCSI server.
Microsoft.StorSimple/managers/devices/iscsiservers/disks/read	Lists or gets the Disks
Microsoft.StorSimple/managers/devices/iscsiservers/disks/write	Create or update the Disks
Microsoft.StorSimple/managers/devices/iscsiservers/disks/delete	Deletes the Disks

ACTION	DESCRIPTION
Microsoft.StorSimple/managers/devices/iscsiservers/disks/metrics/read	Lists or gets the Metrics
Microsoft.StorSimple/managers/devices/iscsiservers/disks/metricsDefinitions/read	Lists or gets the Metrics Definitions
Microsoft.StorSimple/managers/devices/iscsiservers/disks/operationResults/read	Lists or gets the Operation Results
Microsoft.StorSimple/managers/devices/iscsiservers/metrics/read	Lists or gets the Metrics
Microsoft.StorSimple/managers/devices/iscsiservers/metricsDefinitions/read	Lists or gets the Metrics Definitions
Microsoft.StorSimple/managers/devices/iscsiservers/operationResults/read	Lists or gets the Operation Results
Microsoft.StorSimple/managers/devices/jobs/read	Lists or gets the Jobs
Microsoft.StorSimple/managers/devices/jobs/cancel/action	Cancel a running job
Microsoft.StorSimple/managers/devices/jobs/operationResults/read	List the Operation Results
Microsoft.StorSimple/managers/devices/metrics/read	Lists or gets the Metrics
Microsoft.StorSimple/managers/devices/metricsDefinitions/read	Lists or gets the Metrics Definitions
Microsoft.StorSimple/managers/devices/migrationSourceConfigurations/import/action	Import source configurations for migration
Microsoft.StorSimple/managers/devices/migrationSourceConfigurations/startMigrationEstimate/action	Start a job to estimate the duration of the migration process.
Microsoft.StorSimple/managers/devices/migrationSourceConfigurations/startMigration/action	Start migration using source configurations
Microsoft.StorSimple/managers/devices/migrationSourceConfigurations/confirmMigration/action	Confirms a successful migration and commit it.
Microsoft.StorSimple/managers/devices/migrationSourceConfigurations/fetchMigrationEstimate/action	Fetch the status for the migration estimation job.
Microsoft.StorSimple/managers/devices/migrationSourceConfigurations/fetchMigrationStatus/action	Fetch the status for the migration.
Microsoft.StorSimple/managers/devices/migrationSourceConfigurations/fetchConfirmMigrationStatus/action	Fetch the confirm status of migration.
Microsoft.StorSimple/managers/devices/migrationSourceConfigurations/confirmMigrationStatus/read	List the Confirm Migration Status

ACTION	DESCRIPTION
Microsoft.StorSimple/managers/devices/migrationSourceConfigurations/migrationEstimate/read	List the Migration Estimate
Microsoft.StorSimple/managers/devices/migrationSourceConfigurations/migrationStatus/read	List the Migration Status
Microsoft.StorSimple/managers/devices/migrationSourceConfigurations/operationResults/read	List the Operation Results
Microsoft.StorSimple/managers/devices/networkSettings/read	Lists or gets the Network Settings
Microsoft.StorSimple/managers/devices/networkSettings/write	Creates a new or updates Network Settings
Microsoft.StorSimple/managers/devices/networkSettings/operationResults/read	List the Operation Results
Microsoft.StorSimple/managers/devices/operationResults/read	Lists or gets the Operation Results
Microsoft.StorSimple/managers/devices/securitySettings/update/action	Update the security settings.
Microsoft.StorSimple/managers/devices/securitySettings/read	List the Security Settings
Microsoft.StorSimple/managers/devices/securitySettings/syncRemoteManagementCertificate/action	Synchronize the remote management certificate for a device.
Microsoft.StorSimple/managers/devices/securitySettings/write	Creates a new or updates Security Settings
Microsoft.StorSimple/managers/devices/securitySettings/operationResults/read	Lists or gets the Operation Results
Microsoft.StorSimple/managers/devices/shares/read	Lists or gets the Shares
Microsoft.StorSimple/managers/devices/timeSettings/read	Lists or gets the Time Settings
Microsoft.StorSimple/managers/devices/timeSettings/write	Creates a new or updates Time Settings
Microsoft.StorSimple/managers/devices/timeSettings/operationResults/read	List the Operation Results
Microsoft.StorSimple/managers/devices/updates/operationResults/read	Lists or gets the Operation Results
Microsoft.StorSimple/managers/devices/updateSummary/read	Lists or gets the Update Summary
Microsoft.StorSimple/managers/devices/volumeContainers/write	Creates a new or updates Volume Containers (8000 Series Only)

ACTION	DESCRIPTION
Microsoft.StorSimple/managers/devices/volumeContainers/read	List the Volume Containers (8000 Series Only)
Microsoft.StorSimple/managers/devices/volumeContainers/delete	Deletes an existing Volume Containers (8000 Series Only)
Microsoft.StorSimple/managers/devices/volumeContainers/metrics/read	List the Metrics
Microsoft.StorSimple/managers/devices/volumeContainers/metricsDefinitions/read	List the Metrics Definitions
Microsoft.StorSimple/managers/devices/volumeContainers/operationResults/read	List the Operation Results
Microsoft.StorSimple/managers/devices/volumeContainers/volumes/read	List the Volumes
Microsoft.StorSimple/managers/devices/volumeContainers/volumes/write	Creates a new or updates Volumes
Microsoft.StorSimple/managers/devices/volumeContainers/volumes/delete	Deletes an existing Volumes
Microsoft.StorSimple/managers/devices/volumeContainers/volumes/metrics/read	List the Metrics
Microsoft.StorSimple/managers/devices/volumeContainers/volumes/metricsDefinitions/read	List the Metrics Definitions
Microsoft.StorSimple/managers/devices/volumeContainers/volumes/operationResults/read	List the Operation Results
Microsoft.StorSimple/managers/devices/volumes/read	List the Volumes
Microsoft.StorSimple/managers/encryptionSettings/read	Lists or gets the Encryption Settings
Microsoft.StorSimple/managers/extendedInformation/read	Lists or gets the Extended Vault Information
Microsoft.StorSimple/managers/extendedInformation/write	Create or update the Extended Vault Information
Microsoft.StorSimple/managers/extendedInformation/delete	Deletes the Extended Vault Information
Microsoft.StorSimple/Managers/extendedInformation/read	The Get Extended Info operation gets an object's Extended Info representing the Azure resource of type ?vault?
Microsoft.StorSimple/Managers/extendedInformation/write	The Get Extended Info operation gets an object's Extended Info representing the Azure resource of type ?vault?
Microsoft.StorSimple/Managers/extendedInformation/delete	The Get Extended Info operation gets an object's Extended Info representing the Azure resource of type ?vault?
Microsoft.StorSimple/managers/features/read	List the Features

ACTION	DESCRIPTION
Microsoft.StorSimple/managers/fileservers/read	Lists or gets the File Servers
Microsoft.StorSimple/managers/iscsiservers/read	Lists or gets the iSCSI Servers
Microsoft.StorSimple/managers/jobs/read	Lists or gets the Jobs
Microsoft.StorSimple/managers/metrics/read	Lists or gets the Metrics
Microsoft.StorSimple/managers/metricsDefinitions/read	Lists or gets the Metrics Definitions
Microsoft.StorSimple/managers/migrationSourceConfigurations/read	List the Migration Source Configurations (8000 Series Only)
Microsoft.StorSimple/managers/operationResults/read	Lists or gets the Operation Results
Microsoft.StorSimple/managers/storageAccountCredentials/write	Create or update the Storage Account Credentials
Microsoft.StorSimple/managers/storageAccountCredentials/read	Lists or gets the Storage Account Credentials
Microsoft.StorSimple/managers/storageAccountCredentials/delete	Deletes the Storage Account Credentials
Microsoft.StorSimple/managers/storageAccountCredentials/operationResults/read	Lists or gets the Operation Results
Microsoft.StorSimple/managers/storageDomains/read	Lists or gets the Storage Domains
Microsoft.StorSimple/managers/storageDomains/write	Create or update the Storage Domains
Microsoft.StorSimple/managers/storageDomains/delete	Deletes the Storage Domains
Microsoft.StorSimple/managers/storageDomains/operationResults/read	Lists or gets the Operation Results
Microsoft.StorSimple/operations/read	Lists or gets the Operations

## Web

### **Microsoft.CertificateRegistration**

Azure service: [App Service Certificates](#)

ACTION	DESCRIPTION
Microsoft.CertificateRegistration/provisionGlobalAppServicePrincipalInUserTenant/Action	Provision service principal for service app principal
Microsoft.CertificateRegistration/validateCertificateRegistrationInformation/Action	Validate certificate purchase object without submitting it

ACTION	DESCRIPTION
Microsoft.CertificateRegistration/register/action	Register the Microsoft Certificates resource provider for the subscription
Microsoft.CertificateRegistration/certificateOrders/Write	Add a new certificateOrder or update an existing one
Microsoft.CertificateRegistration/certificateOrders/Delete	Delete an existing AppServiceCertificate
Microsoft.CertificateRegistration/certificateOrders/Read	Get the list of CertificateOrders
Microsoft.CertificateRegistration/certificateOrders/reissue/Action	Reissue an existing certificateorder
Microsoft.CertificateRegistration/certificateOrders/renew/Action	Renew an existing certificateorder
Microsoft.CertificateRegistration/certificateOrders/retrieveCertificateActions/Action	Retrieve the list of certificate actions
Microsoft.CertificateRegistration/certificateOrders/retrieveEmailHistory/Action	Retrieve certificate email history
Microsoft.CertificateRegistration/certificateOrders/resendEmail/Action	Resend certificate email
Microsoft.CertificateRegistration/certificateOrders/verifyDomainOwnership/Action	Verify domain ownership
Microsoft.CertificateRegistration/certificateOrders/resendRequestEmails/Action	Resend request emails to another email address
Microsoft.CertificateRegistration/certificateOrders/resendRequestEmails/Action	Retrieve site seal for an issued App Service Certificate
Microsoft.CertificateRegistration/certificateOrders/certificates/Write	Add a new certificate or update an existing one
Microsoft.CertificateRegistration/certificateOrders/certificates/Delete	Delete an existing certificate
Microsoft.CertificateRegistration/certificateOrders/certificates/Read	Get the list of certificates
Microsoft.CertificateRegistration/operations/Read	List all operations from app service certificate registration

## Microsoft.DomainRegistration

Azure service: [App Service](#)

ACTION	DESCRIPTION
Microsoft.DomainRegistration/generateSsoRequest/Action	Generate a request for signing into domain control center.

ACTION	DESCRIPTION
Microsoft.DomainRegistration/validateDomainRegistrationInformation/Action	Validate domain purchase object without submitting it
Microsoft.DomainRegistration/checkDomainAvailability/Action	Check if a domain is available for purchase
Microsoft.DomainRegistration/listDomainRecommendations/Action	Retrieve the list domain recommendations based on keywords
Microsoft.DomainRegistration/register/action	Register the Microsoft Domains resource provider for the subscription
Microsoft.DomainRegistration/domains/Read	Get the list of domains
Microsoft.DomainRegistration/domains/Read	Get domain
Microsoft.DomainRegistration/domains/Write	Add a new Domain or update an existing one
Microsoft.DomainRegistration/domains/Delete	Delete an existing domain.
Microsoft.DomainRegistration/domains/renew/Action	Renew an existing domain.
Microsoft.DomainRegistration/domains/domainownershipidentifiers/Read	List ownership identifiers
Microsoft.DomainRegistration/domains/domainownershipidentifiers/Read	Get ownership identifier
Microsoft.DomainRegistration/domains/domainownershipidentifiers/Write	Create or update identifier
Microsoft.DomainRegistration/domains/domainownershipidentifiers/Delete	Delete ownership identifier
Microsoft.DomainRegistration/domains/operationresults/Read	Get a domain operation
Microsoft.DomainRegistration/operations/Read	List all operations from app service domain registration
Microsoft.DomainRegistration/topLevelDomains/Read	Get toplevel domains
Microsoft.DomainRegistration/topLevelDomains/Read	Get toplevel domain
Microsoft.DomainRegistration/topLevelDomains/listAgreements/Action	List Agreement action

## Microsoft.Maps

Azure service: [Azure Maps](#)

ACTION	DESCRIPTION
MicrosoftMaps/register/action	Register the provider

ACTION	DESCRIPTION
Microsoft.Maps/accounts/write	Create or update a Maps Account.
Microsoft.Maps/accounts/read	Get a Maps Account.
Microsoft.Maps/accounts/delete	Delete a Maps Account.
Microsoft.Maps/accounts/listKeys/action	List Maps Account keys.
Microsoft.Maps/accounts/regenerateKey/action	Generate new Maps Account primary or secondary key.
Microsoft.Maps/accounts/eventGridFilters/delete	Delete an Event Grid filter.
Microsoft.Maps/accounts/eventGridFilters/read	Get an Event Grid filter
Microsoft.Maps/accounts/eventGridFilters/write	Create or update an Event Grid filter.
Microsoft.Maps/accounts/privateAtlases/write	Create or update a Private Atlas.
Microsoft.Maps/accounts/privateAtlases/read	Get a Private Atlas.
Microsoft.Maps/accounts/privateAtlases/delete	Delete a Private Atlas.
Microsoft.Maps/operations/read	Read the provider operations
DataAction	Description
Microsoft.Maps/accounts/services/data/read	Allows reading of data for data upload services and Private Atlas.
Microsoft.Maps/accounts/services/data/delete	Allows deleting of data for data upload services and Private Atlas
Microsoft.Maps/accounts/services/data/write	Allows writing or updating of data for data upload services and Private Atlas.
Microsoft.Maps/accounts/services/geolocation/read	Allows reading of data for Geolocation services.
Microsoft.Maps/accounts/services/mobility/read	Allows reading of data for Mobility services.
Microsoft.Maps/accounts/services/render/read	Allows reading of data for Render services.
Microsoft.Maps/accounts/services/route/read	Allows reading of data for Route services.
Microsoft.Maps/accounts/services/search/read	Allows reading of data for Search services.
Microsoft.Maps/accounts/services/spatial/read	Allows reading of data for Spatial services.
Microsoft.Maps/accounts/services/spatial/write	Allows writing of data for Spatial services, such as event publishing.
Microsoft.Maps/accounts/services/timezone/read	Allows reading of data for Timezone services.

ACTION	DESCRIPTION
Microsoft.Maps/accounts/services/traffic/read	Allows reading of data for Traffic services.
Microsoft.Maps/accounts/services/turnbyturn/read	Allows reading of data for TurnByTurn services.
Microsoft.Maps/accounts/services/weather/read	Allows reading of data for Weather services.

## Microsoft.Media

Azure service: [Media Services](#)

ACTION	DESCRIPTION
Microsoft.Media/register/action	Registers the subscription for the Media Services resource provider and enables the creation of Media Services accounts
Microsoft.Media/unregister/action	Unregisters the subscription for the Media Services resource provider
Microsoft.Media/checknameavailability/action	Checks if a Media Services account name is available
Microsoft.Media/locations/checkNameAvailability/action	Checks if a Media Services account name is available
Microsoft.Media/mediaservices/read	Read any Media Services Account
Microsoft.Media/mediaservices/write	Create or Update any Media Services Account
Microsoft.Media/mediaservices/delete	Delete any Media Services Account
Microsoft.Media/mediaservices/regenerateKey/action	Regenerate a Media Services ACS key
Microsoft.Media/mediaservices/listKeys/action	List the ACS keys for the Media Services account
Microsoft.Media/mediaservices/syncStorageKeys/action	Synchronize the Storage Keys for an attached Azure Storage account
Microsoft.Media/mediaservices/listEdgePolicies/action	List policies for an edge device.
Microsoft.Media/mediaservices/accountfilters/read	Read any Account Filter
Microsoft.Media/mediaservices/accountfilters/write	Create or Update any Account Filter
Microsoft.Media/mediaservices/accountfilters/delete	Delete any Account Filter
Microsoft.Media/mediaservices/assets/read	Read any Asset
Microsoft.Media/mediaservices/assets/write	Create or Update any Asset
Microsoft.Media/mediaservices/assets/delete	Delete any Asset
Microsoft.Media/mediaservices/assets/listContainerSas/aktion	List Asset Container SAS URLs

ACTION	DESCRIPTION
Microsoft.Media/mediaservices/assets/getEncryptionKey/action	Get Asset Encryption Key
Microsoft.Media/mediaservices/assets/listStreamingLocators/action	List Streaming Locators for Asset
Microsoft.Media/mediaservices/assets/assetfilters/read	Read any Asset Filter
Microsoft.Media/mediaservices/assets/assetfilters/write	Create or Update any Asset Filter
Microsoft.Media/mediaservices/assets/assetfilters/delete	Delete any Asset Filter
Microsoft.Media/mediaservices/contentKeyPolicies/read	Read any Content Key Policy
Microsoft.Media/mediaservices/contentKeyPolicies/write	Create or Update any Content Key Policy
Microsoft.Media/mediaservices/contentKeyPolicies/delete	Delete any Content Key Policy
Microsoft.Media/mediaservices/contentKeyPolicies/getPolicyPropertiesWithSecrets/action	Get Policy Properties With Secrets
Microsoft.Media/mediaservices/eventGridFilters/read	Read any Event Grid Filter
Microsoft.Media/mediaservices/eventGridFilters/write	Create or Update any Event Grid Filter
Microsoft.Media/mediaservices/eventGridFilters/delete	Delete any Event Grid Filter
Microsoft.Media/mediaservices/liveEventOperations/read	Read any Live Event Operation
Microsoft.Media/mediaservices/liveEvents/read	Read any Live Event
Microsoft.Media/mediaservices/liveEvents/write	Create or Update any Live Event
Microsoft.Media/mediaservices/liveEvents/delete	Delete any Live Event
Microsoft.Media/mediaservices/liveEvents/start/action	Start any Live Event Operation
Microsoft.Media/mediaservices/liveEvents/stop/action	Stop any Live Event Operation
Microsoft.Media/mediaservices/liveEvents/reset/action	Reset any Live Event Operation
Microsoft.Media/mediaservices/liveEvents/liveOutputs/read	Read any Live Output
Microsoft.Media/mediaservices/liveEvents/liveOutputs/write	Create or Update any Live Output
Microsoft.Media/mediaservices/liveEvents/liveOutputs/delete	Delete any Live Output
Microsoft.Media/mediaservices/liveEvents/privateEndpointConnectionProxies/read	Read any Live Event Private Endpoint Connection Proxy

ACTION	DESCRIPTION
Microsoft.Media/mediaservices/liveEvents/privateEndpointConnectionProxies/write	Create Live Event Private Endpoint Connection Proxy
Microsoft.Media/mediaservices/liveEvents/privateEndpointConnectionProxies/delete	Delete Live Event Private Endpoint Connection Proxy
Microsoft.Media/mediaservices/liveEvents/privateEndpointConnectionProxies/validate/action	Validate Live Event Private Endpoint Connection Proxy
Microsoft.Media/mediaservices/liveEvents/privateEndpointConnections/read	Read any Live Event Private Endpoint Connection
Microsoft.Media/mediaservices/liveEvents/privateEndpointConnections/write	Create Live Event Private Endpoint Connection
Microsoft.Media/mediaservices/liveEvents/privateEndpointConnections/delete	Delete Live Event Private Endpoint Connection
Microsoft.Media/mediaservices/liveEvents/privateLinkResources/read	Read any Live Event Private Link Resource
Microsoft.Media/mediaservices/liveOutputOperations/read	Read any Live Output Operation
Microsoft.Media/mediaservices/mediaGraphs/read	Read any Media Graph
Microsoft.Media/mediaservices/mediaGraphs/write	Create or Update any Media Graph
Microsoft.Media/mediaservices/mediaGraphs/delete	Delete any Media Graph
Microsoft.Media/mediaservices/mediaGraphs/start/action	Start any Media Graph Operation
Microsoft.Media/mediaservices/mediaGraphs/stop/action	Stop any Media Graph Operation
Microsoft.Media/mediaservices/privateEndpointConnectionOperations/read	Read any Private Endpoint Connection Operation
Microsoft.Media/mediaservices/privateEndpointConnectionProxies/read	Read any Private Endpoint Connection Proxy
Microsoft.Media/mediaservices/privateEndpointConnectionProxies/write	Create Private Endpoint Connection Proxy
Microsoft.Media/mediaservices/privateEndpointConnectionProxies/delete	Delete Private Endpoint Connection Proxy
Microsoft.Media/mediaservices/privateEndpointConnectionProxies/validate/action	Validate Private Endpoint Connection Proxy
Microsoft.Media/mediaservices/privateEndpointConnections/read	Read any Private Endpoint Connection
Microsoft.Media/mediaservices/privateEndpointConnections/write	Create Private Endpoint Connection

ACTION	DESCRIPTION
Microsoft.Media/mediaservices/privateEndpointConnections/delete	Delete Private Endpoint Connection
Microsoft.Media/mediaservices/privateLinkResources/read	Read any Private Link Resource
Microsoft.Media/mediaservices/streamingEndpointOperations/read	Read any Streaming Endpoint Operation
Microsoft.Media/mediaservices/streamingEndpoints/read	Read any Streaming Endpoint
Microsoft.Media/mediaservices/streamingEndpoints/write	Create or Update any Streaming Endpoint
Microsoft.Media/mediaservices/streamingEndpoints/delete	Delete any Streaming Endpoint
Microsoft.Media/mediaservices/streamingEndpoints/start/action	Start any Streaming Endpoint Operation
Microsoft.Media/mediaservices/streamingEndpoints/stop/action	Stop any Streaming Endpoint Operation
Microsoft.Media/mediaservices/streamingEndpoints/scale/action	Scale any Streaming Endpoint Operation
Microsoft.Media/mediaservices/streamingEndpoints/privateEndpointConnectionProxies/read	Read any Streaming Endpoint Private Endpoint Connection Proxy
Microsoft.Media/mediaservices/streamingEndpoints/privateEndpointConnectionProxies/write	Create Streaming Endpoint Private Endpoint Connection Proxy
Microsoft.Media/mediaservices/streamingEndpoints/privateEndpointConnectionProxies/delete	Delete Streaming Endpoint Private Endpoint Connection Proxy
Microsoft.Media/mediaservices/streamingEndpoints/privateEndpointConnectionProxies/validate/action	Validate Streaming Endpoint Private Endpoint Connection Proxy
Microsoft.Media/mediaservices/streamingEndpoints/privateEndpointConnections/read	Read any Streaming Endpoint Private Endpoint Connection
Microsoft.Media/mediaservices/streamingEndpoints/privateEndpointConnections/write	Create Streaming Endpoint Private Endpoint Connection
Microsoft.Media/mediaservices/streamingEndpoints/privateEndpointConnections/delete	Delete Streaming Endpoint Private Endpoint Connection
Microsoft.Media/mediaservices/streamingEndpoints/privateLinkResources/read	Read any Streaming Endpoint Private Link Resource
Microsoft.Media/mediaservices/streamingLocators/read	Read any Streaming Locator
Microsoft.Media/mediaservices/streamingLocators/write	Create or Update any Streaming Locator
Microsoft.Media/mediaservices/streamingLocators/delete	Delete any Streaming Locator

ACTION	DESCRIPTION
Microsoft.Media/mediaservices/streamingLocators/listContentKeys/action	List Content Keys
Microsoft.Media/mediaservices/streamingLocators/listPaths/action	List Paths
Microsoft.Media/mediaservices/streamingPolicies/read	Read any Streaming Policy
Microsoft.Media/mediaservices/streamingPolicies/write	Create or Update any Streaming Policy
Microsoft.Media/mediaservices/streamingPolicies/delete	Delete any Streaming Policy
Microsoft.Media/mediaservices/streamingPrivateEndpointConnectionOperations/read	Read any Streaming Private Endpoint Connection Operation
Microsoft.Media/mediaservices/streamingPrivateEndpointConnectionProxyOperations/read	Read any Streaming Private Endpoint Connection Proxy Operation
Microsoft.Media/mediaservices/transforms/read	Read any Transform
Microsoft.Media/mediaservices/transforms/write	Create or Update any Transform
Microsoft.Media/mediaservices/transforms/delete	Delete any Transform
Microsoft.Media/mediaservices/transforms/jobs/read	Read any Job
Microsoft.Media/mediaservices/transforms/jobs/write	Create or Update any Job
Microsoft.Media/mediaservices/transforms/jobs/delete	Delete any Job
Microsoft.Media/mediaservices/transforms/jobs/cancelJob/action	Cancel Job
Microsoft.Media/operations/read	Get Available Operations

## Microsoft.Search

Azure service: [Azure Search](#)

ACTION	DESCRIPTION
Microsoft.Search/register/action	Registers the subscription for the search resource provider and enables the creation of search services.
Microsoft.Search/checkNameAvailability/action	Checks availability of the service name.
Microsoft.Search/operations/read	Lists all of the available operations of the Microsoft.Search provider.
Microsoft.Search/searchServices/write	Creates or updates the search service.
Microsoft.Search/searchServices/read	Reads the search service.

ACTION	DESCRIPTION
Microsoft.Search/searchServices/delete	Deletes the search service.
Microsoft.Search/searchServices/start/action	Starts the search service.
Microsoft.Search/searchServices/stop/action	Stops the search service.
Microsoft.Search/searchServices/listAdminKeys/action	Reads the admin keys.
Microsoft.Search/searchServices/regenerateAdminKey/action	Regenerates the admin key.
Microsoft.Search/searchServices/listQueryKeys/action	Returns the list of query API keys for the given Azure Search service.
Microsoft.Search/searchServices/createQueryKey/action	Creates the query key.
Microsoft.Search/searchServices/deleteQueryKey/delete	Deletes the query key.
Microsoft.Search/searchServices/privateEndpointConnectionProxies/validate/action	Validates a private endpoint connection create call from NRP side
Microsoft.Search/searchServices/privateEndpointConnectionProxies/write	Creates a private endpoint connection proxy with the specified parameters or updates the properties or tags for the specified private endpoint connection proxy
Microsoft.Search/searchServices/privateEndpointConnectionProxies/read	Returns the list of private endpoint connection proxies or gets the properties for the specified private endpoint connection proxy
Microsoft.Search/searchServices/privateEndpointConnectionProxies/delete	Deletes an existing private endpoint connection proxy

## Microsoft.SignalRService

Azure service: [Azure SignalR Service](#)

ACTION	DESCRIPTION
Microsoft.SignalRService/register/action	Registers the 'Microsoft.SignalRService' resource provider with a subscription
Microsoft.SignalRService/unregister/action	Unregisters the 'Microsoft.SignalRService' resource provider with a subscription
Microsoft.SignalRService/locations/checknameavailability/acti on	Checks if a name is available for use with a new SignalR service
Microsoft.SignalRService/locations/operationresults/signalr/read	Query the result of a location-based asynchronous operation
Microsoft.SignalRService/locations/operationStatuses/operati onId/read	Query the status of a location-based asynchronous operation
Microsoft.SignalRService/locations/usages/read	Get the quota usages for Azure SignalR service

ACTION	DESCRIPTION
Microsoft.SignalRService/operationresults/read	Query the result of a provider-level asynchronous operation
Microsoft.SignalRService/operations/read	List the operations for Azure SignalR service.
Microsoft.SignalRService/operationstatus/read	Query the status of a provider-level asynchronous operation
Microsoft.SignalRService/SignalR/read	View the SignalR's settings and configurations in the management portal or through API
Microsoft.SignalRService/SignalR/write	Modify the SignalR's settings and configurations in the management portal or through API
Microsoft.SignalRService/SignalR/delete	Delete the entire SignalR service
Microsoft.SignalRService/SignalR/listkeys/action	View the value of SignalR access keys in the management portal or through API
Microsoft.SignalRService/SignalR/regeneratekey/action	Change the value of SignalR access keys in the management portal or through API
Microsoft.SignalRService/SignalR/restart/action	To restart an Azure SignalR service in the management portal or through API. There will be certain downtime.
Microsoft.SignalRService/SignalR/eventGridFilters/read	Get the properties of the specified event grid filter or lists all the event grid filters for the specified SignalR.
Microsoft.SignalRService/SignalR/eventGridFilters/write	Create or update an event grid filter for a SignalR with the specified parameters.
Microsoft.SignalRService/SignalR/eventGridFilters/delete	Delete an event grid filter from a SignalR.
Microsoft.SignalRService/SignalR/privateEndpointConnectionProxies/validate/action	Validate a Private Endpoint Connection Proxy
Microsoft.SignalRService/SignalR/privateEndpointConnectionProxies/write	Create a Private Endpoint Connection Proxy
Microsoft.SignalRService/SignalR/privateEndpointConnectionProxies/read	Read a Private Endpoint Connection Proxy
Microsoft.SignalRService/SignalR/privateEndpointConnectionProxies/delete	Delete a Private Endpoint Connection Proxy
Microsoft.SignalRService/SignalR/privateEndpointConnections/write	Approve or reject a Private Endpoint Connection
Microsoft.SignalRService/SignalR/privateEndpointConnections/read	Read a Private Endpoint Connection
Microsoft.SignalRService/SignalR/privateLinkResources/read	List all SignalR Private Link Resources
<b>DataAction</b>	<b>Description</b>

ACTION	DESCRIPTION
Microsoft.SignalRService/SignalR/serverConnection/write	Start a server connection.
Microsoft.SignalRService/SignalR/service/accessKey/action	Get a temporary AccessKey for signing ClientTokens.
Microsoft.SignalRService/SignalR/service/clientToken/action	Get a ClientToken for starting a client connection.

## microsoft.web

Azure service: [App Service](#), [Azure Functions](#)

ACTION	DESCRIPTION
microsoft.web/unregister/action	Unregister Microsoft.Web resource provider for the subscription.
microsoft.web/validate/action	Validate .
microsoft.web/register/action	Register Microsoft.Web resource provider for the subscription.
microsoft.web/verifyhostingenvironmentvnet/action	Verify Hosting Environment Vnet.
microsoft.web/apimanagementaccounts/apiacls/read	Get Api Management Accounts Apiacls.
microsoft.web/apimanagementaccounts/apis/read	Get Api Management Accounts APIs.
microsoft.web/apimanagementaccounts/apis/delete	Delete Api Management Accounts APIs.
microsoft.web/apimanagementaccounts/apis/write	Update Api Management Accounts APIs.
microsoft.web/apimanagementaccounts/apis/apiacls/delete	Delete Api Management Accounts APIs Apiacls.
microsoft.web/apimanagementaccounts/apis/apiacls/read	Get Api Management Accounts APIs Apiacls.
microsoft.web/apimanagementaccounts/apis/apiacls/write	Update Api Management Accounts APIs Apiacls.
microsoft.web/apimanagementaccounts/apis/connectionacls/read	Get Api Management Accounts APIs Connectionacls.
microsoft.web/apimanagementaccounts/apis/connections/read	Get Api Management Accounts APIs Connections.
microsoft.web/apimanagementaccounts/apis/connections/confirmconsentcode/action	Confirm Consent Code Api Management Accounts APIs Connections.
microsoft.web/apimanagementaccounts/apis/connections/delete	Delete Api Management Accounts APIs Connections.
microsoft.web/apimanagementaccounts/apis/connections/getconsentlinks/action	Get Consent Links for Api Management Accounts APIs Connections.

ACTION	DESCRIPTION
microsoft.web/apimanagementaccounts/apis/connections/write	Update Api Management Accounts APIs Connections.
microsoft.web/apimanagementaccounts/apis/connections/listconnectionkeys/action	List Connection Keys Api Management Accounts APIs Connections.
microsoft.web/apimanagementaccounts/apis/connections/listsecrets/action	List Secrets Api Management Accounts APIs Connections.
microsoft.web/apimanagementaccounts/apis/connections/connectionacls/delete	Delete Api Management Accounts APIs Connections Connectionacls.
microsoft.web/apimanagementaccounts/apis/connections/connectionacls/read	Get Api Management Accounts APIs Connections Connectionacls.
microsoft.web/apimanagementaccounts/apis/connections/connectionacls/write	Update Api Management Accounts APIs Connections Connectionacls.
microsoft.web/apimanagementaccounts/apis/localizeddefinitions/delete	Delete Api Management Accounts APIs Localized Definitions.
microsoft.web/apimanagementaccounts/apis/localizeddefinitions/read	Get Api Management Accounts APIs Localized Definitions.
microsoft.web/apimanagementaccounts/apis/localizeddefinitions/write	Update Api Management Accounts APIs Localized Definitions.
microsoft.web/apimanagementaccounts/connectionacls/read	Get Api Management Accounts Connectionacls.
microsoft.web/availablestacks/read	Get Available Stacks.
Microsoft.Web/certificates/Read	Get the list of certificates.
Microsoft.Web/certificates/Write	Add a new certificate or update an existing one.
Microsoft.Web/certificates/Delete	Delete an existing certificate.
microsoft.web/checknameavailability/read	Check if resource name is available.
microsoft.web/classicmobileservices/read	Get Classic Mobile Services.
Microsoft.Web/connectionGateways/Read	Get the list of Connection Gateways.
Microsoft.Web/connectionGateways/Write	Creates or updates a Connection Gateway.
Microsoft.Web/connectionGateways/Delete	Deletes a Connection Gateway.
Microsoft.Web/connectionGateways/Move/Action	Moves a Connection Gateway.
Microsoft.Web/connectionGateways/Join/Action	Joins a Connection Gateway.
Microsoft.Web/connectionGateways/ListStatus/Action	Lists status of a Connection Gateway.

ACTION	DESCRIPTION
Microsoft.Web/connections/Read	Get the list of Connections.
Microsoft.Web/connections/Write	Creates or updates a Connection.
Microsoft.Web/connections/Delete	Deletes a Connection.
Microsoft.Web/connections/Move/Action	Moves a Connection.
Microsoft.Web/connections/Join/Action	Joins a Connection.
microsoft.web/connections/confirmconsentcode/action	Confirm Connections Consent Code.
microsoft.web/connections/listconsentlinks/action	List Consent Links for Connections.
Microsoft.Web/customApis/Read	Get the list of Custom API.
Microsoft.Web/customApis/Write	Creates or updates a Custom API.
Microsoft.Web/customApis/Delete	Deletes a Custom API.
Microsoft.Web/customApis/Move/Action	Moves a Custom API.
Microsoft.Web/customApis/Join/Action	Joins a Custom API.
Microsoft.Web/customApis/extractApiDefinitionFromWsdl/Action	Extracts API definition from a WSDL.
Microsoft.Web/customApis/listWsdlInterfaces/Action	Lists WSDL interfaces for a Custom API.
Microsoft.Web/deletedSites/Read	Get the properties of a Deleted Web App
microsoft.web/deploymentlocations/read	Get Deployment Locations.
Microsoft.Web/geoRegions/Read	Get the list of Geo regions.
Microsoft.Web/hostingEnvironments/Read	Get the properties of an App Service Environment
Microsoft.Web/hostingEnvironments/Write	Create a new App Service Environment or update existing one
Microsoft.Web/hostingEnvironments/Delete	Delete an App Service Environment
Microsoft.Web/hostingEnvironments/Join/Action	Joins an App Service Environment
Microsoft.Web/hostingEnvironments/reboot/Action	Reboot all machines in an App Service Environment
Microsoft.Web/hostingEnvironments/PrivateEndpointConnectionsApproval/action	Approve Private Endpoint Connections
microsoft.web/hostingenvironments/resume/action	Resume Hosting Environments.

ACTION	DESCRIPTION
microsoft.web/hostingenvironments/suspend/action	Suspend Hosting Environments.
microsoft.web/hostingenvironments/capacities/read	Get Hosting Environments Capacities.
microsoft.web/hostingenvironments/detectors/read	Get Hosting Environments Detectors.
microsoft.web/hostingenvironments/diagnostics/read	Get Hosting Environments Diagnostics.
Microsoft.Web/hostingEnvironments/eventGridFilters/delete	Delete Event Grid Filter on hosting environment.
Microsoft.Web/hostingEnvironments/eventGridFilters/read	Get Event Grid Filter on hosting environment.
Microsoft.Web/hostingEnvironments/eventGridFilters/write	Put Event Grid Filter on hosting environment.
microsoft.web/hostingenvironments/health/read	Get the health details of an App Service Environment.
microsoft.web/hostingenvironments/inboundnetworkdependenciesendpoints/read	Get the network endpoints of all inbound dependencies.
microsoft.web/hostingenvironments/metricdefinitions/read	Get Hosting Environments Metric Definitions.
Microsoft.Web/hostingEnvironments/multiRolePools/Read	Get the properties of a FrontEnd Pool in an App Service Environment
Microsoft.Web/hostingEnvironments/multiRolePools/Write	Create a new FrontEnd Pool in an App Service Environment or update an existing one
microsoft.web/hostingenvironments/multirolepools/metricdefinitions/read	Get Hosting Environments MultiRole Pools Metric Definitions.
microsoft.web/hostingenvironments/multirolepools/metrics/read	Get Hosting Environments MultiRole Pools Metrics.
microsoft.web/hostingenvironments/multirolepools/skus/read	Get Hosting Environments MultiRole Pools SKUs.
microsoft.web/hostingenvironments/multirolepools/usages/read	Get Hosting Environments MultiRole Pools Usages.
microsoft.web/hostingenvironments/operations/read	Get Hosting Environments Operations.
microsoft.web/hostingenvironments/outboundnetworkdependenciesendpoints/read	Get the network endpoints of all outbound dependencies.
microsoft.web/hostingenvironments/serverfarms/read	Get Hosting Environments App Service Plans.
microsoft.web/hostingenvironments/sites/read	Get Hosting Environments Web Apps.
microsoft.web/hostingenvironments/usages/read	Get Hosting Environments Usages.
Microsoft.Web/hostingEnvironments/workerPools/Read	Get the properties of a Worker Pool in an App Service Environment

ACTION	DESCRIPTION
Microsoft.Web/hostingEnvironments/workerPools/Write	Create a new Worker Pool in an App Service Environment or update an existing one
microsoft.web/hostingenvironments/workerpools/metricdefinitions/read	Get Hosting Environments Workerpools Metric Definitions.
microsoft.web/hostingenvironments/workerpools/metrics/read	Get Hosting Environments Workerpools Metrics.
microsoft.web/hostingenvironments/workerpools/skus/read	Get Hosting Environments Workerpools SKUs.
microsoft.web/hostingenvironments/workerpools/usages/read	Get Hosting Environments Workerpools Usages.
microsoft.web/ishostingenvironmentnameavailable/read	Get if Hosting Environment Name is available.
microsoft.web/ishostnameavailable/read	Check if Hostname is Available.
microsoft.web/isusernameavailable/read	Check if Username is available.
Microsoft.Web/listSitesAssignedToHostName/Read	Get names of sites assigned to hostname.
microsoft.web/locations/extractapidefinitionfromwsdl/action	Extract Api Definition from WSDL for Locations.
microsoft.web/locations/listwsdlinterfaces/action	List WSDL Interfaces for Locations.
microsoft.web/locations/deleteVirtualNetworkOrSubnets/action	Vnet or subnet deletion notification for Locations.
microsoft.web/locations/apioperations/read	Get Locations API Operations.
microsoft.web/locations/connectiongatewayinstallations/read	Get Locations Connection Gateway Installations.
microsoft.web/locations/managedapis/read	Get Locations Managed APIs.
Microsoft.Web/locations/managedapis/Join/Action	Joins a Managed API.
microsoft.web/locations/managedapis/apioperations/read	Get Locations Managed API Operations.
microsoft.web/locations/operationResults/read	Get Operations.
microsoft.web/locations/operations/read	Get Operations.
microsoft.web/operations/read	Get Operations.
microsoft.web/publishingusers/read	Get Publishing Users.
microsoft.web/publishingusers/write	Update Publishing Users.
Microsoft.Web/recommendations/Read	Get the list of recommendations for subscriptions.

ACTION	DESCRIPTION
microsoft.web/resourcehealthmetadata/read	Get Resource Health Metadata.
Microsoft.Web/serverfarms/Read	Get the properties on an App Service Plan
Microsoft.Web/serverfarms/Write	Create a new App Service Plan or update an existing one
Microsoft.Web/serverfarms/Delete	Delete an existing App Service Plan
Microsoft.Web/serverfarms/Join/Action	Joins an App Service Plan
Microsoft.Web/serverfarms/restartSites/Action	Restart all Web Apps in an App Service Plan
microsoft.web/serverfarms/capabilities/read	Get App Service Plans Capabilities.
Microsoft.Web/serverfarms/eventGridFilters/delete	Delete Event Grid Filter on server farm.
Microsoft.Web/serverfarms/eventGridFilters/read	Get Event Grid Filter on server farm.
Microsoft.Web/serverfarms/eventGridFilters/write	Put Event Grid Filter on server farm.
microsoft.web/serverfarms/firstpartyapps/settings/delete	Delete App Service Plans First Party Apps Settings.
microsoft.web/serverfarms/firstpartyapps/settings/read	Get App Service Plans First Party Apps Settings.
microsoft.web/serverfarms/firstpartyapps/settings/write	Update App Service Plans First Party Apps Settings.
microsoft.web/serverfarms/hybridconnectionnamespaces/relays/read	Get App Service Plans Hybrid Connection Namespaces Relays.
microsoft.web/serverfarms/hybridconnectionnamespaces/relays/delete	Delete App Service Plans Hybrid Connection Namespaces Relays.
microsoft.web/serverfarms/hybridconnectionnamespaces/relays/sites/read	Get App Service Plans Hybrid Connection Namespaces Relays Web Apps.
microsoft.web/serverfarms/hybridconnectionplanlimits/read	Get App Service Plans Hybrid Connection Plan Limits.
microsoft.web/serverfarms/hybridconnectionrelays/read	Get App Service Plans Hybrid Connection Relays.
microsoft.web/serverfarms/metricdefinitions/read	Get App Service Plans Metric Definitions.
microsoft.web/serverfarms/metrics/read	Get App Service Plans Metrics.
microsoft.web/serverfarms/operationresults/read	Get App Service Plans Operation Results.
microsoft.web/serverfarms/sites/read	Get App Service Plans Web Apps.
microsoft.web/serverfarms/skus/read	Get App Service Plans SKUs.
microsoft.web/serverfarms/usages/read	Get App Service Plans Usages.

ACTION	DESCRIPTION
microsoft.web/serverfarms/virtualnetworkconnections/read	Get App Service Plans Virtual Network Connections.
microsoft.web/serverfarms/virtualnetworkconnections/gateways/write	Update App Service Plans Virtual Network Connections Gateways.
microsoft.web/serverfarms/virtualnetworkconnections/routes/delete	Delete App Service Plans Virtual Network Connections Routes.
microsoft.web/serverfarms/virtualnetworkconnections/routes/read	Get App Service Plans Virtual Network Connections Routes.
microsoft.web/serverfarms/virtualnetworkconnections/routes/write	Update App Service Plans Virtual Network Connections Routes.
microsoft.web/serverfarms/workers/reboot/action	Reboot App Service Plans Workers.
Microsoft.Web/sites/Read	Get the properties of a Web App
Microsoft.Web/sites/Write	Create a new Web App or update an existing one
Microsoft.Web/sites/Delete	Delete an existing Web App
Microsoft.Web/sites/backup/Action	Create a new web app backup
Microsoft.Web/sites/publishxml/Action	Get publishing profile xml for a Web App
Microsoft.Web/sites/publish/Action	Publish a Web App
Microsoft.Web/sites/restart/Action	Restart a Web App
Microsoft.Web/sites/start/Action	Start a Web App
Microsoft.Web/sites/stop/Action	Stop a Web App
Microsoft.Web/sites/slotsswap/Action	Swap Web App deployment slots
Microsoft.Web/sites/slotsdiffs/Action	Get differences in configuration between web app and slots
Microsoft.Web/sites/applySlotConfig/Action	Apply web app slot configuration from target slot to the current web app
Microsoft.Web/sites/resetSlotConfig/Action	Reset web app configuration
Microsoft.Web/sites/PrivateEndpointConnectionsApproval/action	Approve Private Endpoint Connections
microsoft.web/sites/functions/action	Functions Web Apps.
microsoft.web/sites/listsyncfunctiontriggerstatus/action	List Sync Function Trigger Status.
microsoft.web/sites/networktrace/action	Network Trace Web Apps.

ACTION	DESCRIPTION
microsoft.web/sites/newpassword/action	Newpassword Web Apps.
microsoft.web/sites-sync/action	Sync Web Apps.
microsoft.web/sites/migratemyql/action	Migrate MySQL Web Apps.
microsoft.web/sites/recover/action	Recover Web Apps.
microsoft.web/sites/restoresnapshot/action	Restore Web Apps Snapshots.
microsoft.web/sites/restorefromdeletedapp/action	Restore Web Apps From Deleted App.
microsoft.web/sites-syncfunctiontriggers/action	Sync Function Triggers.
microsoft.web/sites/backups/action	Discovers an existing app backup that can be restored from a blob in Azure storage.
microsoft.web/sites/containerlogs/action	Get Zipped Container Logs for Web App.
microsoft.web/sites/restorefrombackupblob/action	Restore Web App From Backup Blob.
microsoft.web/sites-analyzecustomhostname/read	Analyze Custom Hostname.
microsoft.web/sites/backup/read	Get Web Apps Backup.
microsoft.web/sites/backup/write	Update Web Apps Backup.
Microsoft.Web/sites/backups/Read	Get the properties of a web app's backup
microsoft.web/sites/backups/list/action	List Web Apps Backups.
microsoft.web/sites/backups/restore/action	Restore Web Apps Backups.
microsoft.web/sites/backups/delete	Delete Web Apps Backups.
microsoft.web/sites/backups/write	Update Web Apps Backups.
Microsoft.Web/sites/config/Read	Get Web App configuration settings
Microsoft.Web/sites/config/list/Action	List Web App's security sensitive settings, such as publishing credentials, app settings and connection strings
Microsoft.Web/sites/config/Write	Update Web App's configuration settings
microsoft.web/sites/config/delete	Delete Web Apps Config.
microsoft.web/sites/config/snapshots/read	Get Web Apps Config Snapshots.
microsoft.web/sites/containerlogs/download/action	Download Web Apps Container Logs.

ACTION	DESCRIPTION
microsoft.web/sites/continuouswebjobs/delete	Delete Web Apps Continuous Web Jobs.
microsoft.web/sites/continuouswebjobs/read	Get Web Apps Continuous Web Jobs.
microsoft.web/sites/continuouswebjobs/start/action	Start Web Apps Continuous Web Jobs.
microsoft.web/sites/continuouswebjobs/stop/action	Stop Web Apps Continuous Web Jobs.
microsoft.web/sites/deployments/delete	Delete Web Apps Deployments.
microsoft.web/sites/deployments/read	Get Web Apps Deployments.
microsoft.web/sites/deployments/write	Update Web Apps Deployments.
microsoft.web/sites/deployments/log/read	Get Web Apps Deployments Log.
microsoft.web/sites/detectors/read	Get Web Apps Detectors.
microsoft.web/sites/diagnostics/read	Get Web Apps Diagnostics Categories.
microsoft.web/sites/diagnostics/analyses/read	Get Web Apps Diagnostics Analysis.
microsoft.web/sites/diagnostics/analyses/execute/Action	Run Web Apps Diagnostics Analysis.
microsoft.web/sites/diagnostics/aspnetcore/read	Get Web Apps Diagnostics for ASPNET Core app.
microsoft.web/sites/diagnostics/autoheal/read	Get Web Apps Diagnostics Autoheal.
microsoft.web/sites/diagnostics/deployment/read	Get Web Apps Diagnostics Deployment.
microsoft.web/sites/diagnostics/deployments/read	Get Web Apps Diagnostics Deployments.
microsoft.web/sites/diagnostics/detectors/read	Get Web Apps Diagnostics Detector.
microsoft.web/sites/diagnostics/detectors/execute/Action	Run Web Apps Diagnostics Detector.
microsoft.web/sites/diagnostics/failedrequestsperuri/read	Get Web Apps Diagnostics Failed Requests Per Uri.
microsoft.web/sites/diagnostics/frebanalysis/read	Get Web Apps Diagnostics FREB Analysis.
microsoft.web/sites/diagnostics/loganalyzer/read	Get Web Apps Diagnostics Log Analyzer.
microsoft.web/sites/diagnostics/runtimeavailability/read	Get Web Apps Diagnostics Runtime Availability.
microsoft.web/sites/diagnostics/servicehealth/read	Get Web Apps Diagnostics Service Health.
microsoft.web/sites/diagnostics/sitecpuanalysis/read	Get Web Apps Diagnostics Site CPU Analysis.
microsoft.web/sites/diagnostics/sitecrashes/read	Get Web Apps Diagnostics Site Crashes.

ACTION	DESCRIPTION
microsoft.web/sites/diagnostics/sitelatency/read	Get Web Apps Diagnostics Site Latency.
microsoft.web/sites/diagnostics/sitememoryanalysis/read	Get Web Apps Diagnostics Site Memory Analysis.
microsoft.web/sites/diagnostics/siterestartsettingupdate/read	Get Web Apps Diagnostics Site Restart Setting Update.
microsoft.web/sites/diagnostics/siterestartuserinitiated/read	Get Web Apps Diagnostics Site Restart User Initiated.
microsoft.web/sites/diagnostics/siteswap/read	Get Web Apps Diagnostics Site Swap.
microsoft.web/sites/diagnostics/threadcount/read	Get Web Apps Diagnostics Thread Count.
microsoft.web/sites/diagnostics/workeravailability/read	Get Web Apps Diagnostics Workeravailability.
microsoft.web/sites/diagnostics/workerprocessrecycle/read	Get Web Apps Diagnostics Worker Process Recycle.
microsoft.web/sites/domainownershipidentifiers/read	Get Web Apps Domain Ownership Identifiers.
microsoft.web/sites/domainownershipidentifiers/write	Update Web Apps Domain Ownership Identifiers.
Microsoft.Web/sites/eventGridFilters/delete	Delete Event Grid Filter on web app.
Microsoft.Web/sites/eventGridFilters/read	Get Event Grid Filter on web app.
Microsoft.Web/sites/eventGridFilters/write	Put Event Grid Filter on web app.
microsoft.web/sites/extensions/delete	Delete Web Apps Site Extensions.
microsoft.web/sites/extensions/read	Get Web Apps Site Extensions.
microsoft.web/sites/extensions/write	Update Web Apps Site Extensions.
microsoft.web/sites/functions/delete	Delete Web Apps Functions.
microsoft.web/sites/functions/listsecrets/action	List Function secrets.
microsoft.web/sites/functions/listkeys/action	List Function keys.
microsoft.web/sites/functions/read	Get Web Apps Functions.
microsoft.web/sites/functions/write	Update Web Apps Functions.
microsoft.web/sites/functions/keys/write	Update Function keys.
microsoft.web/sites/functions/keys/delete	Delete Function keys.
microsoft.web/sites/functions/masterkey/read	Get Web Apps Functions Masterkey.
microsoft.web/sites/functions/token/read	Get Web Apps Functions Token.

ACTION	DESCRIPTION
microsoft.web/sites/host/listkeys/action	List Functions Host keys.
microsoft.web/sites/host/sync/action	Sync Function Triggers.
microsoft.web/sites/host/listsyncstatus/action	List Sync Function Triggers Status.
microsoft.web/sites/host/functionkeys/write	Update Functions Host Function keys.
microsoft.web/sites/host/functionkeys/delete	Delete Functions Host Function keys.
microsoft.web/sites/host/systemkeys/write	Update Functions Host System keys.
microsoft.web/sites/host/systemkeys/delete	Delete Functions Host System keys.
microsoft.web/sites/hostnamebindings/delete	Delete Web Apps Hostname Bindings.
microsoft.web/sites/hostnamebindings/read	Get Web Apps Hostname Bindings.
microsoft.web/sites/hostnamebindings/write	Update Web Apps Hostname Bindings.
Microsoft.Web/sites/hostruntime/host/action	Perform Function App runtime action like sync triggers, add functions, invoke functions, delete functions etc.
microsoft.web/sites/hostruntime/functions/keys/read	Get Web Apps Hostruntime Functions Keys.
microsoft.web/sites/hostruntime/host/read	Get Web Apps Hostruntime Host.
Microsoft.Web/sites/hostruntime/host/_master/read	Get Function App's master key for admin operations
microsoft.web/sites/hybridconnection/delete	Delete Web Apps Hybrid Connection.
microsoft.web/sites/hybridconnection/read	Get Web Apps Hybrid Connection.
microsoft.web/sites/hybridconnection/write	Update Web Apps Hybrid Connection.
microsoft.web/sites/hybridconnectionnamespaces/relays/delete	Delete Web Apps Hybrid Connection Namespaces Relays.
microsoft.web/sites/hybridconnectionnamespaces/relays/listkeys/action	List Keys Web Apps Hybrid Connection Namespaces Relays.
microsoft.web/sites/hybridconnectionnamespaces/relays/write	Update Web Apps Hybrid Connection Namespaces Relays.
microsoft.web/sites/hybridconnectionnamespaces/relays/read	Get Web Apps Hybrid Connection Namespaces Relays.
microsoft.web/sites/hybridconnectionrelays/read	Get Web Apps Hybrid Connection Relays.
microsoft.web/sites/instances/read	Get Web Apps Instances.

ACTION	DESCRIPTION
microsoft.web/sites/instances/deployments/read	Get Web Apps Instances Deployments.
microsoft.web/sites/instances/deployments/delete	Delete Web Apps Instances Deployments.
microsoft.web/sites/instances/extensions/read	Get Web Apps Instances Extensions.
microsoft.web/sites/instances/extensions/log/read	Get Web Apps Instances Extensions Log.
microsoft.web/sites/instances/extensions/processes/read	Get Web Apps Instances Extensions Processes.
microsoft.web/sites/instances/processes/delete	Delete Web Apps Instances Processes.
microsoft.web/sites/instances/processes/read	Get Web Apps Instances Processes.
microsoft.web/sites/instances/processes/modules/read	Get Web Apps Instances Processes Modules.
microsoft.web/sites/instances/processes/threads/read	Get Web Apps Instances Processes Threads.
microsoft.web/sites/metricdefinitions/read	Get Web Apps Metric Definitions.
microsoft.web/sites/metrics/read	Get Web Apps Metrics.
microsoft.web/sites/metricsdefinitions/read	Get Web Apps Metrics Definitions.
microsoft.web/sites/migratemyql/read	Get Web Apps Migrate MySql.
microsoft.web/sites/networktraces/operationresults/read	Get Web Apps Network Trace Operation Results.
microsoft.web/sites/operationresults/read	Get Web Apps Operation Results.
microsoft.web/sites/operations/read	Get Web Apps Operations.
microsoft.web/sites/perfcounters/read	Get Web Apps Performance Counters.
microsoft.web/sites/premieraddons/delete	Delete Web Apps Premier Addons.
microsoft.web/sites/premieraddons/read	Get Web Apps Premier Addons.
microsoft.web/sites/premieraddons/write	Update Web Apps Premier Addons.
microsoft.web/sites/privateaccess/read	Get data around private site access enablement and authorized Virtual Networks that can access the site.
microsoft.web/sites/processes/read	Get Web Apps Processes.
microsoft.web/sites/processes/modules/read	Get Web Apps Processes Modules.
microsoft.web/sites/processes/threads/read	Get Web Apps Processes Threads.
microsoft.web/sites/publiccertificates/delete	Delete Web Apps Public Certificates.

ACTION	DESCRIPTION
microsoft.web/sites/publiccertificates/read	Get Web Apps Public Certificates.
microsoft.web/sites/publiccertificates/write	Update Web Apps Public Certificates.
microsoft.web/sites/publishxml/read	Get Web Apps Publishing XML.
microsoft.web/sites/recommendationhistory/read	Get Web Apps Recommendation History.
Microsoft.Web/sites/recommendations/Read	Get the list of recommendations for web app.
microsoft.web/sites/recommendations/disable/action	Disable Web Apps Recommendations.
microsoft.web/sites/resourcehealthmetadata/read	Get Web Apps Resource Health Metadata.
microsoft.web/sites/restore/read	Get Web Apps Restore.
microsoft.web/sites/restore/write	Restore Web Apps.
microsoft.web/sites/siteextensions/delete	Delete Web Apps Site Extensions.
microsoft.web/sites/siteextensions/read	Get Web Apps Site Extensions.
microsoft.web/sites/siteextensions/write	Update Web Apps Site Extensions.
Microsoft.Web/sites/slots/Write	Create a new Web App Slot or update an existing one
Microsoft.Web/sites/slots/Delete	Delete an existing Web App Slot
Microsoft.Web/sites/slots/backup/Action	Create new Web App Slot backup.
Microsoft.Web/sites/slots/publishxml/Action	Get publishing profile xml for Web App Slot
Microsoft.Web/sites/slots/publish/Action	Publish a Web App Slot
Microsoft.Web/sites/slots/restart/Action	Restart a Web App Slot
Microsoft.Web/sites/slots/start/Action	Start a Web App Slot
Microsoft.Web/sites/slots/stop/Action	Stop a Web App Slot
Microsoft.Web/sites/slots/slotsswap/Action	Swap Web App deployment slots
Microsoft.Web/sites/slots/slotsdiffs/Action	Get differences in configuration between web app and slots
Microsoft.Web/sites/slots/applySlotConfig/Action	Apply web app slot configuration from target slot to the current slot.
Microsoft.Web/sites/slots/resetSlotConfig/Action	Reset web app slot configuration
Microsoft.Web/sites/slots/Read	Get the properties of a Web App deployment slot

ACTION	DESCRIPTION
microsoft.web/sites/slots/newpassword/action	Newpassword Web Apps Slots.
microsoft.web/sites/slots/sync/action	Sync Web Apps Slots.
microsoft.web/sites/slots/networktrace/action	Network Trace Web Apps Slots.
microsoft.web/sites/slots/recover/action	Recover Web Apps Slots.
microsoft.web/sites/slots/restoresnapshot/action	Restore Web Apps Slots Snapshots.
microsoft.web/sites/slots/restorefromdeletedapp/action	Restore Web App Slots From Deleted App.
microsoft.web/sites/slots/backups/action	Discover Web Apps Slots Backups.
microsoft.web/sites/slots/containerlogs/action	Get Zipped Container Logs for Web App Slot.
microsoft.web/sites/slots/restorefrombackupblob/action	Restore Web Apps Slot From Backup Blob.
microsoft.web/sites/slots/analyzecustomhostname/read	Get Web Apps Slots Analyze Custom Hostname.
microsoft.web/sites/slots/backup/write	Update Web Apps Slots Backup.
microsoft.web/sites/slots/backup/read	Get Web Apps Slots Backup.
Microsoft.Web/sites/slots/backups/Read	Get the properties of a web app slots' backup
microsoft.web/sites/slots/backups/list/action	List Web Apps Slots Backups.
microsoft.web/sites/slots/backups/restore/action	Restore Web Apps Slots Backups.
microsoft.web/sites/slots/backups/delete	Delete Web Apps Slots Backups.
Microsoft.Web/sites/slots/config/Read	Get Web App Slot's configuration settings
Microsoft.Web/sites/slots/config/list/Action	List Web App Slot's security sensitive settings, such as publishing credentials, app settings and connection strings
Microsoft.Web/sites/slots/config/Write	Update Web App Slot's configuration settings
microsoft.web/sites/slots/config/delete	Delete Web Apps Slots Config.
microsoft.web/sites/slots/containerlogs/download/action	Download Web Apps Slots Container Logs.
microsoft.web/sites/slots/continuouswebjobs/delete	Delete Web Apps Slots Continuous Web Jobs.
microsoft.web/sites/slots/continuouswebjobs/read	Get Web Apps Slots Continuous Web Jobs.
microsoft.web/sites/slots/continuouswebjobs/start/action	Start Web Apps Slots Continuous Web Jobs.
microsoft.web/sites/slots/continuouswebjobs/stop/action	Stop Web Apps Slots Continuous Web Jobs.

ACTION	DESCRIPTION
microsoft.web/sites/slots/deployments/delete	Delete Web Apps Slots Deployments.
microsoft.web/sites/slots/deployments/read	Get Web Apps Slots Deployments.
microsoft.web/sites/slots/deployments/write	Update Web Apps Slots Deployments.
microsoft.web/sites/slots/deployments/log/read	Get Web Apps Slots Deployments Log.
microsoft.web/sites/slots/detectors/read	Get Web Apps Slots Detectors.
microsoft.web/sites/slots/diagnostics/read	Get Web Apps Slots Diagnostics.
microsoft.web/sites/slots/diagnostics/analyses/read	Get Web Apps Slots Diagnostics Analysis.
microsoft.web/sites/slots/diagnostics/analyses/execute/Action	Run Web Apps Slots Diagnostics Analysis.
microsoft.web/sites/slots/diagnostics/aspnetcore/read	Get Web Apps Slots Diagnostics for ASPNET Core app.
microsoft.web/sites/slots/diagnostics/autoheal/read	Get Web Apps Slots Diagnostics Autoheal.
microsoft.web/sites/slots/diagnostics/deployment/read	Get Web Apps Slots Diagnostics Deployment.
microsoft.web/sites/slots/diagnostics/deployments/read	Get Web Apps Slots Diagnostics Deployments.
microsoft.web/sites/slots/diagnostics/detectors/read	Get Web Apps Slots Diagnostics Detector.
microsoft.web/sites/slots/diagnostics/detectors/execute/Action	Run Web Apps Slots Diagnostics Detector.
microsoft.web/sites/slots/diagnostics/frebanalysis/read	Get Web Apps Slots Diagnostics FREB Analysis.
microsoft.web/sites/slots/diagnostics/loganalyzer/read	Get Web Apps Slots Diagnostics Log Analyzer.
microsoft.web/sites/slots/diagnostics/runtimeavailability/read	Get Web Apps Slots Diagnostics Runtime Availability.
microsoft.web/sites/slots/diagnostics/servicehealth/read	Get Web Apps Slots Diagnostics Service Health.
microsoft.web/sites/slots/diagnostics/sitecpuanalysis/read	Get Web Apps Slots Diagnostics Site CPU Analysis.
microsoft.web/sites/slots/diagnostics/sitecrashes/read	Get Web Apps Slots Diagnostics Site Crashes.
microsoft.web/sites/slots/diagnostics/sitelatency/read	Get Web Apps Slots Diagnostics Site Latency.
microsoft.web/sites/slots/diagnostics/sitememoryanalysis/re	Get Web Apps Slots Diagnostics Site Memory Analysis.
microsoft.web/sites/slots/diagnostics/siterestartsettingupdat	Get Web Apps Slots Diagnostics Site Restart Setting Update.
e/read	

ACTION	DESCRIPTION
microsoft.web/sites/slots/diagnostics/siterestartuserinitiated/read	Get Web Apps Slots Diagnostics Site Restart User Initiated.
microsoft.web/sites/slots/diagnostics/siteswap/read	Get Web Apps Slots Diagnostics Site Swap.
microsoft.web/sites/slots/diagnostics/threadcount/read	Get Web Apps Slots Diagnostics Thread Count.
microsoft.web/sites/slots/diagnostics/workeravailability/read	Get Web Apps Slots Diagnostics Workeravailability.
microsoft.web/sites/slots/diagnostics/workerprocessrecycle/read	Get Web Apps Slots Diagnostics Worker Process Recycle.
microsoft.web/sites/slots/domainownershipidentifiers/read	Get Web Apps Slots Domain Ownership Identifiers.
microsoft.web/sites/slots/extensions/read	Get Web Apps Slots Extensions.
microsoft.web/sites/slots/extensions/write	Update Web Apps Slots Extensions.
microsoft.web/sites/slots/functions/listkeys/action	List Function keys.
microsoft.web/sites/slots/functions/read	Get Web Apps Slots Functions.
microsoft.web/sites/slots/functions/listsecrets/action	List Secrets Web Apps Slots Functions.
microsoft.web/sites/slots/functions/keys/write	Update Function keys.
microsoft.web/sites/slots/functions/keys/delete	Delete Function keys.
microsoft.web/sites/slots/host/listkeys/action	List Functions Host keys.
microsoft.web/sites/slots/host/sync/action	Sync Function Triggers.
microsoft.web/sites/slots/host/functionkeys/write	Update Functions Host Function keys.
microsoft.web/sites/slots/host/functionkeys/delete	Delete Functions Host Function keys.
microsoft.web/sites/slots/host/systemkeys/write	Update Functions Host System keys.
microsoft.web/sites/slots/host/systemkeys/delete	Delete Functions Host System keys.
microsoft.web/sites/slots/hostnamebindings/delete	Delete Web Apps Slots Hostname Bindings.
microsoft.web/sites/slots/hostnamebindings/read	Get Web Apps Slots Hostname Bindings.
microsoft.web/sites/slots/hostnamebindings/write	Update Web Apps Slots Hostname Bindings.
microsoft.web/sites/slots/hybridconnection/delete	Delete Web Apps Slots Hybrid Connection.
microsoft.web/sites/slots/hybridconnection/read	Get Web Apps Slots Hybrid Connection.

ACTION	DESCRIPTION
microsoft.web/sites/slots/hybridconnection/write	Update Web Apps Slots Hybrid Connection.
microsoft.web/sites/slots/hybridconnectionnamespaces/relays/delete	Delete Web Apps Slots Hybrid Connection Namespaces Relays.
microsoft.web/sites/slots/hybridconnectionnamespaces/relays/write	Update Web Apps Slots Hybrid Connection Namespaces Relays.
microsoft.web/sites/slots/hybridconnectionrelays/read	Get Web Apps Slots Hybrid Connection Relays.
microsoft.web/sites/slots/instances/read	Get Web Apps Slots Instances.
microsoft.web/sites/slots/instances/deployments/read	Get Web Apps Slots Instances Deployments.
microsoft.web/sites/slots/instances/processes/read	Get Web Apps Slots Instances Processes.
microsoft.web/sites/slots/instances/processes/delete	Delete Web Apps Slots Instances Processes.
microsoft.web/sites/slots/metricdefinitions/read	Get Web Apps Slots Metric Definitions.
microsoft.web/sites/slots/metrics/read	Get Web Apps Slots Metrics.
microsoft.web/sites/slots/migratemyql/read	Get Web Apps Slots Migrate MySql.
microsoft.web/sites/slots/networktraces/operationresults/read	Get Web Apps Slots Network Trace Operation Results.
microsoft.web/sites/slots/operationresults/read	Get Web Apps Slots Operation Results.
microsoft.web/sites/slots/operations/read	Get Web Apps Slots Operations.
microsoft.web/sites/slots/perfcounters/read	Get Web Apps Slots Performance Counters.
microsoft.web/sites/slots/phplogging/read	Get Web Apps Slots Phlogging.
microsoft.web/sites/slots/premieraddons/delete	Delete Web Apps Slots Premier Addons.
microsoft.web/sites/slots/premieraddons/read	Get Web Apps Slots Premier Addons.
microsoft.web/sites/slots/premieraddons/write	Update Web Apps Slots Premier Addons.
microsoft.web/sites/slots/processes/read	Get Web Apps Slots Processes.
microsoft.web/sites/slots/publiccertificates/read	Get Web Apps Slots Public Certificates.
microsoft.web/sites/slots/publiccertificates/write	Create or Update Web Apps Slots Public Certificates.
microsoft.web/sites/slots/publiccertificates/delete	Delete Web Apps Slots Public Certificates.
microsoft.web/sites/slots/resourcehealthmetadata/read	Get Web Apps Slots Resource Health Metadata.

ACTION	DESCRIPTION
microsoft.web/sites/slots/restore/read	Get Web Apps Slots Restore.
microsoft.web/sites/slots/restore/write	Restore Web Apps Slots.
microsoft.web/sites/slots/siteextensions/delete	Delete Web Apps Slots Site Extensions.
microsoft.web/sites/slots/siteextensions/read	Get Web Apps Slots Site Extensions.
microsoft.web/sites/slots/siteextensions/write	Update Web Apps Slots Site Extensions.
microsoft.web/sites/slots/snapshots/read	Get Web Apps Slots Snapshots.
Microsoft.Web/sites/slots/sourcecontrols/Read	Get Web App Slot's source control configuration settings
Microsoft.Web/sites/slots/sourcecontrols/Write	Update Web App Slot's source control configuration settings
Microsoft.Web/sites/slots/sourcecontrols/Delete	Delete Web App Slot's source control configuration settings
microsoft.web/sites/slots/triggeredwebjobs/delete	Delete Web Apps Slots Triggered WebJobs.
microsoft.web/sites/slots/triggeredwebjobs/read	Get Web Apps Slots Triggered WebJobs.
microsoft.web/sites/slots/triggeredwebjobs/run/action	Run Web Apps Slots Triggered WebJobs.
microsoft.web/sites/slots/usages/read	Get Web Apps Slots Usages.
microsoft.web/sites/slots/virtualnetworkconnections/delete	Delete Web Apps Slots Virtual Network Connections.
microsoft.web/sites/slots/virtualnetworkconnections/read	Get Web Apps Slots Virtual Network Connections.
microsoft.web/sites/slots/virtualnetworkconnections/write	Update Web Apps Slots Virtual Network Connections.
microsoft.web/sites/slots/virtualnetworkconnections/gateways/write	Update Web Apps Slots Virtual Network Connections Gateways.
microsoft.web/sites/slots/webjobs/read	Get Web Apps Slots WebJobs.
microsoft.web/sites/snapshots/read	Get Web Apps Snapshots.
Microsoft.Web/sites/sourcecontrols/Read	Get Web App's source control configuration settings
Microsoft.Web/sites/sourcecontrols/Write	Update Web App's source control configuration settings
Microsoft.Web/sites/sourcecontrols/Delete	Delete Web App's source control configuration settings
microsoft.web/sites/triggeredwebjobs/delete	Delete Web Apps Triggered WebJobs.
microsoft.web/sites/triggeredwebjobs/read	Get Web Apps Triggered WebJobs.
microsoft.web/sites/triggeredwebjobs/run/action	Run Web Apps Triggered WebJobs.

ACTION	DESCRIPTION
microsoft.web/sites/triggeredwebjobs/history/read	Get Web Apps Triggered WebJobs History.
microsoft.web/sites/usages/read	Get Web Apps Usages.
microsoft.web/sites/virtualnetworkconnections/delete	Delete Web Apps Virtual Network Connections.
microsoft.web/sites/virtualnetworkconnections/read	Get Web Apps Virtual Network Connections.
microsoft.web/sites/virtualnetworkconnections/write	Update Web Apps Virtual Network Connections.
microsoft.web/sites/virtualnetworkconnections/gateways/read	Get Web Apps Virtual Network Connections Gateways.
microsoft.web/sites/virtualnetworkconnections/gateways/write	Update Web Apps Virtual Network Connections Gateways.
microsoft.web/sites/webjobs/read	Get Web Apps WebJobs.
microsoft.web/skus/read	Get SKUs.
microsoft.web/sourcecontrols/read	Get Source Controls.
microsoft.web/sourcecontrols/write	Update Source Controls.
Microsoft.Web/staticSites/Read	Get the properties of a Static Site
Microsoft.Web/staticSites/Write	Create a new Static Site or update an existing one
Microsoft.Web/staticSites/Delete	Delete an existing Static Site
Microsoft.Web/staticSites/createinvitation/action	Creates invitation link for static site user for a set of roles
Microsoft.Web/staticSites/listfunctionappsettings/Action	List function app settings for a Static Site
Microsoft.Web/staticSites/detach/Action	Detach a Static Site from the currently linked repository
Microsoft.Web/staticSites/getuser/Action	Get a user's information for a Static Site
Microsoft.Web/staticSites/listsecrets/action	List the secrets for a Static Site
Microsoft.Web/staticSites/resetapikey/Action	Reset the api key for a Static Site
Microsoft.Web/staticSites/authproviders/listusers/Action	List the users for a Static Site
Microsoft.Web/staticSites/authproviders/users/Delete	Delete a user for a Static Site
Microsoft.Web/staticSites/authproviders/users/Write	Update a user for a Static Site
Microsoft.Web/staticSites/build/Read	Get a build for a Static Site

ACTION	DESCRIPTION
Microsoft.Web/staticSites/build/Delete	Delete a build for a Static Site
Microsoft.Web/staticSites/builds/listfunctionappsettings/Action	List function app settings for a Static Site Build
Microsoft.Web/staticSites/builds/config/Write	Create or update function app settings for a Static Site Build
Microsoft.Web/staticSites/config/Write	Create or update function app settings for a Static Site
Microsoft.Web/staticSites/customdomains/Write	Create a custom domain for a Static Site
Microsoft.Web/staticSites/customdomains/Delete	Delete a custom domain for a Static Site
Microsoft.Web/staticSites/customdomains/Read	List the custom domains for a Static Site
Microsoft.Web/staticSites/customdomains/validate/Action	Validate a custom domain can be added to a Static Site
Microsoft.Web/staticSites/functions/Read	List the functions for a Static Site

## Containers

### **Microsoft.ContainerInstance**

Azure service: [Container Instances](#)

ACTION	DESCRIPTION
Microsoft.ContainerInstance/register/action	Registers the subscription for the container instance resource provider and enables the creation of container groups.
Microsoft.ContainerInstance/containerGroups/read	Get all container groups.
Microsoft.ContainerInstance/containerGroups/write	Create or update a specific container group.
Microsoft.ContainerInstance/containerGroups/delete	Delete the specific container group.
Microsoft.ContainerInstance/containerGroups/restart/action	Restarts a specific container group.
Microsoft.ContainerInstance/containerGroups/stop/action	Stops a specific container group. Compute resources will be deallocated and billing will stop.
Microsoft.ContainerInstance/containerGroups/start/action	Starts a specific container group.
Microsoft.ContainerInstance/containerGroups/containers/exec/action	Exec into a specific container.
Microsoft.ContainerInstance/containerGroups/containers/buildlogs/read	Get build logs for a specific container.
Microsoft.ContainerInstance/containerGroups/containers/logs/read	Get logs for a specific container.

ACTION	DESCRIPTION
Microsoft.ContainerInstance/containerGroups/operationResults/read	Get async operation result
Microsoft.ContainerInstance/containerGroups/providers/Microsoft.Insights/diagnosticSettings/read	Gets the diagnostic setting for the container group.
Microsoft.ContainerInstance/containerGroups/providers/Microsoft.Insights/diagnosticSettings/write	Creates or updates the diagnostic setting for the container group.
Microsoft.ContainerInstance/containerGroups/providers/Microsoft.Insights/metricDefinitions/read	Gets the available metrics for container group.
Microsoft.ContainerInstance/locations/deleteVirtualNetworkOrSubnets/action	Notifies Microsoft.ContainerInstance that virtual network or subnet is being deleted.
Microsoft.ContainerInstance/locations/cachedImages/read	Gets the cached images for the subscription in a region.
Microsoft.ContainerInstance/locations/capabilities/read	Get the capabilities for a region.
Microsoft.ContainerInstance/locations/operationResults/read	Get async operation result
Microsoft.ContainerInstance/locations/operations/read	List the operations for Azure Container Instance service.
Microsoft.ContainerInstance/locations/usages/read	Get the usage for a specific region.
Microsoft.ContainerInstance/operations/read	List the operations for Azure Container Instance service.
Microsoft.ContainerInstance/serviceassociationlinks/delete	Delete the service association link created by azure container instance resource provider on a subnet.

## Microsoft.ContainerRegistry

Azure service: [Container Registry](#)

ACTION	DESCRIPTION
Microsoft.ContainerRegistry/register/action	Registers the subscription for the container registry resource provider and enables the creation of container registries.
Microsoft.ContainerRegistry/checkNameAvailability/read	Checks whether the container registry name is available for use.
Microsoft.ContainerRegistry/locations/deleteVirtualNetworkOrSubnets/action	Notifies Microsoft.ContainerRegistry that virtual network or subnet is being deleted
Microsoft.ContainerRegistry/locations/operationResults/read	Gets an async operation result
Microsoft.ContainerRegistry/operations/read	Lists all of the available Azure Container Registry REST API operations
Microsoft.ContainerRegistry/registries/read	Gets the properties of the specified container registry or lists all the container registries under the specified resource group or subscription.

ACTION	DESCRIPTION
Microsoft.ContainerRegistry/registries/write	Creates or updates a container registry with the specified parameters.
Microsoft.ContainerRegistry/registries/delete	Deletes a container registry.
Microsoft.ContainerRegistry/registries/listCredentials/action	Lists the login credentials for the specified container registry.
Microsoft.ContainerRegistry/registries/regenerateCredential/action	Regenerates one of the login credentials for the specified container registry.
Microsoft.ContainerRegistry/registries/generateCredentials/action	Generate keys for a token of a specified container registry.
Microsoft.ContainerRegistry/registries/importImage/action	Import Image to container registry with the specified parameters.
Microsoft.ContainerRegistry/registries/getBuildSourceUploadUrl/action	Gets the upload location for the user to be able to upload the source.
Microsoft.ContainerRegistry/registries/queueBuild/action	Creates a new build based on the request parameters and add it to the build queue.
Microsoft.ContainerRegistry/registries/listBuildSourceUploadUrl/action	Get source upload url location for a container registry.
Microsoft.ContainerRegistry/registries/scheduleRun/action	Schedule a run against a container registry.
Microsoft.ContainerRegistry/registries/agentpools/listQueueStatus/action	List all queue status of an agentpool for a container registry.
Microsoft.ContainerRegistry/registries/artifacts/delete	Delete artifact in a container registry.
Microsoft.ContainerRegistry/registries/builds/read	Gets the properties of the specified build or lists all the builds for the specified container registry.
Microsoft.ContainerRegistry/registries/builds/write	Updates a build for a container registry with the specified parameters.
Microsoft.ContainerRegistry/registries/builds/getLogLink/acti on	Gets a link to download the build logs.
Microsoft.ContainerRegistry/registries/builds/cancel/action	Cancels an existing build.
Microsoft.ContainerRegistry/registries/buildTasks/read	Gets the properties of the specified build task or lists all the build tasks for the specified container registry.
Microsoft.ContainerRegistry/registries/buildTasks/write	Creates or updates a build task for a container registry with the specified parameters.
Microsoft.ContainerRegistry/registries/buildTasks/delete	Deletes a build task from a container registry.
Microsoft.ContainerRegistry/registries/buildTasks/listSourceRepositoryProperties/action	Lists the source control properties for a build task.

ACTION	DESCRIPTION
Microsoft.ContainerRegistry/registries/buildTasks/steps/read	Gets the properties of the specified build step or lists all the build steps for the specified build task.
Microsoft.ContainerRegistry/registries/buildTasks/steps/write	Creates or updates a build step for a build task with the specified parameters.
Microsoft.ContainerRegistry/registries/buildTasks/steps/delete	Deletes a build step from a build task.
Microsoft.ContainerRegistry/registries/buildTasks/steps/listBuildArguments/action	Lists the build arguments for a build step including the secret arguments.
Microsoft.ContainerRegistry/registries/eventGridFilters/read	Gets the properties of the specified event grid filter or lists all the event grid filters for the specified container registry.
Microsoft.ContainerRegistry/registries/eventGridFilters/write	Creates or updates an event grid filter for a container registry with the specified parameters.
Microsoft.ContainerRegistry/registries/eventGridFilters/delete	Deletes an event grid filter from a container registry.
Microsoft.ContainerRegistry/registries/listPolicies/read	Lists the policies for the specified container registry
Microsoft.ContainerRegistry/registries/listUsages/read	Lists the quota usages for the specified container registry.
Microsoft.ContainerRegistry/registries/metadata/read	Gets the metadata of a specific repository for a container registry
Microsoft.ContainerRegistry/registries/metadata/write	Updates the metadata of a repository for a container registry
Microsoft.ContainerRegistry/registries/operationStatuses/read	Gets a registry async operation status
Microsoft.ContainerRegistry/registries/privateEndpointConnectionProxies/validate/action	Validate the Private Endpoint Connection Proxy (NRP only)
Microsoft.ContainerRegistry/registries/privateEndpointConnectionProxies/read	Get the Private Endpoint Connection Proxy (NRP only)
Microsoft.ContainerRegistry/registries/privateEndpointConnectionProxies/write	Create the Private Endpoint Connection Proxy (NRP only)
Microsoft.ContainerRegistry/registries/privateEndpointConnectionProxies/delete	Delete the Private Endpoint Connection Proxy (NRP only)
Microsoft.ContainerRegistry/registries/privateEndpointConnectionProxies/operationStatuses/read	Get Private Endpoint Connection Proxy Async Operation Status
Microsoft.ContainerRegistry/registries/pull/read	Pull or Get images from a container registry.
Microsoft.ContainerRegistry/registries/push/write	Push or Write images to a container registry.

ACTION	DESCRIPTION
Microsoft.ContainerRegistry/registries/quarantine/read	Pull or Get quarantined images from container registry
Microsoft.ContainerRegistry/registries/quarantine/write	Write/Modify quarantine state of quarantined images
Microsoft.ContainerRegistry/registries/replications/read	Gets the properties of the specified replication or lists all the replications for the specified container registry.
Microsoft.ContainerRegistry/registries/replications/write	Creates or updates a replication for a container registry with the specified parameters.
Microsoft.ContainerRegistry/registries/replications/delete	Deletes a replication from a container registry.
Microsoft.ContainerRegistry/registries/replications/operationStatuses/read	Gets a replication async operation status
Microsoft.ContainerRegistry/registries/runs/read	Gets the properties of a run against a container registry or list runs.
Microsoft.ContainerRegistry/registries/runs/write	Updates a run.
Microsoft.ContainerRegistry/registries/runs/listLogSasUrl/action	Gets the log SAS URL for a run.
Microsoft.ContainerRegistry/registries/runs/cancel/action	Cancel an existing run.
Microsoft.ContainerRegistry/registries/scopeMaps/read	Gets the properties of the specified scope map or lists all the scope maps for the specified container registry.
Microsoft.ContainerRegistry/registries/scopeMaps/write	Creates or updates a scope map for a container registry with the specified parameters.
Microsoft.ContainerRegistry/registries/scopeMaps/delete	Deletes a scope map from a container registry.
Microsoft.ContainerRegistry/registries/scopeMaps/operationStatuses/read	Gets a scope map async operation status.
Microsoft.ContainerRegistry/registries/sign/write	Push/Pull content trust metadata for a container registry.
Microsoft.ContainerRegistry/registries/taskruns/listDetails/action	List all details of a taskrun for a container registry.
Microsoft.ContainerRegistry/registries/tasks/read	Gets a task for a container registry or list all tasks.
Microsoft.ContainerRegistry/registries/tasks/write	Creates or Updates a task for a container registry.
Microsoft.ContainerRegistry/registries/tasks/delete	Deletes a task for a container registry.
Microsoft.ContainerRegistry/registries/tasks/listDetails/action	List all details of a task for a container registry.
Microsoft.ContainerRegistry/registries/tokens/read	Gets the properties of the specified token or lists all the tokens for the specified container registry.

ACTION	DESCRIPTION
Microsoft.ContainerRegistry/registries/tokens/write	Creates or updates a token for a container registry with the specified parameters.
Microsoft.ContainerRegistry/registries/tokens/delete	Deletes a token from a container registry.
Microsoft.ContainerRegistry/registries/tokens/operationStatuses/read	Gets a token async operation status.
Microsoft.ContainerRegistry/registries/updatePolicies/write	Updates the policies for the specified container registry
Microsoft.ContainerRegistry/registries/webhooks/read	Gets the properties of the specified webhook or lists all the webhooks for the specified container registry.
Microsoft.ContainerRegistry/registries/webhooks/write	Creates or updates a webhook for a container registry with the specified parameters.
Microsoft.ContainerRegistry/registries/webhooks/delete	Deletes a webhook from a container registry.
Microsoft.ContainerRegistry/registries/webhooks/getCallbackConfig/action	Gets the configuration of service URI and custom headers for the webhook.
Microsoft.ContainerRegistry/registries/webhooks/ping/action	Triggers a ping event to be sent to the webhook.
Microsoft.ContainerRegistry/registries/webhooks/listEvents/action	Lists recent events for the specified webhook.
Microsoft.ContainerRegistry/registries/webhooks/operationStatuses/read	Gets a webhook async operation status

## Microsoft.ContainerService

Azure service: [Azure Kubernetes Service \(AKS\)](#)

ACTION	DESCRIPTION
Microsoft.ContainerService/register/action	Registers Subscription with Microsoft.ContainerService resource provider
Microsoft.ContainerService/unregister/action	Unregisters Subscription with Microsoft.ContainerService resource provider
Microsoft.ContainerService/containerServices/read	Get a container service
Microsoft.ContainerService/containerServices/write	Creates a new container service or updates an existing one
Microsoft.ContainerService/containerServices/delete	Deletes a container service
Microsoft.ContainerService/locations/operationresults/read	Gets the status of an asynchronous operation result
Microsoft.ContainerService/locations/operations/read	Gets the status of an asynchronous operation
Microsoft.ContainerService/locations/orchestrators/read	Lists the supported orchestrators

ACTION	DESCRIPTION
Microsoft.ContainerService/managedClusters/read	Get a managed cluster
Microsoft.ContainerService/managedClusters/write	Creates a new managed cluster or updates an existing one
Microsoft.ContainerService/managedClusters/delete	Deletes a managed cluster
Microsoft.ContainerService/managedClusters/listClusterAdminCredential/action	List the clusterAdmin credential of a managed cluster
Microsoft.ContainerService/managedClusters/listClusterUserCredential/action	List the clusterUser credential of a managed cluster
Microsoft.ContainerService/managedClusters/listClusterMonitoringUserCredential/action	List the clusterMonitoringUser credential of a managed cluster
Microsoft.ContainerService/managedClusters/resetServicePrincipalProfile/action	Reset the service principal profile of a managed cluster
Microsoft.ContainerService/managedClusters/resetAADProfile/action	Reset the AAD profile of a managed cluster
Microsoft.ContainerService/managedClusters/rotateClusterCertificates/action	Rotate certificates of a managed cluster
Microsoft.ContainerService/managedClusters/privateEndpointConnectionsApproval/action	Determines if user is allowed to approve a private endpoint connection
Microsoft.ContainerService/managedClusters/accessProfiles/read	Get a managed cluster access profile by role name
Microsoft.ContainerService/managedClusters/accessProfiles/listCredential/action	Get a managed cluster access profile by role name using list credential
Microsoft.ContainerService/managedClusters/agentPools/read	Gets an agent pool
Microsoft.ContainerService/managedClusters/agentPools/write	Creates a new agent pool or updates an existing one
Microsoft.ContainerService/managedClusters/agentPools/delete	Deletes an agent pool
Microsoft.ContainerService/managedClusters/agentPools/upgradeNodeImageVersion/write	Upgrade the node image version of agent pool
Microsoft.ContainerService/managedClusters/agentPools/upgradeProfiles/read	Gets the upgrade profile of the Agent Pool
Microsoft.ContainerService/managedClusters/availableAgentPoolVersions/read	Gets the available agent pool versions of the cluster
Microsoft.ContainerService/managedClusters/detectors/read	Get Managed Cluster Detector

ACTION	DESCRIPTION
Microsoft.ContainerService/managedClusters/diagnosticsState/read	Gets the diagnostics state of the cluster
Microsoft.ContainerService/managedClusters/privateEndpointConnections/read	Get private endpoint connection
Microsoft.ContainerService/managedClusters/privateEndpointConnections/write	Approve or Reject a private endpoint connection
Microsoft.ContainerService/managedClusters/privateEndpointConnections/delete	Delete private endpoint connection
Microsoft.ContainerService/managedClusters/upgradeProfiles/read	Gets the upgrade profile of the cluster
Microsoft.ContainerService/openShiftClusters/read	Get an Open Shift Cluster
Microsoft.ContainerService/openShiftClusters/write	Creates a new Open Shift Cluster or updates an existing one
Microsoft.ContainerService/openShiftClusters/delete	Delete an Open Shift Cluster
Microsoft.ContainerService/openShiftManagedClusters/read	Get an Open Shift Managed Cluster
Microsoft.ContainerService/openShiftManagedClusters/write	Creates a new Open Shift Managed Cluster or updates an existing one
Microsoft.ContainerService/openShiftManagedClusters/delete	Delete an Open Shift Managed Cluster
Microsoft.ContainerService/operations/read	Lists operations available on Microsoft.ContainerService resource provider
DataAction	Description
Microsoft.ContainerService/managedClusters/admissionregistration.k8s.io/initializerconfigurations/read	Reads initializerconfigurations
Microsoft.ContainerService/managedClusters/admissionregistration.k8s.io/initializerconfigurations/write	Writes initializerconfigurations
Microsoft.ContainerService/managedClusters/admissionregistration.k8s.io/initializerconfigurations/delete	Deletes/DeletesCollection initializerconfigurations resource
Microsoft.ContainerService/managedClusters/admissionregistration.k8s.io/mutatingwebhookconfigurations/read	Reads mutatingwebhookconfigurations
Microsoft.ContainerService/managedClusters/admissionregistration.k8s.io/mutatingwebhookconfigurations/write	Writes mutatingwebhookconfigurations
Microsoft.ContainerService/managedClusters/admissionregistration.k8s.io/mutatingwebhookconfigurations/delete	Deletes mutatingwebhookconfigurations

ACTION	DESCRIPTION
Microsoft.ContainerService/managedClusters/admissionregistration.k8s.io/validatingwebhookconfigurations/read	Reads validatingwebhookconfigurations
Microsoft.ContainerService/managedClusters/admissionregistration.k8s.io/validatingwebhookconfigurations/write	Writes validatingwebhookconfigurations
Microsoft.ContainerService/managedClusters/admissionregistration.k8s.io/validatingwebhookconfigurations/delete	Deletes validatingwebhookconfigurations
Microsoft.ContainerService/managedClusters/api/read	Reads api
Microsoft.ContainerService/managedClusters/api/v1/read	Reads api/v1
Microsoft.ContainerService/managedClusters/apiextensions.k8s.io/customresourcedefinitions/read	Reads customresourcedefinitions
Microsoft.ContainerService/managedClusters/apiextensions.k8s.io/customresourcedefinitions/write	Writes customresourcedefinitions
Microsoft.ContainerService/managedClusters/apiextensions.k8s.io/customresourcedefinitions/delete	Deletes customresourcedefinitions
Microsoft.ContainerService/managedClusters/apiregistration.k8s.io/apiservices/read	Reads apiservices
Microsoft.ContainerService/managedClusters/apiregistration.k8s.io/apiservices/write	Writes apiservices
Microsoft.ContainerService/managedClusters/apiregistration.k8s.io/apiservices/delete	Deletes apiservices
Microsoft.ContainerService/managedClusters/apis/read	Reads apis
Microsoft.ContainerService/managedClusters/apis/admissionregistration.k8s.io/read	Reads admissionregistration.k8s.io
Microsoft.ContainerService/managedClusters/apis/admissionregistration.k8s.io/v1/read	Reads admissionregistration.k8s.io/v1
Microsoft.ContainerService/managedClusters/apis/admissionregistration.k8s.io/v1beta1/read	Reads admissionregistration.k8s.io/v1beta1
Microsoft.ContainerService/managedClusters/apis/apiextensions.k8s.io/read	Reads apiextensions.k8s.io
Microsoft.ContainerService/managedClusters/apis/apiextensions.k8s.io/v1/read	Reads apiextensions.k8s.io/v1
Microsoft.ContainerService/managedClusters/apis/apiextensions.k8s.io/v1beta1/read	Reads apiextensions.k8s.io/v1beta1
Microsoft.ContainerService/managedClusters/apis/apiregistration.k8s.io/read	Reads apiregistration.k8s.io

ACTION	DESCRIPTION
Microsoft.ContainerService/managedClusters/apis/apiregistration.k8s.io/v1/read	Reads apiregistration.k8s.io/v1
Microsoft.ContainerService/managedClusters/apis/apiregistration.k8s.io/v1beta1/read	Reads apiregistration.k8s.io/v1beta1
Microsoft.ContainerService/managedClusters/apis/apps/read	Reads apps
Microsoft.ContainerService/managedClusters/apis/apps/v1/read	Reads apps/v1
Microsoft.ContainerService/managedClusters/apis/apps/v1beta1/read	Reads apps/v1beta1
Microsoft.ContainerService/managedClusters/apis/apps/v1beta2/read	Reads apps/v1beta2
Microsoft.ContainerService/managedClusters/apis/authentication.k8s.io/read	Reads authentication.k8s.io
Microsoft.ContainerService/managedClusters/apis/authentication.k8s.io/v1/read	Reads authentication.k8s.io/v1
Microsoft.ContainerService/managedClusters/apis/authentication.k8s.io/v1beta1/read	Reads authentication.k8s.io/v1beta1
Microsoft.ContainerService/managedClusters/apis/authorization.k8s.io/read	Reads authorization.k8s.io
Microsoft.ContainerService/managedClusters/apis/authorization.k8s.io/v1/read	Reads authorization.k8s.io/v1
Microsoft.ContainerService/managedClusters/apis/authorization.k8s.io/v1beta1/read	Reads authorization.k8s.io/v1beta1
Microsoft.ContainerService/managedClusters/apis/autoscaling/read	Reads autoscaling
Microsoft.ContainerService/managedClusters/apis/autoscaling/v1/read	Reads autoscaling/v1
Microsoft.ContainerService/managedClusters/apis/autoscaling/v2beta1/read	Reads autoscaling/v2beta1
Microsoft.ContainerService/managedClusters/apis/autoscaling/v2beta2/read	Reads autoscaling/v2beta2
Microsoft.ContainerService/managedClusters/apis/batch/read	Reads batch
Microsoft.ContainerService/managedClusters/apis/batch/v1/read	Reads batch/v1

ACTION	DESCRIPTION
Microsoft.ContainerService/managedClusters/apis/batch/v1beta1/read	Reads batch/v1beta1
Microsoft.ContainerService/managedClusters/apis/certificates.k8s.io/read	Reads certificates.k8s.io
Microsoft.ContainerService/managedClusters/apis/certificates.k8s.io/v1beta1/read	Reads certificates.k8s.io/v1beta1
Microsoft.ContainerService/managedClusters/apis/coordination.k8s.io/read	Reads coordination.k8s.io
Microsoft.ContainerService/managedClusters/apis/coordination.k8s.io/v1/read	Reads coordination/v1
Microsoft.ContainerService/managedClusters/apis/coordination.k8s.io/v1beta1/read	Reads coordination.k8s.io/v1beta1
Microsoft.ContainerService/managedClusters/apis/events.k8s.io/read	Reads events.k8s.io
Microsoft.ContainerService/managedClusters/apis/events.k8s.io/v1beta1/read	Reads events.k8s.io/v1beta1
Microsoft.ContainerService/managedClusters/apis/extensions/read	Reads extensions
Microsoft.ContainerService/managedClusters/apis/extensions/v1beta1/read	Reads extensions/v1beta1
Microsoft.ContainerService/managedClusters/apis/metrics.k8s.io/read	Reads metrics.k8s.io
Microsoft.ContainerService/managedClusters/apis/metrics.k8s.io/v1beta1/read	Reads metrics.k8s.io/v1beta1
Microsoft.ContainerService/managedClusters/apis/networking.k8s.io/read	Reads networking.k8s.io
Microsoft.ContainerService/managedClusters/apis/networking.k8s.io/v1/read	Reads networking/v1
Microsoft.ContainerService/managedClusters/apis/networking.k8s.io/v1beta1/read	Reads networking.k8s.io/v1beta1
Microsoft.ContainerService/managedClusters/apis/node.k8s.io/read	Reads node.k8s.io
Microsoft.ContainerService/managedClusters/apis/node.k8s.io/v1beta1/read	Reads node.k8s.io/v1beta1
Microsoft.ContainerService/managedClusters/apis/policy/read	Reads policy

ACTION	DESCRIPTION
Microsoft.ContainerService/managedClusters/apis/policy/v1beta1/read	Reads policy/v1beta1
Microsoft.ContainerService/managedClusters/apis/rbac.authorization.k8s.io/read	Reads rbac.authorization.k8s.io
Microsoft.ContainerService/managedClusters/apis/rbac.authorization.k8s.io/v1/read	Reads rbac.authorization/v1
Microsoft.ContainerService/managedClusters/apis/rbac.authorization.k8s.io/v1beta1/read	Reads rbac.authorization.k8s.io/v1beta1
Microsoft.ContainerService/managedClusters/apis/scheduling.k8s.io/read	Reads scheduling.k8s.io
Microsoft.ContainerService/managedClusters/apis/scheduling.k8s.io/v1/read	Reads scheduling/v1
Microsoft.ContainerService/managedClusters/apis/scheduling.k8s.io/v1beta1/read	Reads scheduling.k8s.io/v1beta1
Microsoft.ContainerService/managedClusters/apis/storage.k8s.io/read	Reads storage.k8s.io
Microsoft.ContainerService/managedClusters/apis/storage.k8s.io/v1/read	Reads storage/v1
Microsoft.ContainerService/managedClusters/apis/storage.k8s.io/v1beta1/read	Reads storage.k8s.io/v1beta1
Microsoft.ContainerService/managedClusters/apis/controllerrevisions/read	Reads controllerrevisions
Microsoft.ContainerService/managedClusters/apis/controllerrevisions/write	Writes controllerrevisions
Microsoft.ContainerService/managedClusters/apis/controllerrevisions/delete	Deletes controllerrevisions
Microsoft.ContainerService/managedClusters/apis/daemonsets/read	Reads daemonsets
Microsoft.ContainerService/managedClusters/apis/daemonsets/write	Writes daemonsets
Microsoft.ContainerService/managedClusters/apis/daemonsets/delete	Deletes daemonsets
Microsoft.ContainerService/managedClusters/apis/deployments/read	Reads deployments
Microsoft.ContainerService/managedClusters/apis/deployments/write	Writes deployments

ACTION	DESCRIPTION
Microsoft.ContainerService/managedClusters/apps/deployments/delete	Deletes deployments
Microsoft.ContainerService/managedClusters/apps/replicasets/read	Reads replicasets
Microsoft.ContainerService/managedClusters/apps/replicasets/write	Writes replicasets
Microsoft.ContainerService/managedClusters/apps/replicasets/delete	Deletes replicasets
Microsoft.ContainerService/managedClusters/apps/statefulsets/read	Reads statefulsets
Microsoft.ContainerService/managedClusters/apps/statefulsets/write	Writes statefulsets
Microsoft.ContainerService/managedClusters/apps/statefulsets/delete	Deletes statefulsets
Microsoft.ContainerService/managedClusters/authentication.k8s.io/tokenreviews/write	Writes tokenreviews
Microsoft.ContainerService/managedClusters/authentication.k8s.io/userextras/impersonate/action	Impersonate userextras
Microsoft.ContainerService/managedClusters/authorization.k8s.io/localsubjectaccessreviews/write	Writes localsubjectaccessreviews
Microsoft.ContainerService/managedClusters/authorization.k8s.io/selfsubjectaccessreviews/write	Writes selfsubjectaccessreviews
Microsoft.ContainerService/managedClusters/authorization.k8s.io/selfsubjectrulesreviews/write	Writes selfsubjectrulesreviews
Microsoft.ContainerService/managedClusters/authorization.k8s.io/subjectaccessreviews/write	Writes subjectaccessreviews
Microsoft.ContainerService/managedClusters/autoscaling/horizontalpodautoscalers/read	Reads horizontalpodautoscalers
Microsoft.ContainerService/managedClusters/autoscaling/horizontalpodautoscalers/write	Writes horizontalpodautoscalers
Microsoft.ContainerService/managedClusters/autoscaling/horizontalpodautoscalers/delete	Deletes horizontalpodautoscalers
Microsoft.ContainerService/managedClusters/batch/cronjobs/read	Reads cronjobs
Microsoft.ContainerService/managedClusters/batch/cronjobs/write	Writes cronjobs

ACTION	DESCRIPTION
Microsoft.ContainerService/managedClusters/batch/cronjobs /delete	Deletes cronjobs
Microsoft.ContainerService/managedClusters/batch/jobs/read	Reads jobs
Microsoft.ContainerService/managedClusters/batch/jobs/write	Writes jobs
Microsoft.ContainerService/managedClusters/batch/jobs/delete	Deletes jobs
Microsoft.ContainerService/managedClusters/bindings/write	Writes bindings
Microsoft.ContainerService/managedClusters/certificates.k8s.io/certificatesigningrequests/read	Reads certificatesigningrequests
Microsoft.ContainerService/managedClusters/certificates.k8s.io/certificatesigningrequests/write	Writes certificatesigningrequests
Microsoft.ContainerService/managedClusters/certificates.k8s.io/certificatesigningrequests/delete	Deletes certificatesigningrequests
Microsoft.ContainerService/managedClusters/componentstatuses/read	Reads componentstatuses
Microsoft.ContainerService/managedClusters/componentstatuses/write	Writes componentstatuses
Microsoft.ContainerService/managedClusters/componentstatuses/delete	Deletes componentstatuses
Microsoft.ContainerService/managedClusters/configmaps/read	Reads configmaps
Microsoft.ContainerService/managedClusters/configmaps/write	Writes configmaps
Microsoft.ContainerService/managedClusters/configmaps/delete	Deletes configmaps
Microsoft.ContainerService/managedClusters/coordination.k8s.io/leases/read	Reads leases
Microsoft.ContainerService/managedClusters/coordination.k8s.io/leases/write	Writes leases
Microsoft.ContainerService/managedClusters/coordination.k8s.io/leases/delete	Deletes leases
Microsoft.ContainerService/managedClusters/endpoints/read	Reads endpoints

ACTION	DESCRIPTION
Microsoft.ContainerService/managedClusters/endpoints/write	Writes endpoints
Microsoft.ContainerService/managedClusters/endpoints/delete	Deletes endpoints
Microsoft.ContainerService/managedClusters/events/read	Reads events
Microsoft.ContainerService/managedClusters/events/write	Writes events
Microsoft.ContainerService/managedClusters/events/delete	Deletes events
Microsoft.ContainerService/managedClusters/events.k8s.io/events/read	Reads events
Microsoft.ContainerService/managedClusters/events.k8s.io/events/write	Writes events
Microsoft.ContainerService/managedClusters/events.k8s.io/events/delete	Deletes events
Microsoft.ContainerService/managedClusters/extensions/daemonsets/read	Reads daemonsets
Microsoft.ContainerService/managedClusters/extensions/daemonsets/write	Writes daemonsets
Microsoft.ContainerService/managedClusters/extensions/daemonsets/delete	Deletes daemonsets
Microsoft.ContainerService/managedClusters/extensions/deployments/read	Reads deployments
Microsoft.ContainerService/managedClusters/extensions/deployments/write	Writes deployments
Microsoft.ContainerService/managedClusters/extensions/deployments/delete	Deletes deployments
Microsoft.ContainerService/managedClusters/extensions/ingresses/read	Reads ingresses
Microsoft.ContainerService/managedClusters/extensions/ingresses/write	Writes ingresses
Microsoft.ContainerService/managedClusters/extensions/ingresses/delete	Deletes ingresses
Microsoft.ContainerService/managedClusters/extensions/networkpolicies/read	Reads networkpolicies
Microsoft.ContainerService/managedClusters/extensions/networkpolicies/write	Writes networkpolicies

ACTION	DESCRIPTION
Microsoft.ContainerService/managedClusters/extensions/networkpolicies/delete	Deletes networkpolicies
Microsoft.ContainerService/managedClusters/extensions/podsecuritypolicies/read	Reads podsecuritypolicies
Microsoft.ContainerService/managedClusters/extensions/podsecuritypolicies/write	Writes podsecuritypolicies
Microsoft.ContainerService/managedClusters/extensions/podsecuritypolicies/delete	Deletes podsecuritypolicies
Microsoft.ContainerService/managedClusters/extensions/replicasets/read	Reads replicasets
Microsoft.ContainerService/managedClusters/extensions/replicasets/write	Writes replicasets
Microsoft.ContainerService/managedClusters/extensions/replicasets/delete	Deletes replicasets
Microsoft.ContainerService/managedClusters/groups/impersonate/action	Impersonate groups
Microsoft.ContainerService/managedClusters/healthz/read	Reads healthz
Microsoft.ContainerService/managedClusters/healthz/autoregister-completion/read	Reads autoregister-completion
Microsoft.ContainerService/managedClusters/healthz/etcd/read	Reads etcd
Microsoft.ContainerService/managedClusters/healthz/log/read	Reads log
Microsoft.ContainerService/managedClusters/healthz/ping/read	Reads ping
Microsoft.ContainerService/managedClusters/healthz/poststarthook/apiservice-openapi-controller/read	Reads apiservice-openapi-controller
Microsoft.ContainerService/managedClusters/healthz/poststarthook/apiservice-registration-controller/read	Reads apiservice-registration-controller
Microsoft.ContainerService/managedClusters/healthz/poststarthook/apiservice-status-available-controller/read	Reads apiservice-status-available-controller
Microsoft.ContainerService/managedClusters/healthz/poststarthook/bootstrap-controller/read	Reads bootstrap-controller
Microsoft.ContainerService/managedClusters/healthz/poststarthook/ca-registration/read	Reads ca-registration

ACTION	DESCRIPTION
Microsoft.ContainerService/managedClusters/healthz/poststarthook/crd-informer-synced/read	Reads crd-informer-synced
Microsoft.ContainerService/managedClusters/healthz/poststarthook/generic-apiserver-start-informers/read	Reads generic-apiserver-start-informers
Microsoft.ContainerService/managedClusters/healthz/poststarthook/kube-apiserver-autoregistration/read	Reads kube-apiserver-autoregistration
Microsoft.ContainerService/managedClusters/healthz/poststarthook/rbac/bootstrap-roles/read	Reads bootstrap-roles
Microsoft.ContainerService/managedClusters/healthz/poststarthook/scheduling/bootstrap-system-priority-classes/read	Reads bootstrap-system-priority-classes
Microsoft.ContainerService/managedClusters/healthz/poststarthook/start-apiextensions-controllers/read	Reads start-apiextensions-controllers
Microsoft.ContainerService/managedClusters/healthz/poststarthook/start-apiextensions-informers/read	Reads start-apiextensions-informers
Microsoft.ContainerService/managedClusters/healthz/poststarthook/start-kube-aggregator-informers/read	Reads start-kube-aggregator-informers
Microsoft.ContainerService/managedClusters/healthz/poststarthook/start-kube-apiserver-admission-initializer/read	Reads start-kube-apiserver-admission-initializer
Microsoft.ContainerService/managedClusters/limitranges/read	Reads limitranges
Microsoft.ContainerService/managedClusters/limitranges/write	Writes limitranges
Microsoft.ContainerService/managedClusters/limitranges/delete	Deletes limitranges
Microsoft.ContainerService/managedClusters/livez/read	Reads livez
Microsoft.ContainerService/managedClusters/livez/autoregister-completion/read	Reads autoregister-completion
Microsoft.ContainerService/managedClusters/livez/etcd/read	Reads etcd
Microsoft.ContainerService/managedClusters/livez/log/read	Reads log
Microsoft.ContainerService/managedClusters/livez/ping/read	Reads ping
Microsoft.ContainerService/managedClusters/livez/poststarthook/apiservice-openapi-controller/read	Reads apiservice-openapi-controller
Microsoft.ContainerService/managedClusters/livez/poststarthook/apiservice-registration-controller/read	Reads apiservice-registration-controller

ACTION	DESCRIPTION
Microsoft.ContainerService/managedClusters/livez/poststart hook/apiservice-status-available-controller/read	Reads apiservice-status-available-controller
Microsoft.ContainerService/managedClusters/livez/poststart hook/bootstrap-controller/read	Reads bootstrap-controller
Microsoft.ContainerService/managedClusters/livez/poststart hook/ca-registration/read	Reads ca-registration
Microsoft.ContainerService/managedClusters/livez/poststart hook/crd-informer-synced/read	Reads crd-informer-synced
Microsoft.ContainerService/managedClusters/livez/poststart hook/generic-apiserver-start-informers/read	Reads generic-apiserver-start-informers
Microsoft.ContainerService/managedClusters/livez/poststart hook/kube-apiserver-autoregistration/read	Reads kube-apiserver-autoregistration
Microsoft.ContainerService/managedClusters/livez/poststart hook/rbac/bootstrap-roles/read	Reads bootstrap-roles
Microsoft.ContainerService/managedClusters/livez/poststart hook/scheduling/bootstrap-system-priority-classes/read	Reads bootstrap-system-priority-classes
Microsoft.ContainerService/managedClusters/livez/poststart hook/start-apisextensions-controllers/read	Reads start-apisextensions-controllers
Microsoft.ContainerService/managedClusters/livez/poststart hook/start-apisextensions-informers/read	Reads start-apisextensions-informers
Microsoft.ContainerService/managedClusters/livez/poststart hook/start-kube-aggregator-informers/read	Reads start-kube-aggregator-informers
Microsoft.ContainerService/managedClusters/livez/poststart hook/start-kube-apiserver-admission-initializer/read	Reads start-kube-apiserver-admission-initializer
Microsoft.ContainerService/managedClusters/logs/read	Reads logs
Microsoft.ContainerService/managedClusters/metrics/read	Reads metrics
Microsoft.ContainerService/managedClusters/metrics.k8s.io/nodes/read	Reads nodes
Microsoft.ContainerService/managedClusters/metrics.k8s.io/pods/read	Reads pods
Microsoft.ContainerService/managedClusters/namespaces/read	Reads namespaces
Microsoft.ContainerService/managedClusters/namespaces/write	Writes namespaces

ACTION	DESCRIPTION
Microsoft.ContainerService/managedClusters/namespaces/delete	Deletes namespaces
Microsoft.ContainerService/managedClusters/networking.k8s.io/ingresses/read	Reads ingresses
Microsoft.ContainerService/managedClusters/networking.k8s.io/ingresses/write	Writes ingresses
Microsoft.ContainerService/managedClusters/networking.k8s.io/ingresses/delete	Deletes ingresses
Microsoft.ContainerService/managedClusters/networking.k8s.io/networkpolicies/read	Reads networkpolicies
Microsoft.ContainerService/managedClusters/networking.k8s.io/networkpolicies/write	Writes networkpolicies
Microsoft.ContainerService/managedClusters/networking.k8s.io/networkpolicies/delete	Deletes networkpolicies
Microsoft.ContainerService/managedClusters/node.k8s.io/runtimeclasses/read	Reads runtimeclasses
Microsoft.ContainerService/managedClusters/node.k8s.io/runtimeclasses/write	Writes runtimeclasses
Microsoft.ContainerService/managedClusters/node.k8s.io/runtimeclasses/delete	Deletes runtimeclasses
Microsoft.ContainerService/managedClusters/nodes/read	Reads nodes
Microsoft.ContainerService/managedClusters/nodes/write	Writes nodes
Microsoft.ContainerService/managedClusters/nodes/delete	Deletes nodes
Microsoft.ContainerService/managedClusters/openapi/v2/read	Reads v2
Microsoft.ContainerService/managedClusters/persistentvolumeclaims/read	Reads persistentvolumeclaims
Microsoft.ContainerService/managedClusters/persistentvolumeclaims/write	Writes persistentvolumeclaims
Microsoft.ContainerService/managedClusters/persistentvolumeclaims/delete	Deletes persistentvolumeclaims
Microsoft.ContainerService/managedClusters/persistentvolumes/read	Reads persistentvolumes
Microsoft.ContainerService/managedClusters/persistentvolumes/write	Writes persistentvolumes

ACTION	DESCRIPTION
Microsoft.ContainerService/managedClusters/persistentvolumes/delete	Deletes persistentvolumes
Microsoft.ContainerService/managedClusters/pods/read	Reads pods
Microsoft.ContainerService/managedClusters/pods/write	Writes pods
Microsoft.ContainerService/managedClusters/pods/delete	Deletes pods
Microsoft.ContainerService/managedClusters/podtemplates/read	Reads podtemplates
Microsoft.ContainerService/managedClusters/podtemplates/write	Writes podtemplates
Microsoft.ContainerService/managedClusters/podtemplates/delete	Deletes podtemplates
Microsoft.ContainerService/managedClusters/policy/poddisruptionbudgets/read	Reads poddisruptionbudgets
Microsoft.ContainerService/managedClusters/policy/poddisruptionbudgets/write	Writes poddisruptionbudgets
Microsoft.ContainerService/managedClusters/policy/poddisruptionbudgets/delete	Deletes poddisruptionbudgets
Microsoft.ContainerService/managedClusters/policy/podsecuritypolicies/read	Reads podsecuritypolicies
Microsoft.ContainerService/managedClusters/policy/podsecuritypolicies/write	Writes podsecuritypolicies
Microsoft.ContainerService/managedClusters/policy/podsecuritypolicies/delete	Deletes podsecuritypolicies
Microsoft.ContainerService/managedClusters/policy/podsecuritypolicies/use/action	Use action on podsecuritypolicies
Microsoft.ContainerService/managedClusters/rbac.authorization.k8s.io/clusterrolebindings/read	Reads clusterrolebindings
Microsoft.ContainerService/managedClusters/rbac.authorization.k8s.io/clusterrolebindings/write	Writes clusterrolebindings
Microsoft.ContainerService/managedClusters/rbac.authorization.k8s.io/clusterrolebindings/delete	Deletes clusterrolebindings
Microsoft.ContainerService/managedClusters/rbac.authorization.k8s.io/clusterroles/read	Reads clusterroles
Microsoft.ContainerService/managedClusters/rbac.authorization.k8s.io/clusterroles/write	Writes clusterroles

ACTION	DESCRIPTION
Microsoft.ContainerService/managedClusters/rbac.authorization.k8s.io/clusterroles/delete	Deletes clusterroles
Microsoft.ContainerService/managedClusters/rbac.authorization.k8s.io/clusterroles/bind/action	Binds clusterroles
Microsoft.ContainerService/managedClusters/rbac.authorization.k8s.io/clusterroles/escalate/action	Escalates
Microsoft.ContainerService/managedClusters/rbac.authorization.k8s.io/rolebindings/read	Reads rolebindings
Microsoft.ContainerService/managedClusters/rbac.authorization.k8s.io/rolebindings/write	Writes rolebindings
Microsoft.ContainerService/managedClusters/rbac.authorization.k8s.io/rolebindings/delete	Deletes rolebindings
Microsoft.ContainerService/managedClusters/rbac.authorization.k8s.io/roles/read	Reads roles
Microsoft.ContainerService/managedClusters/rbac.authorization.k8s.io/roles/write	Writes roles
Microsoft.ContainerService/managedClusters/rbac.authorization.k8s.io/roles/delete	Deletes roles
Microsoft.ContainerService/managedClusters/rbac.authorization.k8s.io/roles/bind/action	Binds roles
Microsoft.ContainerService/managedClusters/rbac.authorization.k8s.io/roles/escalate/action	Escalates roles
Microsoft.ContainerService/managedClusters/readyz/read	Reads readyz
Microsoft.ContainerService/managedClusters/readyz/autoregister-completion/read	Reads autoregister-completion
Microsoft.ContainerService/managedClusters/readyz/etcdd/read	Reads etcdd
Microsoft.ContainerService/managedClusters/readyz/log/read	Reads log
Microsoft.ContainerService/managedClusters/readyz/ping/read	Reads ping
Microsoft.ContainerService/managedClusters/readyz/postststhread/apiservice-openapi-controller/read	Reads apiservice-openapi-controller
Microsoft.ContainerService/managedClusters/readyz/postststhread/apiservice-registration-controller/read	Reads apiservice-registration-controller

ACTION	DESCRIPTION
Microsoft.ContainerService/managedClusters/readyz/poststarrhook/apiservice-status-available-controller/read	Reads apiservice-status-available-controller
Microsoft.ContainerService/managedClusters/readyz/poststarrhook/bootstrap-controller/read	Reads bootstrap-controller
Microsoft.ContainerService/managedClusters/readyz/poststarrhook/ca-registration/read	Reads ca-registration
Microsoft.ContainerService/managedClusters/readyz/poststarrhook/crd-informer-synced/read	Reads crd-informer-synced
Microsoft.ContainerService/managedClusters/readyz/poststarrhook/generic-apiserver-start-informers/read	Reads generic-apiserver-start-informers
Microsoft.ContainerService/managedClusters/readyz/poststarrhook/kube-apiserver-autoregistration/read	Reads kube-apiserver-autoregistration
Microsoft.ContainerService/managedClusters/readyz/poststarrhook/rbac/bootstrap-roles/read	Reads bootstrap-roles
Microsoft.ContainerService/managedClusters/readyz/poststarrhook/scheduling/bootstrap-system-priority-classes/read	Reads bootstrap-system-priority-classes
Microsoft.ContainerService/managedClusters/readyz/poststarrhook/start-apiextensions-controllers/read	Reads start-apiextensions-controllers
Microsoft.ContainerService/managedClusters/readyz/poststarrhook/start-apiextensions-informers/read	Reads start-apiextensions-informers
Microsoft.ContainerService/managedClusters/readyz/poststarrhook/start-kube-aggregator-informers/read	Reads start-kube-aggregator-informers
Microsoft.ContainerService/managedClusters/readyz/poststarrhook/start-kube-apiserver-admission-initializer/read	Reads start-kube-apiserver-admission-initializer
Microsoft.ContainerService/managedClusters/readyz/shutdown/read	Reads shutdown
Microsoft.ContainerService/managedClusters/replicationcontrollers/read	Reads replicationcontrollers
Microsoft.ContainerService/managedClusters/replicationcontrollers/write	Writes replicationcontrollers
Microsoft.ContainerService/managedClusters/replicationcontrollers/delete	Deletes replicationcontrollers
Microsoft.ContainerService/managedClusters/resetMetrics/read	Reads resetMetrics
Microsoft.ContainerService/managedClusters/resourcequotas/read	Reads resourcequotas

ACTION	DESCRIPTION
Microsoft.ContainerService/managedClusters/resourcequotas/write	Writes resourcequotas
Microsoft.ContainerService/managedClusters/resourcequotas/delete	Deletes resourcequotas
Microsoft.ContainerService/managedClusters/scheduling.k8s.io/priorityclasses/read	Reads priorityclasses
Microsoft.ContainerService/managedClusters/scheduling.k8s.io/priorityclasses/write	Writes priorityclasses
Microsoft.ContainerService/managedClusters/scheduling.k8s.io/priorityclasses/delete	Deletes priorityclasses
Microsoft.ContainerService/managedClusters/secrets/read	Reads secrets
Microsoft.ContainerService/managedClusters/secrets/write	Writes secrets
Microsoft.ContainerService/managedClusters/secrets/delete	Deletes secrets
Microsoft.ContainerService/managedClusters/serviceaccounts/read	Reads serviceaccounts
Microsoft.ContainerService/managedClusters/serviceaccounts/write	Writes serviceaccounts
Microsoft.ContainerService/managedClusters/serviceaccounts/delete	Deletes serviceaccounts
Microsoft.ContainerService/managedClusters/serviceaccounts/impersonate/action	Impersonate serviceaccounts
Microsoft.ContainerService/managedClusters/services/read	Reads services
Microsoft.ContainerService/managedClusters/services/write	Writes services
Microsoft.ContainerService/managedClusters/services/delete	Deletes services
Microsoft.ContainerService/managedClusters/storage.k8s.io/csidrivers/read	Reads csidrivers
Microsoft.ContainerService/managedClusters/storage.k8s.io/csidrivers/write	Writes csidrivers
Microsoft.ContainerService/managedClusters/storage.k8s.io/csidrivers/delete	Deletes csidrivers
Microsoft.ContainerService/managedClusters/storage.k8s.io/csinodes/read	Reads csinodes
Microsoft.ContainerService/managedClusters/storage.k8s.io/csinodes/write	Writes csinodes

ACTION	DESCRIPTION
Microsoft.ContainerService/managedClusters/storage.k8s.io/csinodes/delete	Deletes csinodes
Microsoft.ContainerService/managedClusters/storage.k8s.io/storageclasses/read	Reads storageclasses
Microsoft.ContainerService/managedClusters/storage.k8s.io/storageclasses/write	Writes storageclasses
Microsoft.ContainerService/managedClusters/storage.k8s.io/storageclasses/delete	Deletes storageclasses
Microsoft.ContainerService/managedClusters/storage.k8s.io/volumeattachments/read	Reads volumeattachments
Microsoft.ContainerService/managedClusters/storage.k8s.io/volumeattachments/write	Writes volumeattachments
Microsoft.ContainerService/managedClusters/storage.k8s.io/volumeattachments/delete	Deletes volumeattachments
Microsoft.ContainerService/managedClusters/swagger-api/read	Reads swagger-api
Microsoft.ContainerService/managedClusters/swagger-ui/read	Reads swagger-ui
Microsoft.ContainerService/managedClusters/ui/read	Reads ui
Microsoft.ContainerService/managedClusters/users/impersonate/action	Impersonate users
Microsoft.ContainerService/managedClusters/version/read	Reads version

## Microsoft.DevSpaces

Azure service: [Azure Dev Spaces](#)

ACTION	DESCRIPTION
Microsoft.DevSpaces/register/action	Register Microsoft Dev Spaces resource provider with a subscription
Microsoft.DevSpaces/controllers/read	Read Azure Dev Spaces Controller properties
Microsoft.DevSpaces/controllers/write	Create or Update Azure Dev Spaces Controller properties
Microsoft.DevSpaces/controllers/delete	Delete Azure Dev Spaces Controller and dataplane services
Microsoft.DevSpaces/controllers/listConnectionDetails/action	List connection details for the Azure Dev Spaces Controller's infrastructure

ACTION	DESCRIPTION
Microsoft.DevSpaces/locations/checkContainerHostMapping /action	Check existing controller mapping for a container host
Microsoft.DevSpaces/locations/checkContainerHostMapping /read	Check existing controller mapping for a container host
Microsoft.DevSpaces/locations/operationresults/read	Read result of an asynchronous operation
Microsoft.DevSpaces/operations/read	List all the supported operations for Microsoft Dev Spaces resource provider

## Databases

### Microsoft.Cache

Azure service: [Azure Cache for Redis](#)

ACTION	DESCRIPTION
Microsoft.Cache/checknameavailability/action	Checks if a name is available for use with a new Redis Cache
Microsoft.Cache/register/action	Registers the 'Microsoft.Cache' resource provider with a subscription
Microsoft.Cache/unregister/action	Unregisters the 'Microsoft.Cache' resource provider with a subscription
Microsoft.Cache/locations/asyncOperations/read	Lists the operations that 'Microsoft.Cache' provider supports.
Microsoft.Cache/locations/operationresults/read	Gets the result of a long running operation for which the 'Location' header was previously returned to the client
Microsoft.Cache/operations/read	Lists the operations that 'Microsoft.Cache' provider supports.
Microsoft.Cache/redis/write	Modify the Redis Cache's settings and configuration in the management portal
Microsoft.Cache/redis/read	View the Redis Cache's settings and configuration in the management portal
Microsoft.Cache/redis/delete	Delete the entire Redis Cache
Microsoft.Cache/redis/listKeys/action	View the value of Redis Cache access keys in the management portal
Microsoft.Cache/redis/regenerateKey/action	Change the value of Redis Cache access keys in the management portal
Microsoft.Cache/redis/import/action	Import data of a specified format from multiple blobs into Redis

ACTION	DESCRIPTION
Microsoft.Cache/redis/export/action	Export Redis data to prefixed storage blobs in specified format
Microsoft.Cache/redis/forceReboot/action	Force reboot a cache instance, potentially with data loss.
Microsoft.Cache/redis/stop/action	Stop a cache instance.
Microsoft.Cache/redis/start/action	Start a cache instance.
Microsoft.Cache/redis/eventGridFilters/read	Get Redis Cache Event Grid Filter
Microsoft.Cache/redis/eventGridFilters/write	Update Redis Cache Event Grid Filters
Microsoft.Cache/redis/eventGridFilters/delete	Delete Redis Cache Event Grid Filters
Microsoft.Cache/redis/firewallRules/read	Get the IP firewall rules of a Redis Cache
Microsoft.Cache/redis/firewallRules/write	Edit the IP firewall rules of a Redis Cache
Microsoft.Cache/redis/firewallRules/delete	Delete IP firewall rules of a Redis Cache
Microsoft.Cache/redis/linkedservers/read	Get Linked Servers associated with a redis cache.
Microsoft.Cache/redis/linkedservers/write	Add Linked Server to a Redis Cache
Microsoft.Cache/redis/linkedservers/delete	Delete Linked Server from a Redis Cache
Microsoft.Cache/redis/metricDefinitions/read	Gets the available metrics for a Redis Cache
Microsoft.Cache/redis/patchSchedules/read	Gets the patching schedule of a Redis Cache
Microsoft.Cache/redis/patchSchedules/write	Modify the patching schedule of a Redis Cache
Microsoft.Cache/redis/patchSchedules/delete	Delete the patch schedule of a Redis Cache
Microsoft.Cache/redis/privateEndpointConnectionProxies/validate/action	Validate the private endpoint connection proxy
Microsoft.Cache/redis/privateEndpointConnectionProxies/read	Get the private endpoint connection proxy
Microsoft.Cache/redis/privateEndpointConnectionProxies/write	Create the private endpoint connection proxy
Microsoft.Cache/redis/privateEndpointConnectionProxies/delete	Delete the private endpoint connection proxy
Microsoft.Cache/redis/privateEndpointConnections/read	Read a private endpoint connection
Microsoft.Cache/redis/privateEndpointConnections/write	Write a private endpoint connection

ACTION	DESCRIPTION
Microsoft.Cache/redis/privateEndpointConnections/delete	Delete a private endpoint connection
Microsoft.Cache/redis/privateLinkResources/read	Read 'groupId' of redis subresource that a private link can be connected to
Microsoft.Cache/redisEnterprise/providers/Microsoft.Insights/metricDefinitions/read	Gets the available metrics for a Redis Enterprise Cache

## Microsoft.DataFactory

Azure service: [Data Factory](#)

ACTION	DESCRIPTION
Microsoft.DataFactory/register/action	Registers the subscription for the Data Factory Resource Provider.
Microsoft.DataFactory/unregister/action	Unregisters the subscription for the Data Factory Resource Provider.
Microsoft.DataFactory/checkazuredatfactorynameavailability/read	Checks if the Data Factory Name is available to use.
Microsoft.DataFactory/datafactories/read	Reads the Data Factory.
Microsoft.DataFactory/datafactories/write	Creates or Updates the Data Factory.
Microsoft.DataFactory/datafactories/delete	Deletes the Data Factory.
Microsoft.DataFactory/datafactories/activitywindows/read	Reads Activity Windows in the Data Factory with specified parameters.
Microsoft.DataFactory/datafactories/datapipelines/read	Reads any Pipeline.
Microsoft.DataFactory/datafactories/datapipelines/delete	Deletes any Pipeline.
Microsoft.DataFactory/datafactories/datapipelines/pause/activation	Pauses any Pipeline.
Microsoft.DataFactory/datafactories/datapipelines/resume/activation	Resumes any Pipeline.
Microsoft.DataFactory/datafactories/datapipelines/update/activation	Updates any Pipeline.
Microsoft.DataFactory/datafactories/datapipelines/write	Creates or Updates any Pipeline.
Microsoft.DataFactory/datafactories/datapipelines/activities/activitywindows/read	Reads Activity Windows for the Pipeline Activity with specified parameters.
Microsoft.DataFactory/datafactories/datapipelines/activitywindows/read	Reads Activity Windows for the Pipeline with specified parameters.

ACTION	DESCRIPTION
Microsoft.DataFactory/datafactories/datasets/read	Reads any Dataset.
Microsoft.DataFactory/datafactories/datasets/delete	Deletes any Dataset.
Microsoft.DataFactory/datafactories/datasets/write	Creates or Updates any Dataset.
Microsoft.DataFactory/datafactories/datasets/activitywindows/read	Reads Activity Windows for the Dataset with specified parameters.
Microsoft.DataFactory/datafactories/datasets/sliceruns/read	Reads the Data Slice Run for the given dataset with the given start time.
Microsoft.DataFactory/datafactories/datasets/slices/read	Gets the Data Slices in the given period.
Microsoft.DataFactory/datafactories/datasets/slices/write	Update the Status of the Data Slice.
Microsoft.DataFactory/datafactories/gateways/read	Reads any Gateway.
Microsoft.DataFactory/datafactories/gateways/write	Creates or Updates any Gateway.
Microsoft.DataFactory/datafactories/gateways/delete	Deletes any Gateway.
Microsoft.DataFactory/datafactories/gateways/connectioninfo/action	Reads the Connection Info for any Gateway.
Microsoft.DataFactory/datafactories/gateways/listauthkeys/action	Lists the Authentication Keys for any Gateway.
Microsoft.DataFactory/datafactories/gateways/regenerateauthkey/action	Regenerates the Authentication Keys for any Gateway.
Microsoft.DataFactory/datafactories/linkedServices/read	Reads any Linked Service.
Microsoft.DataFactory/datafactories/linkedServices/delete	Deletes any Linked Service.
Microsoft.DataFactory/datafactories/linkedServices/write	Creates or Updates any Linked Service.
Microsoft.DataFactory/datafactories/runs/loginfo/read	Reads a SAS URI to a blob container containing the logs.
Microsoft.DataFactory/datafactories/tables/read	Reads any Dataset.
Microsoft.DataFactory/datafactories/tables/delete	Deletes any Dataset.
Microsoft.DataFactory/datafactories/tables/write	Creates or Updates any Dataset.
Microsoft.DataFactory/factories/read	Reads Data Factory.
Microsoft.DataFactory/factories/write	Create or Update Data Factory
Microsoft.DataFactory/factories/delete	Deletes Data Factory.

ACTION	DESCRIPTION
Microsoft.DataFactory/factories/createdataflowdebugsession /action	Creates a Data Flow debug session.
Microsoft.DataFactory/factories/startdataflowdebugsession/a ction	Starts a Data Flow debug session.
Microsoft.DataFactory/factories/addDataFlowToDebugSessio n/action	Add Data Flow to debug session for preview.
Microsoft.DataFactory/factories/executeDataFlowDebugCom mand/action	Execute Data Flow debug command.
Microsoft.DataFactory/factories/deletedataflowdebugsession /action	Deletes a Data Flow debug session.
Microsoft.DataFactory/factories/querydataflowdebugsessions /action	Queries a Data Flow debug session.
Microsoft.DataFactory/factories/cancelpipelinerun/action	Cancels the pipeline run specified by the run ID.
Microsoft.DataFactory/factories/cancelSandboxPipelineRun/a ction	Cancels a debug run for the Pipeline.
Microsoft.DataFactory/factories/sandboxpipelineruns/action	Queries the Debug Pipeline Runs.
Microsoft.DataFactory/factories/querytriggers/action	Queries the Triggers.
Microsoft.DataFactory/factories/getFeatureValue/action	Get exposure control feature value for the specific location.
Microsoft.DataFactory/factories/getDataPlaneAccess/action	Gets access to ADF DataPlane service.
Microsoft.DataFactory/factories/getGitHubAccessToken/actio n	Gets GitHub access token.
Microsoft.DataFactory/factories/querytriggerruns/action	Queries the Trigger Runs.
Microsoft.DataFactory/factories/querypipelineruns/action	Queries the Pipeline Runs.
Microsoft.DataFactory/factories/querydebugpipelineruns/acti on	Queries the Debug Pipeline Runs.
Microsoft.DataFactory/factories/dataflows/read	Reads Data Flow.
Microsoft.DataFactory/factories/dataflows/delete	Deletes Data Flow.
Microsoft.DataFactory/factories/dataflows/write	Create or update Data Flow
Microsoft.DataFactory/factories/datasets/read	Reads any Dataset.
Microsoft.DataFactory/factories/datasets/delete	Deletes any Dataset.
Microsoft.DataFactory/factories/datasets/write	Creates or Updates any Dataset.

ACTION	DESCRIPTION
Microsoft.DataFactory/factories/debugpipelinruns/cancel/action	Cancels a debug run for the Pipeline.
Microsoft.DataFactory/factories/getDataPlaneAccess/read	Reads access to ADF DataPlane service.
Microsoft.DataFactory/factories/getFeatureValue/read	Reads exposure control feature value for the specific location.
Microsoft.DataFactory/factories/integrationruntimes/read	Reads any Integration Runtime.
Microsoft.DataFactory/factories/integrationruntimes/write	Creates or Updates any Integration Runtime.
Microsoft.DataFactory/factories/integrationruntimes/delete	Deletes any Integration Runtime.
Microsoft.DataFactory/factories/integrationruntimes/start/action	Starts any Integration Runtime.
Microsoft.DataFactory/factories/integrationruntimes/stop/action	Stops any Integration Runtime.
Microsoft.DataFactory/factories/integrationruntimes/synccredentials/action	Syncs the Credentials for the specified Integration Runtime.
Microsoft.DataFactory/factories/integrationruntimes/upgrade/action	Upgrades the specified Integration Runtime.
Microsoft.DataFactory/factories/integrationruntimes/createexpresssshirinstalllink/action	Create express install link for self hosted Integration Runtime.
Microsoft.DataFactory/factories/integrationruntimes/regenerateauthkey/action	Regenerates the Authentication Keys for the specified Integration Runtime.
Microsoft.DataFactory/factories/integrationruntimes/removelinks/action	Removes Linked Integration Runtime References from the specified Integration Runtime.
Microsoft.DataFactory/factories/integrationruntimes/linkedIntegrationRuntime/action	Create Linked Integration Runtime Reference on the Specified Shared Integration Runtime.
Microsoft.DataFactory/factories/integrationruntimes/getObjectMetadata/action	Get SSIS Integration Runtime metadata for the specified Integration Runtime.
Microsoft.DataFactory/factories/integrationruntimes/refreshObjectMetadata/action	Refresh SSIS Integration Runtime metadata for the specified Integration Runtime.
Microsoft.DataFactory/factories/integrationruntimes/getconnectioninfo/read	Reads Integration Runtime Connection Info.
Microsoft.DataFactory/factories/integrationruntimes/getstatus/read	Reads Integration Runtime Status.
Microsoft.DataFactory/factories/integrationruntimes/listauthkeys/read	Lists the Authentication Keys for any Integration Runtime.

ACTION	DESCRIPTION
Microsoft.DataFactory/factories/integrationruntimes/monitoringdata/read	Gets the Monitoring Data for any Integration Runtime.
Microsoft.DataFactory/factories/integrationruntimes/nodes/read	Reads the Node for the specified Integration Runtime.
Microsoft.DataFactory/factories/integrationruntimes/nodes/delete	Deletes the Node for the specified Integration Runtime.
Microsoft.DataFactory/factories/integrationruntimes/nodes/write	Updates a self-hosted Integration Runtime Node.
Microsoft.DataFactory/factories/integrationruntimes/nodes/ipAddress/action	Returns the IP Address for the specified node of the Integration Runtime.
Microsoft.DataFactory/factories/linkedServices/read	Reads Linked Service.
Microsoft.DataFactory/factories/linkedServices/delete	Deletes Linked Service.
Microsoft.DataFactory/factories/linkedServices/write	Create or Update Linked Service
Microsoft.DataFactory/factories/operationResults/read	Gets operation results.
Microsoft.DataFactory/factories/pipelineruns/read	Reads the Pipeline Runs.
Microsoft.DataFactory/factories/pipelineruns/cancel/action	Cancels the pipeline run specified by the run ID.
Microsoft.DataFactory/factories/pipelineruns/queryactivityruns/action	Queries the activity runs for the specified pipeline run ID.
Microsoft.DataFactory/factories/pipelineruns/activityruns/read	Reads the activity runs for the specified pipeline run ID.
Microsoft.DataFactory/factories/pipelineruns/queryactivityruns/read	Reads the result of query activity runs for the specified pipeline run ID.
Microsoft.DataFactory/factories/pipelines/read	Reads Pipeline.
Microsoft.DataFactory/factories/pipelines/delete	Deletes Pipeline.
Microsoft.DataFactory/factories/pipelines/write	Create or Update Pipeline
Microsoft.DataFactory/factories/pipelines/createrun/action	Creates a run for the Pipeline.
Microsoft.DataFactory/factories/pipelines/sandbox/action	Creates a debug run environment for the Pipeline.
Microsoft.DataFactory/factories/pipelines/pipelineruns/read	Reads the Pipeline Run.
Microsoft.DataFactory/factories/pipelines/pipelineruns/activityruns/progress/read	Gets the Progress of Activity Runs.

ACTION	DESCRIPTION
Microsoft.DataFactory/factories/pipelines/sandbox/create/action	Creates a debug run environment for the Pipeline.
Microsoft.DataFactory/factories/pipelines/sandbox/run/action	Creates a debug run for the Pipeline.
Microsoft.DataFactory/factories/privateEndpointConnectionProxies/read	Read Private Endpoint Connection Proxy.
Microsoft.DataFactory/factories/privateEndpointConnectionProxies/write	Create or Update private Endpoint Connection Proxy.
Microsoft.DataFactory/factories/privateEndpointConnectionProxies/delete	Delete Private Endpoint Connection Proxy.
Microsoft.DataFactory/factories/privateEndpointConnectionProxies/validate/action	Validate a Private Endpoint Connection Proxy.
Microsoft.DataFactory/factories/privateEndpointConnectionProxies/operationresults/read	Read the results of creating a Private Endpoint Connection Proxy.
Microsoft.DataFactory/factories/privateEndpointConnectionProxies/operationstatuses/read	Read the status of creating a Private Endpoint Connection Proxy.
Microsoft.DataFactory/factories/querypipelineruns/read	Reads the Result of Query Pipeline Runs.
Microsoft.DataFactory/factories/querytriggerruns/read	Reads the Result of Trigger Runs.
Microsoft.DataFactory/factories/sandboxpipelineruns/read	Gets the debug run info for the Pipeline.
Microsoft.DataFactory/factories/sandboxpipelineruns/sandboxActivityRuns/read	Gets the debug run info for the Activity.
Microsoft.DataFactory/factories/triggerruns/read	Reads the Trigger Runs.
Microsoft.DataFactory/factories/triggers/read	Reads any Trigger.
Microsoft.DataFactory/factories/triggers/write	Creates or Updates any Trigger.
Microsoft.DataFactory/factories/triggers/delete	Deletes any Trigger.
Microsoft.DataFactory/factories/triggers/subscribetoevents/action	Subscribe to Events.
Microsoft.DataFactory/factories/triggers/geteventssubscriptionstatus/action	Event Subscription Status.
Microsoft.DataFactory/factories/triggers/unsubscribefromevents/action	Unsubscribe from Events.
Microsoft.DataFactory/factories/triggers/start/action	Starts any Trigger.

ACTION	DESCRIPTION
Microsoft.DataFactory/factories/triggers/stop/action	Stops any Trigger.
Microsoft.DataFactory/factories/triggers/triggerruns/read	Reads the Trigger Runs.
Microsoft.DataFactory/locations/configureFactoryRepo/action	Configures the repository for the factory.
Microsoft.DataFactory/locations/getFeatureValue/action	Get exposure control feature value for the specific location.
Microsoft.DataFactory/locations/getFeatureValue/read	Reads exposure control feature value for the specific location.
Microsoft.DataFactory/operations/read	Reads all Operations in Microsoft Data Factory Provider.

## Microsoft.DataMigration

Azure service: [Azure Database Migration Service](#)

ACTION	DESCRIPTION
Microsoft.DataMigration/register/action	Registers the subscription with the Azure Database Migration Service provider
Microsoft.DataMigration/locations/operationResults/read	Get the status of a long-running operation related to a 202 Accepted response
Microsoft.DataMigration/locations/operationStatuses/read	Get the status of a long-running operation related to a 202 Accepted response
Microsoft.DataMigration/services/read	Read information about resources
Microsoft.DataMigration/services/write	Create or update resources and their properties
Microsoft.DataMigration/services/delete	Deletes a resource and all of its children
Microsoft.DataMigration/services/stop/action	Stop the DMS service to minimize its cost
Microsoft.DataMigration/services/start/action	Start the DMS service to allow it to process migrations again
Microsoft.DataMigration/services/checkStatus/action	Check whether the service is deployed and running
Microsoft.DataMigration/services/configureWorker/action	Configures a DMS worker to the Service's available workers
Microsoft.DataMigration/services/addWorker/action	Adds a DMS worker to the Service's available workers
Microsoft.DataMigration/services/removeWorker/action	Removes a DMS worker to the Service's available workers
Microsoft.DataMigration/services/updateAgentConfig/action	Updates DMS agent configuration with provided values.
Microsoft.DataMigration/services/getHybridDownloadLink/action	Gets a DMS worker package download link from RP Blob Storage.
Microsoft.DataMigration/services/projects/read	Read information about resources

ACTION	DESCRIPTION
Microsoft.DataMigration/services/projects/write	Run tasks Azure Database Migration Service tasks
Microsoft.DataMigration/services/projects/delete	Deletes a resource and all of its children
Microsoft.DataMigration/services/projects/accessArtifacts/action	Generate a URL that can be used to GET or PUT project artifacts
Microsoft.DataMigration/services/projects/tasks/read	Read information about resources
Microsoft.DataMigration/services/projects/tasks/write	Run tasks Azure Database Migration Service tasks
Microsoft.DataMigration/services/projects/tasks/delete	Deletes a resource and all of its children
Microsoft.DataMigration/services/projects/tasks/cancel/action	Cancel the task if it's currently running
Microsoft.DataMigration/services/serviceTasks/read	Read information about resources
Microsoft.DataMigration/services/serviceTasks/write	Run tasks Azure Database Migration Service tasks
Microsoft.DataMigration/services/serviceTasks/delete	Deletes a resource and all of its children
Microsoft.DataMigration/services/serviceTasks/cancel/action	Cancel the task if it's currently running
Microsoft.DataMigration/services/slots/read	Read information about resources
Microsoft.DataMigration/services/slots/write	Create or update resources and their properties
Microsoft.DataMigration/services/slots/delete	Deletes a resource and all of its children
Microsoft.DataMigration/skus/read	Get a list of SKUs supported by DMS resources.

## Microsoft.DBforMariaDB

Azure service: [Azure Database for MariaDB](#)

ACTION	DESCRIPTION
Microsoft.DBforMariaDB/register/action	Register MariaDB Resource Provider
Microsoft.DBforMariaDB/checkNameAvailability/action	Verify whether given server name is available for provisioning worldwide for a given subscription.
Microsoft.DBforMariaDB/locations/administratorAzureAsyncOperation/read	Gets in-progress operations on MariaDB server administrators
Microsoft.DBforMariaDB/locations/administratorOperationResults/read	Return MariaDB Server administrator operation results
Microsoft.DBforMariaDB/locations/azureAsyncOperation/read	Return MariaDB Server Operation Results

ACTION	DESCRIPTION
Microsoft.DBforMariaDB/locations/operationResults/read	Return ResourceGroup based MariaDB Server Operation Results
Microsoft.DBforMariaDB/locations/operationResults/read	Return MariaDB Server Operation Results
Microsoft.DBforMariaDB/locations/performanceTiers/read	Returns the list of Performance Tiers available.
Microsoft.DBforMariaDB/locations/privateEndpointConnectionAzureAsyncOperation/read	Gets the result for a private endpoint connection operation
Microsoft.DBforMariaDB/locations/privateEndpointConnectionOperationResults/read	Gets the result for a private endpoint connection operation
Microsoft.DBforMariaDB/locations/privateEndpointConnectionProxyAzureAsyncOperation/read	Gets the result for a private endpoint connection proxy operation
Microsoft.DBforMariaDB/locations/privateEndpointConnectionProxyOperationResults/read	Gets the result for a private endpoint connection proxy operation
Microsoft.DBforMariaDB/locations/securityAlertPoliciesAzureAsyncOperation/read	Return the list of Server threat detection operation result.
Microsoft.DBforMariaDB/locations/securityAlertPoliciesOperationResults/read	Return the list of Server threat detection operation result.
Microsoft.DBforMariaDB/locations/serverKeyAzureAsyncOperation/read	Gets in-progress operations on data encryption server keys
Microsoft.DBforMariaDB/locations/serverKeyOperationResults/read	Gets in-progress operations on transparent data encryption server keys
Microsoft.DBforMariaDB/operations/read	Return the list of MariaDB Operations.
Microsoft.DBforMariaDB/performanceTiers/read	Returns the list of Performance Tiers available.
Microsoft.DBforMariaDB/servers/queryTexts/action	Return the texts for a list of queries
Microsoft.DBforMariaDB/servers/queryTexts/action	Return the text of a query
Microsoft.DBforMariaDB/servers/read	Return the list of servers or gets the properties for the specified server.
Microsoft.DBforMariaDB/servers/write	Creates a server with the specified parameters or update the properties or tags for the specified server.
Microsoft.DBforMariaDB/servers/delete	Deletes an existing server.
Microsoft.DBforMariaDB/servers/restart/action	Restarts a specific server.
Microsoft.DBforMariaDB/servers/updateConfigurations/action	Update configurations for the specified server

ACTION	DESCRIPTION
Microsoft.DBforMariaDB/servers/administrators/read	Gets a list of MariaDB server administrators.
Microsoft.DBforMariaDB/servers/administrators/write	Creates or updates MariaDB server administrator with the specified parameters.
Microsoft.DBforMariaDB/servers/administrators/delete	Deletes an existing administrator of MariaDB server.
Microsoft.DBforMariaDB/servers/advisors/read	Return the list of advisors
Microsoft.DBforMariaDB/servers/advisors/read	Return an advisor
Microsoft.DBforMariaDB/servers/advisors/createRecommendedActionSession/action	Create a new recommendation action session
Microsoft.DBforMariaDB/servers/advisors/recommendedActions/read	Return the list of recommended actions
Microsoft.DBforMariaDB/servers/advisors/recommendedActions/read	Return the list of recommended actions
Microsoft.DBforMariaDB/servers/advisors/recommendedActions/read	Return a recommended action
Microsoft.DBforMariaDB/servers/configurations/read	Return the list of configurations for a server or gets the properties for the specified configuration.
Microsoft.DBforMariaDB/servers/configurations/write	Update the value for the specified configuration
Microsoft.DBforMariaDB/servers/databases/read	Return the list of MariaDB Databases or gets the properties for the specified Database.
Microsoft.DBforMariaDB/servers/databases/write	Creates a MariaDB Database with the specified parameters or update the properties for the specified Database.
Microsoft.DBforMariaDB/servers/databases/delete	Deletes an existing MariaDB Database.
Microsoft.DBforMariaDB/servers/firewallRules/read	Return the list of firewall rules for a server or gets the properties for the specified firewall rule.
Microsoft.DBforMariaDB/servers/firewallRules/write	Creates a firewall rule with the specified parameters or update an existing rule.
Microsoft.DBforMariaDB/servers/firewallRules/delete	Deletes an existing firewall rule.
Microsoft.DBforMariaDB/servers/keys/read	Return the list of server keys or gets the properties for the specified server key.
Microsoft.DBforMariaDB/servers/keys/write	Creates a key with the specified parameters or update the properties or tags for the specified server key.
Microsoft.DBforMariaDB/servers/keys/delete	Deletes an existing server key.

ACTION	DESCRIPTION
Microsoft.DBforMariaDB/servers/logFiles/read	Return the list of MariaDB LogFiles.
Microsoft.DBforMariaDB/servers/privateEndpointConnectionProxies/validate/action	Validates a private endpoint connection create call from NRP side
Microsoft.DBforMariaDB/servers/privateEndpointConnectionProxies/read	Returns the list of private endpoint connection proxies or gets the properties for the specified private endpoint connection proxy.
Microsoft.DBforMariaDB/servers/privateEndpointConnectionProxies/write	Creates a private endpoint connection proxy with the specified parameters or updates the properties or tags for the specified private endpoint connection proxy.
Microsoft.DBforMariaDB/servers/privateEndpointConnectionProxies/delete	Deletes an existing private endpoint connection proxy
Microsoft.DBforMariaDB/servers/privateEndpointConnections/read	Returns the list of private endpoint connections or gets the properties for the specified private endpoint connection.
Microsoft.DBforMariaDB/servers/privateEndpointConnections/delete	Deletes an existing private endpoint connection
Microsoft.DBforMariaDB/servers/privateEndpointConnections/write	Approves or rejects an existing private endpoint connection
Microsoft.DBforMariaDB/servers/privateLinkResources/read	Get the private link resources for the corresponding MariaDB Server
Microsoft.DBforMariaDB/servers/providers/Microsoft.Insights/diagnosticSettings/read	Gets the diagnostic setting for the resource
Microsoft.DBforMariaDB/servers/providers/Microsoft.Insights/diagnosticSettings/write	Creates or updates the diagnostic setting for the resource
Microsoft.DBforMariaDB/servers/providers/Microsoft.Insights/logDefinitions/read	Gets the available logs for MariaDB servers
Microsoft.DBforMariaDB/servers/providers/Microsoft.Insights/metricDefinitions/read	Return types of metrics that are available for databases
Microsoft.DBforMariaDB/servers/recoverableServers/read	Return the recoverable MariaDB Server info
Microsoft.DBforMariaDB/servers/replicas/read	Get read replicas of a MariaDB server
Microsoft.DBforMariaDB/servers/securityAlertPolicies/read	Retrieve details of the server threat detection policy configured on a given server
Microsoft.DBforMariaDB/servers/securityAlertPolicies/write	Change the server threat detection policy for a given server
Microsoft.DBforMariaDB/servers/securityAlertPolicies/read	Retrieve a list of server threat detection policies configured for a given server
Microsoft.DBforMariaDB/servers/topQueryStatistics/read	Return the list of Query Statistics for the top queries.

ACTION	DESCRIPTION
Microsoft.DBforMariaDB/servers/topQueryStatistics/read	Return a Query Statistic
Microsoft.DBforMariaDB/servers/virtualNetworkRules/read	Return the list of virtual network rules or gets the properties for the specified virtual network rule.
Microsoft.DBforMariaDB/servers/virtualNetworkRules/write	Creates a virtual network rule with the specified parameters or update the properties or tags for the specified virtual network rule.
Microsoft.DBforMariaDB/servers/virtualNetworkRules/delete	Deletes an existing Virtual Network Rule
Microsoft.DBforMariaDB/servers/waitStatistics/read	Return wait statistics for an instance
Microsoft.DBforMariaDB/servers/waitStatistics/read	Return a wait statistic

## Microsoft.DBforMySQL

Azure service: [Azure Database for MySQL](#)

ACTION	DESCRIPTION
Microsoft.DBforMySQL/register/action	Register MySQL Resource Provider
Microsoft.DBforMySQL/checkNameAvailability/action	Verify whether given server name is available for provisioning worldwide for a given subscription.
Microsoft.DBforMySQL/locations/administratorAzureAsyncOperation/read	Gets in-progress operations on MySQL server administrators
Microsoft.DBforMySQL/locations/administratorOperationResults/read	Return MySQL Server administrator operation results
Microsoft.DBforMySQL/locations/azureAsyncOperation/read	Return MySQL Server Operation Results
Microsoft.DBforMySQL/locations/operationResults/read	Return ResourceGroup based MySQL Server Operation Results
Microsoft.DBforMySQL/locations/operationResults/read	Return MySQL Server Operation Results
Microsoft.DBforMySQL/locations/performanceTiers/read	Returns the list of Performance Tiers available.
Microsoft.DBforMySQL/locations/privateEndpointConnectionAzureAsyncOperation/read	Gets the result for a private endpoint connection operation
Microsoft.DBforMySQL/locations/privateEndpointConnectionOperationResults/read	Gets the result for a private endpoint connection operation
Microsoft.DBforMySQL/locations/privateEndpointConnectionProxyAzureAsyncOperation/read	Gets the result for a private endpoint connection proxy operation
Microsoft.DBforMySQL/locations/privateEndpointConnectionProxyOperationResults/read	Gets the result for a private endpoint connection proxy operation

ACTION	DESCRIPTION
Microsoft.DBforMySQL/locations/securityAlertPoliciesAzureA syncOperation/read	Return the list of Server threat detection operation result.
Microsoft.DBforMySQL/locations/securityAlertPoliciesOperati onResults/read	Return the list of Server threat detection operation result.
Microsoft.DBforMySQL/locations/serverKeyAzureAsyncOperat ion/read	Gets in-progress operations on transparent data encryption server keys
Microsoft.DBforMySQL/locations/serverKeyOperationResults /read	Gets in-progress operations on data encryption server keys
Microsoft.DBforMySQL/operations/read	Return the list of MySQL Operations.
Microsoft.DBforMySQL/performanceTiers/read	Returns the list of Performance Tiers available.
Microsoft.DBforMySQL/servers/queryTexts/action	Return the texts for a list of queries
Microsoft.DBforMySQL/servers/queryTexts/action	Return the text of a query
Microsoft.DBforMySQL/servers/read	Return the list of servers or gets the properties for the specified server.
Microsoft.DBforMySQL/servers/write	Creates a server with the specified parameters or update the properties or tags for the specified server.
Microsoft.DBforMySQL/servers/delete	Deletes an existing server.
Microsoft.DBforMySQL/servers/restart/action	Restarts a specific server.
Microsoft.DBforMySQL/servers/updateConfigurations/action	Update configurations for the specified server
Microsoft.DBforMySQL/servers/administrators/read	Gets a list of MySQL server administrators.
Microsoft.DBforMySQL/servers/administrators/write	Creates or updates MySQL server administrator with the specified parameters.
Microsoft.DBforMySQL/servers/administrators/delete	Deletes an existing administrator of MySQL server.
Microsoft.DBforMySQL/servers/advisors/read	Return the list of advisors
Microsoft.DBforMySQL/servers/advisors/read	Return an advisor
Microsoft.DBforMySQL/servers/advisors/createRecommend edActionSession/action	Create a new recommendation action session
Microsoft.DBforMySQL/servers/advisors/recommendedActio ns/read	Return the list of recommended actions
Microsoft.DBforMySQL/servers/advisors/recommendedActio ns/read	Return the list of recommended actions

ACTION	DESCRIPTION
Microsoft.DBforMySQL/servers/advisors/recommendedActions/read	Return a recommended action
Microsoft.DBforMySQL/servers/configurations/read	Return the list of configurations for a server or gets the properties for the specified configuration.
Microsoft.DBforMySQL/servers/configurations/write	Update the value for the specified configuration
Microsoft.DBforMySQL/servers/databases/read	Return the list of MySQL Databases or gets the properties for the specified Database.
Microsoft.DBforMySQL/servers/databases/write	Creates a MySQL Database with the specified parameters or update the properties for the specified Database.
Microsoft.DBforMySQL/servers/databases/delete	Deletes an existing MySQL Database.
Microsoft.DBforMySQL/servers/firewallRules/read	Return the list of firewall rules for a server or gets the properties for the specified firewall rule.
Microsoft.DBforMySQL/servers/firewallRules/write	Creates a firewall rule with the specified parameters or update an existing rule.
Microsoft.DBforMySQL/servers/firewallRules/delete	Deletes an existing firewall rule.
Microsoft.DBforMySQL/servers/keys/read	Return the list of server keys or gets the properties for the specified server key.
Microsoft.DBforMySQL/servers/keys/write	Creates a key with the specified parameters or update the properties or tags for the specified server key.
Microsoft.DBforMySQL/servers/keys/delete	Deletes an existing server key.
Microsoft.DBforMySQL/servers/logFiles/read	Return the list of MySQL LogFiles.
Microsoft.DBforMySQL/servers/privateEndpointConnectionProxies/validate/action	Validates a private endpoint connection create call from NRP side
Microsoft.DBforMySQL/servers/privateEndpointConnectionProxies/read	Returns the list of private endpoint connection proxies or gets the properties for the specified private endpoint connection proxy.
Microsoft.DBforMySQL/servers/privateEndpointConnectionProxies/write	Creates a private endpoint connection proxy with the specified parameters or updates the properties or tags for the specified private endpoint connection proxy.
Microsoft.DBforMySQL/servers/privateEndpointConnectionProxies/delete	Deletes an existing private endpoint connection proxy
Microsoft.DBforMySQL/servers/privateEndpointConnections/read	Returns the list of private endpoint connections or gets the properties for the specified private endpoint connection.
Microsoft.DBforMySQL/servers/privateEndpointConnections/delete	Deletes an existing private endpoint connection

ACTION	DESCRIPTION
Microsoft.DBforMySQL/servers/privateEndpointConnections/write	Approves or rejects an existing private endpoint connection
Microsoft.DBforMySQL/servers/privateLinkResources/read	Get the private link resources for the corresponding MySQL Server
Microsoft.DBforMySQL/servers/providers/Microsoft.Insights/diagnosticSettings/read	Gets the diagnostic setting for the resource
Microsoft.DBforMySQL/servers/providers/Microsoft.Insights/diagnosticSettings/write	Creates or updates the diagnostic setting for the resource
Microsoft.DBforMySQL/servers/providers/Microsoft.Insights/logDefinitions/read	Gets the available logs for MySQL servers
Microsoft.DBforMySQL/servers/providers/Microsoft.Insights/metricDefinitions/read	Return types of metrics that are available for databases
Microsoft.DBforMySQL/servers/recoverableServers/read	Return the recoverable MySQL Server info
Microsoft.DBforMySQL/servers/replicas/read	Get read replicas of a MySQL server
Microsoft.DBforMySQL/servers/securityAlertPolicies/read	Retrieve details of the server threat detection policy configured on a given server
Microsoft.DBforMySQL/servers/securityAlertPolicies/write	Change the server threat detection policy for a given server
Microsoft.DBforMySQL/servers/securityAlertPolicies/read	Retrieve a list of server threat detection policies configured for a given server
Microsoft.DBforMySQL/servers/topQueryStatistics/read	Return the list of Query Statistics for the top queries.
Microsoft.DBforMySQL/servers/topQueryStatistics/read	Return a Query Statistic
Microsoft.DBforMySQL/servers/virtualNetworkRules/read	Return the list of virtual network rules or gets the properties for the specified virtual network rule.
Microsoft.DBforMySQL/servers/virtualNetworkRules/write	Creates a virtual network rule with the specified parameters or update the properties or tags for the specified virtual network rule.
Microsoft.DBforMySQL/servers/virtualNetworkRules/delete	Deletes an existing Virtual Network Rule
Microsoft.DBforMySQL/servers/waitStatistics/read	Return wait statistics for an instance
Microsoft.DBforMySQL/servers/waitStatistics/read	Return a wait statistic

## Microsoft.DBforPostgreSQL

Azure service: [Azure Database for PostgreSQL](#)

ACTION	DESCRIPTION
Microsoft.DBforPostgreSQL/register/action	Register PostgreSQL Resource Provider
Microsoft.DBforPostgreSQL/checkNameAvailability/action	Verify whether given server name is available for provisioning worldwide for a given subscription.
Microsoft.DBforPostgreSQL/locations/administratorAzureAsyncOperation/read	Gets in-progress operations on PostgreSQL server administrators
Microsoft.DBforPostgreSQL/locations/administratorOperationResults/read	Return PostgreSQL Server administrator operation results
Microsoft.DBforPostgreSQL/locations/azureAsyncOperation/read	Return PostgreSQL Server Operation Results
Microsoft.DBforPostgreSQL/locations/operationResults/read	Return ResourceGroup based PostgreSQL Server Operation Results
Microsoft.DBforPostgreSQL/locations/operationResults/read	Return PostgreSQL Server Operation Results
Microsoft.DBforPostgreSQL/locations/performanceTiers/read	Returns the list of Performance Tiers available.
Microsoft.DBforPostgreSQL/locations/privateEndpointConnectionAzureAsyncOperation/read	Gets the result for a private endpoint connection operation
Microsoft.DBforPostgreSQL/locations/privateEndpointConnectionOperationResults/read	Gets the result for a private endpoint connection operation
Microsoft.DBforPostgreSQL/locations/privateEndpointConnectionProxyAzureAsyncOperation/read	Gets the result for a private endpoint connection proxy operation
Microsoft.DBforPostgreSQL/locations/privateEndpointConnectionProxyOperationResults/read	Gets the result for a private endpoint connection proxy operation
Microsoft.DBforPostgreSQL/locations/securityAlertPoliciesAzureAsyncOperation/read	Return the list of Server threat detection operation result.
Microsoft.DBforPostgreSQL/locations/securityAlertPoliciesOperationResults/read	Return the list of Server threat detection operation result.
Microsoft.DBforPostgreSQL/locations/serverKeyAzureAsyncOperation/read	Gets in-progress operations on data encryption server keys
Microsoft.DBforPostgreSQL/locations/serverKeyOperationResults/read	Gets in-progress operations on data encryption server keys
Microsoft.DBforPostgreSQL/operations/read	Return the list of PostgreSQL Operations.
Microsoft.DBforPostgreSQL/performanceTiers/read	Returns the list of Performance Tiers available.
Microsoft.DBforPostgreSQL/servers/queryTexts/action	Return the text of a query
Microsoft.DBforPostgreSQL/servers/read	Return the list of servers or gets the properties for the specified server.

ACTION	DESCRIPTION
Microsoft.DBforPostgreSQL/servers/write	Creates a server with the specified parameters or update the properties or tags for the specified server.
Microsoft.DBforPostgreSQL/servers/delete	Deletes an existing server.
Microsoft.DBforPostgreSQL/servers/restart/action	Restarts a specific server.
Microsoft.DBforPostgreSQL/servers/updateConfigurations/action	Update configurations for the specified server
Microsoft.DBforPostgreSQL/servers/administrators/read	Gets a list of PostgreSQL server administrators.
Microsoft.DBforPostgreSQL/servers/administrators/write	Creates or updates PostgreSQL server administrator with the specified parameters.
Microsoft.DBforPostgreSQL/servers/administrators/delete	Deletes an existing administrator of PostgreSQL server.
Microsoft.DBforPostgreSQL/servers/advisors/read	Return the list of advisors
Microsoft.DBforPostgreSQL/servers/advisors/recommendedActionSessions/action	Make recommendations
Microsoft.DBforPostgreSQL/servers/advisors/recommendedActions/read	Return the list of recommended actions
Microsoft.DBforPostgreSQL/servers/configurations/read	Return the list of configurations for a server or gets the properties for the specified configuration.
Microsoft.DBforPostgreSQL/servers/configurations/write	Update the value for the specified configuration
Microsoft.DBforPostgreSQL/servers/databases/read	Return the list of PostgreSQL Databases or gets the properties for the specified Database.
Microsoft.DBforPostgreSQL/servers/databases/write	Creates a PostgreSQL Database with the specified parameters or update the properties for the specified Database.
Microsoft.DBforPostgreSQL/servers/databases/delete	Deletes an existing PostgreSQL Database.
Microsoft.DBforPostgreSQL/servers/firewallRules/read	Return the list of firewall rules for a server or gets the properties for the specified firewall rule.
Microsoft.DBforPostgreSQL/servers/firewallRules/write	Creates a firewall rule with the specified parameters or update an existing rule.
Microsoft.DBforPostgreSQL/servers/firewallRules/delete	Deletes an existing firewall rule.
Microsoft.DBforPostgreSQL/servers/keys/read	Return the list of server keys or gets the properties for the specified server key.
Microsoft.DBforPostgreSQL/servers/keys/write	Creates a key with the specified parameters or update the properties or tags for the specified server key.

ACTION	DESCRIPTION
Microsoft.DBforPostgreSQL/servers/keys/delete	Deletes an existing server key.
Microsoft.DBforPostgreSQL/servers/logFiles/read	Return the list of PostgreSQL LogFiles.
Microsoft.DBforPostgreSQL/servers/privateEndpointConnectionProxies/validate/action	Validates a private endpoint connection create call from NRP side
Microsoft.DBforPostgreSQL/servers/privateEndpointConnectionProxies/read	Returns the list of private endpoint connection proxies or gets the properties for the specified private endpoint connection proxy.
Microsoft.DBforPostgreSQL/servers/privateEndpointConnectionProxies/write	Creates a private endpoint connection proxy with the specified parameters or updates the properties or tags for the specified private endpoint connection proxy.
Microsoft.DBforPostgreSQL/servers/privateEndpointConnections/delete	Deletes an existing private endpoint connection proxy
Microsoft.DBforPostgreSQL/servers/privateEndpointConnections/read	Returns the list of private endpoint connections or gets the properties for the specified private endpoint connection.
Microsoft.DBforPostgreSQL/servers/privateEndpointConnections/delete	Deletes an existing private endpoint connection
Microsoft.DBforPostgreSQL/servers/privateEndpointConnections/write	Approves or rejects an existing private endpoint connection
Microsoft.DBforPostgreSQL/servers/privateLinkResources/read	Get the private link resources for the corresponding PostgreSQL Server
Microsoft.DBforPostgreSQL/servers/providers/Microsoft.Insights/diagnosticSettings/read	Gets the diagnostic setting for the resource
Microsoft.DBforPostgreSQL/servers/providers/Microsoft.Insights/diagnosticSettings/write	Creates or updates the diagnostic setting for the resource
Microsoft.DBforPostgreSQL/servers/providers/Microsoft.Insights/logDefinitions/read	Gets the available logs for PostgreSQL servers
Microsoft.DBforPostgreSQL/servers/providers/Microsoft.Insights/metricDefinitions/read	Return types of metrics that are available for databases
Microsoft.DBforPostgreSQL/servers/queryTexts/read	Return the texts for a list of queries
Microsoft.DBforPostgreSQL/servers/recoverableServers/read	Return the recoverable PostgreSQL Server info
Microsoft.DBforPostgreSQL/servers(replicas/read)	Get read replicas of a PostgreSQL server
Microsoft.DBforPostgreSQL/servers/securityAlertPolicies/read	Retrieve details of the server threat detection policy configured on a given server
Microsoft.DBforPostgreSQL/servers/securityAlertPolicies/write	Change the server threat detection policy for a given server

ACTION	DESCRIPTION
Microsoft.DBforPostgreSQL/servers/topQueryStatistics/read	Return the list of Query Statistics for the top queries.
Microsoft.DBforPostgreSQL/servers/virtualNetworkRules/read	Return the list of virtual network rules or gets the properties for the specified virtual network rule.
Microsoft.DBforPostgreSQL/servers/virtualNetworkRules/write	Creates a virtual network rule with the specified parameters or update the properties or tags for the specified virtual network rule.
Microsoft.DBforPostgreSQL/servers/virtualNetworkRules/delete	Deletes an existing Virtual Network Rule
Microsoft.DBforPostgreSQL/servers/waitStatistics/read	Return wait statistics for an instance
Microsoft.DBforPostgreSQL/serversv2/read	Return the list of servers or gets the properties for the specified server.
Microsoft.DBforPostgreSQL/serversv2/write	Creates a server with the specified parameters or update the properties or tags for the specified server.
Microsoft.DBforPostgreSQL/serversv2/delete	Deletes an existing server.
Microsoft.DBforPostgreSQL/serversv2/updateConfigurations/action	Update configurations for the specified server
Microsoft.DBforPostgreSQL/serversv2/configurations/read	Return the list of configurations for a server or gets the properties for the specified configuration.
Microsoft.DBforPostgreSQL/serversv2/configurations/write	Update the value for the specified configuration
Microsoft.DBforPostgreSQL/serversv2/firewallRules/read	Return the list of firewall rules for a server or gets the properties for the specified firewall rule.
Microsoft.DBforPostgreSQL/serversv2/firewallRules/write	Creates a firewall rule with the specified parameters or update an existing rule.
Microsoft.DBforPostgreSQL/serversv2/firewallRules/delete	Deletes an existing firewall rule.
Microsoft.DBforPostgreSQL/serversv2/providers/Microsoft.Insights/diagnosticSettings/read	Gets the diagnostic setting for the resource
Microsoft.DBforPostgreSQL/serversv2/providers/Microsoft.Insights/diagnosticSettings/write	Creates or updates the diagnostic setting for the resource
Microsoft.DBforPostgreSQL/serversv2/providers/Microsoft.Insights/logDefinitions/read	Gets the available logs for PostgreSQL servers
Microsoft.DBforPostgreSQL/serversv2/providers/Microsoft.Insights/metricDefinitions/read	Return types of metrics that are available for databases
Microsoft.DBforPostgreSQL/singleservers/read	Return the list of servers or gets the properties for the specified server.

ACTION	DESCRIPTION
Microsoft.DBforPostgreSQL/singleServers/write	Creates a server with the specified parameters or update the properties or tags for the specified server.
Microsoft.DBforPostgreSQL/singleServers/delete	Deletes an existing server.
Microsoft.DBforPostgreSQL/singleServers/providers/Microsoft.Insights/diagnosticSettings/read	Gets the diagnostic setting for the resource
Microsoft.DBforPostgreSQL/singleServers/providers/Microsoft.Insights/diagnosticSettings/write	Creates or updates the diagnostic setting for the resource
Microsoft.DBforPostgreSQL/singleServers/providers/Microsoft.Insights/logDefinitions/read	Gets the available logs for PostgreSQL servers
Microsoft.DBforPostgreSQL/singleServers/providers/Microsoft.Insights/metricDefinitions/read	Return types of metrics that are available for databases

## Microsoft.DocumentDB

Azure service: [Azure Cosmos DB](#)

ACTION	DESCRIPTION
Microsoft.DocumentDB/register/action	Register the Microsoft DocumentDB resource provider for the subscription
Microsoft.DocumentDB/databaseAccountNames/read	Checks for name availability.
Microsoft.DocumentDB/databaseAccounts/read	Reads a database account.
Microsoft.DocumentDB/databaseAccounts/write	Update a database accounts.
Microsoft.DocumentDB/databaseAccounts/listKeys/action	List keys of a database account
Microsoft.DocumentDB/databaseAccounts/readonlykeys/activation	Reads the database account readonly keys.
Microsoft.DocumentDB/databaseAccounts/regenerateKey/action	Rotate keys of a database account
Microsoft.DocumentDB/databaseAccounts/listConnectionStrings/action	Get the connection strings for a database account
Microsoft.DocumentDB/databaseAccounts/changeResourceGroup/action	Change resource group of a database account
Microsoft.DocumentDB/databaseAccounts/failoverPriorityChange/action	Change failover priorities of regions of a database account. This is used to perform manual failover operation
Microsoft.DocumentDB/databaseAccounts/offlineRegion/action	Offline a region of a database account.

ACTION	DESCRIPTION
Microsoft.DocumentDB/databaseAccounts/onlineRegion/action	Online a region of a database account.
Microsoft.DocumentDB/databaseAccounts/delete	Deletes the database accounts.
Microsoft.DocumentDB/databaseAccounts/getBackupPolicy/action	Get the backup policy of database account
Microsoft.DocumentDB/databaseAccounts/PrivateEndpointConnectionsApproval/action	Manage a private endpoint connection of Database Account
Microsoft.DocumentDB/databaseAccounts/restore/action	Submit a restore request
Microsoft.DocumentDB/databaseAccounts/backup/action	Submit a request to configure backup
Microsoft.DocumentDB/databaseAccounts/apis/databases/write	(Deprecated. Please use resource paths without '/apis/' segment) Create a database. Only applicable to API types: 'sql', 'mongodb', 'gremlin'.
Microsoft.DocumentDB/databaseAccounts/apis/databases/read	(Deprecated. Please use resource paths without '/apis/' segment) Read a database or list all the databases. Only applicable to API types: 'sql', 'mongodb', 'gremlin'.
Microsoft.DocumentDB/databaseAccounts/apis/databases/delete	(Deprecated. Please use resource paths without '/apis/' segment) Delete a database. Only applicable to API types: 'sql', 'mongodb', 'gremlin'.
Microsoft.DocumentDB/databaseAccounts/apis/databases/collections/write	(Deprecated. Please use resource paths without '/apis/' segment) Create or update a collection. Only applicable to API types: 'mongodb'.
Microsoft.DocumentDB/databaseAccounts/apis/databases/collections/read	(Deprecated. Please use resource paths without '/apis/' segment) Read a collection or list all the collections. Only applicable to API types: 'mongodb'.
Microsoft.DocumentDB/databaseAccounts/apis/databases/collections/delete	(Deprecated. Please use resource paths without '/apis/' segment) Delete a collection. Only applicable to API types: 'mongodb'.
Microsoft.DocumentDB/databaseAccounts/apis/databases/collections/operationResults/read	(Deprecated. Please use resource paths without '/apis/' segment) Read status of the asynchronous operation. Only applicable to API types: 'mongodb'.
Microsoft.DocumentDB/databaseAccounts/apis/databases/collections/settings/write	(Deprecated. Please use resource paths without '/apis/' segment) Update a collection throughput. Only applicable to API types: 'mongodb'. Only applicable for setting types: 'throughput'.
Microsoft.DocumentDB/databaseAccounts/apis/databases/collections/settings/read	(Deprecated. Please use resource paths without '/apis/' segment) Read a collection throughput. Only applicable to API types: 'mongodb'. Only applicable for setting types: 'throughput'.

ACTION	DESCRIPTION
Microsoft.DocumentDB/databaseAccounts/apis/databases/collections/settings/operationResults/read	(Deprecated. Please use resource paths without '/apis/' segment) Read status of the asynchronous operation. Only applicable to API types: 'mongodb'. Only applicable for setting types: 'throughput'.
Microsoft.DocumentDB/databaseAccounts/apis/databases/containers/write	(Deprecated. Please use resource paths without '/apis/' segment) Create or update a container. Only applicable to API types: 'sql'.
Microsoft.DocumentDB/databaseAccounts/apis/databases/containers/read	(Deprecated. Please use resource paths without '/apis/' segment) Read a container or list all the containers. Only applicable to API types: 'sql'.
Microsoft.DocumentDB/databaseAccounts/apis/databases/containers/delete	(Deprecated. Please use resource paths without '/apis/' segment) Delete a container. Only applicable to API types: 'sql'.
Microsoft.DocumentDB/databaseAccounts/apis/databases/containers/operationResults/read	(Deprecated. Please use resource paths without '/apis/' segment) Read status of the asynchronous operation. Only applicable to API types: 'sql'.
Microsoft.DocumentDB/databaseAccounts/apis/databases/containers/settings/write	(Deprecated. Please use resource paths without '/apis/' segment) Update a container throughput. Only applicable to API types: 'sql'. Only applicable for setting types: 'throughput'.
Microsoft.DocumentDB/databaseAccounts/apis/databases/containers/settings/read	(Deprecated. Please use resource paths without '/apis/' segment) Read a container throughput. Only applicable to API types: 'sql'. Only applicable for setting types: 'throughput'.
Microsoft.DocumentDB/databaseAccounts/apis/databases/containers/settings/operationResults/read	(Deprecated. Please use resource paths without '/apis/' segment) Read status of the asynchronous operation. Only applicable to API types: 'sql'. Only applicable for setting types: 'throughput'.
Microsoft.DocumentDB/databaseAccounts/apis/databases/graphs/write	(Deprecated. Please use resource paths without '/apis/' segment) Create or update a graph. Only applicable to API types: 'gremlin'.
Microsoft.DocumentDB/databaseAccounts/apis/databases/graphs/read	(Deprecated. Please use resource paths without '/apis/' segment) Read a graph or list all the graphs. Only applicable to API types: 'gremlin'.
Microsoft.DocumentDB/databaseAccounts/apis/databases/graphs/delete	(Deprecated. Please use resource paths without '/apis/' segment) Delete a graph. Only applicable to API types: 'gremlin'.
Microsoft.DocumentDB/databaseAccounts/apis/databases/graphs/operationResults/read	(Deprecated. Please use resource paths without '/apis/' segment) Read status of the asynchronous operation. Only applicable to API types: 'gremlin'.
Microsoft.DocumentDB/databaseAccounts/apis/databases/graphs/settings/write	(Deprecated. Please use resource paths without '/apis/' segment) Update a graph throughput. Only applicable to API types: 'gremlin'. Only applicable for setting types: 'throughput'.

ACTION	DESCRIPTION
Microsoft.DocumentDB/databaseAccounts/apis/databases/graphs/settings/read	(Deprecated. Please use resource paths without '/apis/' segment) Read a graph throughput. Only applicable to API types: 'gremlin'. Only applicable for setting types: 'throughput'.
Microsoft.DocumentDB/databaseAccounts/apis/databases/graphs/settings/operationResults/read	(Deprecated. Please use resource paths without '/apis/' segment) Read status of the asynchronous operation. Only applicable to API types: 'gremlin'. Only applicable for setting types: 'throughput'.
Microsoft.DocumentDB/databaseAccounts/apis/databases/operationResults/read	(Deprecated. Please use resource paths without '/apis/' segment) Read status of the asynchronous operation. Only applicable to API types: 'sql', 'mongodb', 'gremlin'.
Microsoft.DocumentDB/databaseAccounts/apis/databases/settings/write	(Deprecated. Please use resource paths without '/apis/' segment) Update a database throughput. Only applicable to API types: 'sql', 'mongodb', 'gremlin'. Only applicable for setting types: 'throughput'.
Microsoft.DocumentDB/databaseAccounts/apis/databases/settings/read	(Deprecated. Please use resource paths without '/apis/' segment) Read a database throughput. Only applicable to API types: 'sql', 'mongodb', 'gremlin'. Only applicable for setting types: 'throughput'.
Microsoft.DocumentDB/databaseAccounts/apis/databases/settings/operationResults/read	(Deprecated. Please use resource paths without '/apis/' segment) Read status of the asynchronous operation. Only applicable to API types: 'sql', 'mongodb', 'gremlin'. Only applicable for setting types: 'throughput'.
Microsoft.DocumentDB/databaseAccounts/apis/keyspaces/write	(Deprecated. Please use resource paths without '/apis/' segment) Create a keyspace. Only applicable to API types: 'cassandra'.
Microsoft.DocumentDB/databaseAccounts/apis/keyspaces/read	(Deprecated. Please use resource paths without '/apis/' segment) Read a keyspace or list all the keyspaces. Only applicable to API types: 'cassandra'.
Microsoft.DocumentDB/databaseAccounts/apis/keyspaces/delete	(Deprecated. Please use resource paths without '/apis/' segment) Delete a keyspace. Only applicable to API types: 'cassandra'.
Microsoft.DocumentDB/databaseAccounts/apis/keyspaces/operationResults/read	(Deprecated. Please use resource paths without '/apis/' segment) Read status of the asynchronous operation. Only applicable to API types: 'cassandra'.
Microsoft.DocumentDB/databaseAccounts/apis/keyspaces/settings/write	(Deprecated. Please use resource paths without '/apis/' segment) Update a keyspace throughput. Only applicable to API types: 'cassandra'. Only applicable for setting types: 'throughput'.
Microsoft.DocumentDB/databaseAccounts/apis/keyspaces/settings/read	(Deprecated. Please use resource paths without '/apis/' segment) Read a keyspace throughput. Only applicable to API types: 'cassandra'. Only applicable for setting types: 'throughput'.

ACTION	DESCRIPTION
Microsoft.DocumentDB/databaseAccounts/apis/keyspaces/settings/operationResults/read	(Deprecated. Please use resource paths without '/apis/' segment) Read status of the asynchronous operation. Only applicable to API types: 'cassandra'. Only applicable for setting types: 'throughput'.
Microsoft.DocumentDB/databaseAccounts/apis/keyspaces/tables/write	(Deprecated. Please use resource paths without '/apis/' segment) Create or update a table. Only applicable to API types: 'cassandra'.
Microsoft.DocumentDB/databaseAccounts/apis/keyspaces/tables/read	(Deprecated. Please use resource paths without '/apis/' segment) Read a table or list all the tables. Only applicable to API types: 'cassandra'.
Microsoft.DocumentDB/databaseAccounts/apis/keyspaces/tables/delete	(Deprecated. Please use resource paths without '/apis/' segment) Delete a table. Only applicable to API types: 'cassandra'.
Microsoft.DocumentDB/databaseAccounts/apis/keyspaces/tables/operationResults/read	(Deprecated. Please use resource paths without '/apis/' segment) Read status of the asynchronous operation. Only applicable to API types: 'cassandra'.
Microsoft.DocumentDB/databaseAccounts/apis/keyspaces/tables/settings/write	(Deprecated. Please use resource paths without '/apis/' segment) Update a table throughput. Only applicable to API types: 'cassandra'. Only applicable for setting types: 'throughput'.
Microsoft.DocumentDB/databaseAccounts/apis/keyspaces/tables/settings/read	(Deprecated. Please use resource paths without '/apis/' segment) Read a table throughput. Only applicable to API types: 'cassandra'. Only applicable for setting types: 'throughput'.
Microsoft.DocumentDB/databaseAccounts/apis/keyspaces/tables/settings/operationResults/read	(Deprecated. Please use resource paths without '/apis/' segment) Read status of the asynchronous operation. Only applicable to API types: 'cassandra'. Only applicable for setting types: 'throughput'.
Microsoft.DocumentDB/databaseAccounts/apis/tables/write	(Deprecated. Please use resource paths without '/apis/' segment) Create or update a table. Only applicable to API types: 'table'.
Microsoft.DocumentDB/databaseAccounts/apis/tables/read	(Deprecated. Please use resource paths without '/apis/' segment) Read a table or list all the tables. Only applicable to API types: 'table'.
Microsoft.DocumentDB/databaseAccounts/apis/tables/delete	(Deprecated. Please use resource paths without '/apis/' segment) Delete a table. Only applicable to API types: 'table'.
Microsoft.DocumentDB/databaseAccounts/apis/tables/operationResults/read	(Deprecated. Please use resource paths without '/apis/' segment) Read status of the asynchronous operation. Only applicable to API types: 'table'.
Microsoft.DocumentDB/databaseAccounts/apis/tables/settings/write	(Deprecated. Please use resource paths without '/apis/' segment) Update a table throughput. Only applicable to API types: 'table'. Only applicable for setting types: 'throughput'.

ACTION	DESCRIPTION
Microsoft.DocumentDB/databaseAccounts/apis/tables/settings/read	(Deprecated. Please use resource paths without '/apis/' segment) Read a table throughput. Only applicable to API types: 'table'. Only applicable for setting types: 'throughput'.
Microsoft.DocumentDB/databaseAccounts/apis/tables/settings/operationResults/read	(Deprecated. Please use resource paths without '/apis/' segment) Read status of the asynchronous operation. Only applicable to API types: 'table'. Only applicable for setting types: 'throughput'.
Microsoft.DocumentDB/databaseAccounts/cassandraKeyspaces/write	Create a Cassandra keyspace.
Microsoft.DocumentDB/databaseAccounts/cassandraKeyspaces/read	Read a Cassandra keyspace or list all the Cassandra keyspaces.
Microsoft.DocumentDB/databaseAccounts/cassandraKeyspaces/delete	Delete a Cassandra keyspace.
Microsoft.DocumentDB/databaseAccounts/cassandraKeyspaces/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/cassandraKeyspaces/tables/write	Create or update a Cassandra table.
Microsoft.DocumentDB/databaseAccounts/cassandraKeyspaces/tables/read	Read a Cassandra table or list all the Cassandra tables.
Microsoft.DocumentDB/databaseAccounts/cassandraKeyspaces/tables/delete	Delete a Cassandra table.
Microsoft.DocumentDB/databaseAccounts/cassandraKeyspaces/tables/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/cassandraKeyspaces/tables/throughputSettings/write	Update a Cassandra table throughput.
Microsoft.DocumentDB/databaseAccounts/cassandraKeyspaces/tables/throughputSettings/read	Read a Cassandra table throughput.
Microsoft.DocumentDB/databaseAccounts/cassandraKeyspaces/tables/throughputSettings/migrateToAutoscale/action	Migrate Cassandra table offer to autoscale.
Microsoft.DocumentDB/databaseAccounts/cassandraKeyspaces/tables/throughputSettings/migrateToManualThroughput/action	Migrate Cassandra table offer to manual throughput.
Microsoft.DocumentDB/databaseAccounts/cassandraKeyspaces/tables/throughputSettings/migrateToAutoscale/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/cassandraKeyspaces/tables/throughputSettings/migrateToManualThroughput/operationResults/read	Read status of the asynchronous operation.

ACTION	DESCRIPTION
Microsoft.DocumentDB/databaseAccounts/cassandraKeyspaces/tables/throughputSettings/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/cassandraKeyspaces/throughputSettings/write	Update a Cassandra keyspace throughput.
Microsoft.DocumentDB/databaseAccounts/cassandraKeyspaces/throughputSettings/read	Read a Cassandra keyspace throughput.
Microsoft.DocumentDB/databaseAccounts/cassandraKeyspaces/throughputSettings/migrateToAutoscale/action	Migrate Cassandra keyspace offer to autoscale.
Microsoft.DocumentDB/databaseAccounts/cassandraKeyspaces/throughputSettings/migrateToManualThroughput/action	Migrate Cassandra keyspace offer to manual throughput.
Microsoft.DocumentDB/databaseAccounts/cassandraKeyspaces/throughputSettings/migrateToAutoscale/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/cassandraKeyspaces/throughputSettings/migrateToManualThroughput/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/cassandraKeyspaces/throughputSettings/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/databases/collections/metricDefinitions/read	Reads the collection metric definitions.
Microsoft.DocumentDB/databaseAccounts/databases/collections/metrics/read	Reads the collection metrics.
Microsoft.DocumentDB/databaseAccounts/databases/collections/partitionKeyRangeId/metrics/read	Read database account partition key level metrics
Microsoft.DocumentDB/databaseAccounts/databases/collections/partitions/read	Read database account partitions in a collection
Microsoft.DocumentDB/databaseAccounts/databases/collections/partitions/metrics/read	Read database account partition level metrics
Microsoft.DocumentDB/databaseAccounts/databases/collections/partitions/usages/read	Read database account partition level usages
Microsoft.DocumentDB/databaseAccounts/databases/collections/usages/read	Reads the collection usages.
Microsoft.DocumentDB/databaseAccounts/databases/metricDefinitions/read	Reads the database metric definitions
Microsoft.DocumentDB/databaseAccounts/databases/metrics/read	Reads the database metrics.

ACTION	DESCRIPTION
Microsoft.DocumentDB/databaseAccounts/databases/usages/read	Reads the database usages.
Microsoft.DocumentDB/databaseAccounts/gremlinDatabases/write	Create a Gremlin database.
Microsoft.DocumentDB/databaseAccounts/gremlinDatabases/read	Read a Gremlin database or list all the Gremlin databases.
Microsoft.DocumentDB/databaseAccounts/gremlinDatabases/delete	Delete a Gremlin database.
Microsoft.DocumentDB/databaseAccounts/gremlinDatabases/graphs/write	Create or update a Gremlin graph.
Microsoft.DocumentDB/databaseAccounts/gremlinDatabases/graphs/read	Read a Gremlin graph or list all the Gremlin graphs.
Microsoft.DocumentDB/databaseAccounts/gremlinDatabases/graphs/delete	Delete a Gremlin graph.
Microsoft.DocumentDB/databaseAccounts/gremlinDatabases/graphs/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/gremlinDatabases/graphs/throughputSettings/write	Update a Gremlin graph throughput.
Microsoft.DocumentDB/databaseAccounts/gremlinDatabases/graphs/throughputSettings/read	Read a Gremlin graph throughput.
Microsoft.DocumentDB/databaseAccounts/gremlinDatabases/graphs/throughputSettings/migrateToAutoscale/action	Migrate Gremlin graph offer to autoscale.
Microsoft.DocumentDB/databaseAccounts/gremlinDatabases/graphs/throughputSettings/migrateToManualThroughput/action	Migrate Gremlin graph offer to manual throughput.
Microsoft.DocumentDB/databaseAccounts/gremlinDatabases/graphs/throughputSettings/migrateToAutoscale/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/gremlinDatabases/graphs/throughputSettings/migrateToManualThroughput/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/gremlinDatabases/graphs/throughputSettings/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/gremlinDatabases/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/gremlinDatabases/throughputSettings/write	Update a Gremlin database throughput.

ACTION	DESCRIPTION
Microsoft.DocumentDB/databaseAccounts/gremlinDatabase s/throughputSettings/read	Read a Gremlin database throughput.
Microsoft.DocumentDB/databaseAccounts/gremlinDatabase s/throughputSettings/migrateToAutoscale/action	Migrate Gremlin Database offer to autoscale.
Microsoft.DocumentDB/databaseAccounts/gremlinDatabase s/throughputSettings/migrateToManualThroughput/action	Migrate Gremlin Database offer to manual throughput.
Microsoft.DocumentDB/databaseAccounts/gremlinDatabase s/throughputSettings/migrateToAutoscale/operationResults/r ead	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/gremlinDatabase s/throughputSettings/migrateToManualThroughput/operatio nResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/gremlinDatabase s/throughputSettings/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/metricDefinitions/ read	Reads the database account metrics definitions.
Microsoft.DocumentDB/databaseAccounts/metrics/read	Reads the database account metrics.
Microsoft.DocumentDB/databaseAccounts/mongodbData bases/write	Create a MongoDB database.
Microsoft.DocumentDB/databaseAccounts/mongodbData bases/read	Read a MongoDB database or list all the MongoDB databases.
Microsoft.DocumentDB/databaseAccounts/mongodbData bases/delete	Delete a MongoDB database.
Microsoft.DocumentDB/databaseAccounts/mongodbData bases/collections/write	Create or update a MongoDB collection.
Microsoft.DocumentDB/databaseAccounts/mongodbData bases/collections/read	Read a MongoDB collection or list all the MongoDB collections.
Microsoft.DocumentDB/databaseAccounts/mongodbData bases/collections/delete	Delete a MongoDB collection.
Microsoft.DocumentDB/databaseAccounts/mongodbData bases/collections/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/mongodbData bases/collections/throughputSettings/write	Update a MongoDB collection throughput.
Microsoft.DocumentDB/databaseAccounts/mongodbData bases/collections/throughputSettings/read	Read a MongoDB collection throughput.

ACTION	DESCRIPTION
Microsoft.DocumentDB/databaseAccounts/mongodbDatabases/collections/throughputSettings/migrateToAutoscale/action	Migrate MongoDB collection offer to autoscale.
Microsoft.DocumentDB/databaseAccounts/mongodbDatabases/collections/throughputSettings/migrateToManualThroughput/action	Migrate MongoDB collection offer to manual throughput.
Microsoft.DocumentDB/databaseAccounts/mongodbDatabases/collections/throughputSettings/migrateToAutoscale/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/mongodbDatabases/collections/throughputSettings/migrateToManualThroughput/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/mongodbDatabases/throughputSettings/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/mongodbDatabases/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/mongodbDatabases/throughputSettings/write	Update a MongoDB database throughput.
Microsoft.DocumentDB/databaseAccounts/mongodbDatabases/throughputSettings/read	Read a MongoDB database throughput.
Microsoft.DocumentDB/databaseAccounts/mongodbDatabases/throughputSettings/migrateToAutoscale/action	Migrate MongoDB database offer to autoscale.
Microsoft.DocumentDB/databaseAccounts/mongodbDatabases/throughputSettings/migrateToManualThroughput/action	Migrate MongoDB database offer to manual throughput.
Microsoft.DocumentDB/databaseAccounts/mongodbDatabases/throughputSettings/migrateToAutoscale/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/mongodbDatabases/throughputSettings/migrateToManualThroughput/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/mongodbDatabases/throughputSettings/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/notebookWorkspaces/write	Create or update a notebook workspace
Microsoft.DocumentDB/databaseAccounts/notebookWorkspaces/read	Read a notebook workspace
Microsoft.DocumentDB/databaseAccounts/notebookWorkspaces/delete	Delete a notebook workspace

ACTION	DESCRIPTION
Microsoft.DocumentDB/databaseAccounts/notebookWorkspaces/listConnectionInfo/action	List the connection info for a notebook workspace
Microsoft.DocumentDB/databaseAccounts/notebookWorkspaces/operationResults/read	Read the status of an asynchronous operation on notebook workspaces
Microsoft.DocumentDB/databaseAccounts/operationResults/read	Read status of the asynchronous operation
Microsoft.DocumentDB/databaseAccounts/percentile/read	Read percentiles of replication latencies
Microsoft.DocumentDB/databaseAccounts/percentile/metrics/read	Read latency metrics
Microsoft.DocumentDB/databaseAccounts/percentile/sourceRegion/targetRegion/metrics/read	Read latency metrics for a specific source and target region
Microsoft.DocumentDB/databaseAccounts/percentile/targetRegion/metrics/read	Read latency metrics for a specific target region
Microsoft.DocumentDB/databaseAccounts/privateEndpointConnectionProxies/read	Read a private endpoint connection proxy of Database Account
Microsoft.DocumentDB/databaseAccounts/privateEndpointConnectionProxies/write	Create or update a private endpoint connection proxy of Database Account
Microsoft.DocumentDB/databaseAccounts/privateEndpointConnectionProxies/delete	Delete a private endpoint connection proxy of Database Account
Microsoft.DocumentDB/databaseAccounts/privateEndpointConnectionProxies/validate/action	Validate a private endpoint connection proxy of Database Account
Microsoft.DocumentDB/databaseAccounts/privateEndpointConnectionProxies/operationResults/read	Read Status of private endpoint connection proxy asynchronous operation
Microsoft.DocumentDB/databaseAccounts/privateEndpointConnections/read	Read a private endpoint connection or list all the private endpoint connections of a Database Account
Microsoft.DocumentDB/databaseAccounts/privateEndpointConnections/write	Create or update a private endpoint connection of a Database Account
Microsoft.DocumentDB/databaseAccounts/privateEndpointConnections/delete	Delete a private endpoint connection of a Database Account
Microsoft.DocumentDB/databaseAccounts/privateEndpointConnections/operationResults/read	Read Status of privateEndpointConnenctions asynchronous operation
Microsoft.DocumentDB/databaseAccounts/privateLinkResources/read	Read a private link resource or list all the private link resources of a Database Account
Microsoft.DocumentDB/databaseAccounts/readonlykeys/read	Reads the database account readonly keys.

ACTION	DESCRIPTION
Microsoft.DocumentDB/databaseAccounts/region/databases /collections/metrics/read	Reads the regional collection metrics.
Microsoft.DocumentDB/databaseAccounts/region/databases /collections/partitionKeyRangeId/metrics/read	Read regional database account partition key level metrics
Microsoft.DocumentDB/databaseAccounts/region/databases /collections/partitions/read	Read regional database account partitions in a collection
Microsoft.DocumentDB/databaseAccounts/region/databases /collections/partitions/metrics/read	Read regional database account partition level metrics
Microsoft.DocumentDB/databaseAccounts/region/metrics/re ad	Reads the region and database account metrics.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/writ e	Create a SQL database.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/rea d	Read a SQL database or list all the SQL databases.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/del ete	Delete a SQL database.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/con tainers/write	Create or update a SQL container.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/con tainers/read	Read a SQL container or list all the SQL containers.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/con tainers/delete	Delete a SQL container.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/con tainers/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/con tainers/storedProcedures/write	Create or update a SQL stored procedure.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/con tainers/storedProcedures/read	Read a SQL stored procedure or list all the SQL stored procedures.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/con tainers/storedProcedures/delete	Delete a SQL stored procedure.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/con tainers/storedProcedures/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/con tainers/throughputSettings/write	Update a SQL container throughput.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/con tainers/throughputSettings/read	Read a SQL container throughput.

ACTION	DESCRIPTION
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/containers/throughputSettings/migrateToAutoscale/action	Migrate SQL container offer to autoscale.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/containers/throughputSettings/migrateToManualThroughput/action	Migrate a SQL database throughput offer to manual throughput.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/containers/throughputSettings/migrateToAutoscale/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/containers/throughputSettings/migrateToManualThroughput/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/containers/throughputSettings/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/containers/triggers/write	Create or update a SQL trigger.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/containers/triggers/read	Read a SQL trigger or list all the SQL triggers.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/containers/triggers/delete	Delete a SQL trigger.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/containers/triggers/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/containers/userDefinedFunctions/write	Create or update a SQL user defined function.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/containers/userDefinedFunctions/read	Read a SQL user defined function or list all the SQL user defined functions.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/containers/userDefinedFunctions/delete	Delete a SQL user defined function.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/containers/userDefinedFunctions/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/throughputSettings/write	Update a SQL database throughput.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/throughputSettings/read	Read a SQL database throughput.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/throughputSettings/migrateToAutoscale/action	Migrate SQL database offer to autoscale.

ACTION	DESCRIPTION
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/throughputSettings/migrateToManualThroughput/action	Migrate a SQL database throughput offer to manual throughput.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/throughputSettings/migrateToAutoscale/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/throughputSettings/migrateToManualThroughput/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/sqlDatabases/throughputSettings/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/tables/write	Create or update a table.
Microsoft.DocumentDB/databaseAccounts/tables/read	Read a table or list all the tables.
Microsoft.DocumentDB/databaseAccounts/tables/delete	Delete a table.
Microsoft.DocumentDB/databaseAccounts/tables/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/tables/throughputSettings/write	Update a table throughput.
Microsoft.DocumentDB/databaseAccounts/tables/throughputSettings/read	Read a table throughput.
Microsoft.DocumentDB/databaseAccounts/tables/throughputSettings/migrateToAutoscale/action	Migrate table offer to autoscale.
Microsoft.DocumentDB/databaseAccounts/tables/throughputSettings/migrateToManualThroughput/action	Migrate table offer to manual throughput.
Microsoft.DocumentDB/databaseAccounts/tables/throughputSettings/migrateToAutoscale/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/tables/throughputSettings/migrateToManualThroughput/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/tables/throughputSettings/operationResults/read	Read status of the asynchronous operation.
Microsoft.DocumentDB/databaseAccounts/usages/read	Reads the database account usages.
Microsoft.DocumentDB/locations/deleteVirtualNetworkOrSubnets/action	Notifies Microsoft.DocumentDB that VirtualNetwork or Subnet is being deleted
Microsoft.DocumentDB/locations/deleteVirtualNetworkOrSubnets/operationResults/read	Read Status of deleteVirtualNetworkOrSubnets asynchronous operation
Microsoft.DocumentDB/locations/operationsStatus/read	Reads Status of Asynchronous Operations

ACTION	DESCRIPTION
Microsoft.DocumentDB/operationResults/read	Read status of the asynchronous operation
Microsoft.DocumentDB/operations/read	Read operations available for the Microsoft DocumentDB

## Microsoft.Sql

Azure service: [Azure SQL Database](#), [Azure SQL Managed Instance](#), [SQL Data Warehouse](#)

ACTION	DESCRIPTION
Microsoft.Sql/checkNameAvailability/action	Verify whether given server name is available for provisioning worldwide for a given subscription.
Microsoft.Sql/register/action	Registers the subscription for the Microsoft SQL Database resource provider and enables the creation of Microsoft SQL Databases.
Microsoft.Sql/unregister/action	UnRegisters the subscription for the Microsoft SQL Database resource provider and enables the creation of Microsoft SQL Databases.
Microsoft.Sql/privateEndpointConnectionsApproval/action	Determines if user is allowed to approve a private endpoint connection
Microsoft.Sql/instancePools/read	Gets an instance pool
Microsoft.Sql/instancePools/write	Creates or updates an instance pool
Microsoft.Sql/instancePools/delete	Deletes an instance pool
Microsoft.Sql/instancePools/usages/read	Gets an instance pool's usage info
Microsoft.Sql/locations/read	Gets the available locations for a given subscription
Microsoft.Sql/locations/auditingSettingsAzureAsyncOperation/read	Retrieve result of the extended server blob auditing policy Set operation
Microsoft.Sql/locations/auditingSettingsOperationResults/read	Retrieve result of the server blob auditing policy Set operation
Microsoft.Sql/locations/capabilities/read	Gets the capabilities for this subscription in a given location
Microsoft.Sql/locations/databaseAzureAsyncOperation/read	Gets the status of a database operation.
Microsoft.Sql/locations/databaseOperationResults/read	Gets the status of a database operation.
Microsoft.Sql/locations/deletedServerAsyncOperation/read	Gets in-progress operations on deleted server
Microsoft.Sql/locations/deletedServerOperationResults/read	Gets in-progress operations on deleted server
Microsoft.Sql/locations/deletedServers/read	Return the list of deleted servers or gets the properties for the specified deleted server.

ACTION	DESCRIPTION
Microsoft.Sql/locations/deletedServers/recover/action	Recover a deleted server
Microsoft.Sql/locations/elasticPoolAzureAsyncOperation/read	Gets the azure async operation for an elastic pool async operation
Microsoft.Sql/locations/elasticPoolOperationResults/read	Gets the result of an elastic pool operation.
Microsoft.Sql/locations/encryptionProtectorAzureAsyncOperation/read	Gets in-progress operations on transparent data encryption encryption protector
Microsoft.Sql/locations/encryptionProtectorOperationResults/read	Gets in-progress operations on transparent data encryption encryption protector
Microsoft.Sql/locations/extendedAuditingSettingsAzureAsyncOperation/read	Retrieve result of the extended server blob auditing policy Set operation
Microsoft.Sql/locations/extendedAuditingSettingsOperationResults/read	Retrieve result of the extended server blob auditing policy Set operation
Microsoft.Sql/locations/firewallRulesAzureAsyncOperation/read	Gets the status of a firewall rule operation.
Microsoft.Sql/locations/firewallRulesOperationResults/read	Gets the status of a firewall rule operation.
Microsoft.Sql/locations/instanceFailoverGroups/read	Returns the list of instance failover groups or gets the properties for the specified instance failover group.
Microsoft.Sql/locations/instanceFailoverGroups/write	Creates an instance failover group with the specified parameters or updates the properties or tags for the specified instance failover group.
Microsoft.Sql/locations/instanceFailoverGroups/delete	Deletes an existing instance failover group.
Microsoft.Sql/locations/instanceFailoverGroups/failover/action	Executes planned failover in an existing instance failover group.
Microsoft.Sql/locations/instanceFailoverGroups/forceFailoverAllowDataLoss/action	Executes forced failover in an existing instance failover group.
Microsoft.Sql/locations/instancePoolAzureAsyncOperation/read	Gets the status of an instance pool operation
Microsoft.Sql/locations/instancePoolOperationResults/read	Gets the result for an instance pool operation
Microsoft.Sql/locations/interfaceEndpointProfileAzureAsyncOperation/read	Returns the details of a specific interface endpoint Azure async operation
Microsoft.Sql/locations/interfaceEndpointProfileOperationResults/read	Returns the details of the specified interface endpoint profile operation
Microsoft.Sql/locations/jobAgentAzureAsyncOperation/read	Gets the status of an job agent operation.
Microsoft.Sql/locations/jobAgentOperationResults/read	Gets the result of an job agent operation.

ACTION	DESCRIPTION
Microsoft.Sql/locations/longTermRetentionBackups/read	Lists the long term retention backups for every database on every server in a location
Microsoft.Sql/locations/longTermRetentionManagedInstanceBackups/read	Returns a list of managed instance LTR backups for a specific location
Microsoft.Sql/locations/longTermRetentionManagedInstances/longTermRetentionDatabases/longTermRetentionManagedInstanceBackups/read	Returns a list of LTR backups for a managed instance database
Microsoft.Sql/locations/longTermRetentionManagedInstances/longTermRetentionDatabases/longTermRetentionManagedInstanceBackups/delete	Deletes an LTR backup for a managed instance database
Microsoft.Sql/locations/longTermRetentionManagedInstances/longTermRetentionManagedInstanceBackups/read	Returns a list of managed instance LTR backups for a specific managed instance
Microsoft.Sql/locations/longTermRetentionServers/longTermRetentionBackups/read	Lists the long term retention backups for every database on a server
Microsoft.Sql/locations/longTermRetentionServers/longTermRetentionDatabases/longTermRetentionBackups/read	Lists the long term retention backups for a database
Microsoft.Sql/locations/longTermRetentionServers/longTermRetentionDatabases/longTermRetentionBackups/delete	Deletes a long term retention backup
Microsoft.Sql/locations/managedDatabaseRestoreAzureAsyncOperation/completeRestore/action	Completes managed database restore operation
Microsoft.Sql/locations/managedInstanceEncryptionProtectorAzureAsyncOperation/read	Gets in-progress operations on transparent data encryption managed instance encryption protector
Microsoft.Sql/locations/managedInstanceEncryptionProtectorOperationResults/read	Gets in-progress operations on transparent data encryption managed instance encryption protector
Microsoft.Sql/locations/managedInstanceKeyAzureAsyncOperation/read	Gets in-progress operations on transparent data encryption managed instance keys
Microsoft.Sql/locations/managedInstanceKeyOperationResults/read	Gets in-progress operations on transparent data encryption managed instance keys
Microsoft.Sql/locations/managedInstanceLongTermRetentionPolicyAzureAsyncOperation/read	Gets the status of a long term retention policy operation for a managed database
Microsoft.Sql/locations/managedInstanceLongTermRetentionPolicyOperationResults/read	Gets the status of a long term retention policy operation for a managed database
Microsoft.Sql/locations/managedInstancePrivateEndpointConnectionAzureAsyncOperation/read	Gets the result for a private endpoint connection operation
Microsoft.Sql/locations/managedInstancePrivateEndpointConnectionOperationResults/read	Gets the result for a private endpoint connection operation

ACTION	DESCRIPTION
Microsoft.Sql/locations/managedInstancePrivateEndpointConnectionProxyAzureAsyncOperation/read	Gets the result for a private endpoint connection proxy operation
Microsoft.Sql/locations/managedInstancePrivateEndpointConnectionProxyOperationResults/read	Gets the result for a private endpoint connection proxy operation
Microsoft.Sql/locations/managedShortTermRetentionPolicyOperationResults/read	Gets the status of a short term retention policy operation
Microsoft.Sql/locations/managedTransparentDataEncryptionAzureAsyncOperation/read	Gets in-progress operations on managed database transparent data encryption
Microsoft.Sql/locations/managedTransparentDataEncryptionOperationResults/read	Gets in-progress operations on managed database transparent data encryption
Microsoft.Sql/locations/operationsHealth/read	Gets health status of the service operation in a location
Microsoft.Sql/locations/privateEndpointConnectionAzureAsyncOperation/read	Gets the result for a private endpoint connection operation
Microsoft.Sql/locations/privateEndpointConnectionOperationResults/read	Gets the result for a private endpoint connection operation
Microsoft.Sql/locations/privateEndpointConnectionProxyAzureAsyncOperation/read	Gets the result for a private endpoint connection proxy operation
Microsoft.Sql/locations/privateEndpointConnectionProxyOperationResults/read	Gets the result for a private endpoint connection proxy operation
Microsoft.Sql/locations/serverAdministratorAzureAsyncOperation/read	Server Azure Active Directory administrator async operation results
Microsoft.Sql/locations/serverAdministratorOperationResults/read	Server Azure Active Directory administrator operation results
Microsoft.Sql/locations/serverKeyAzureAsyncOperation/read	Gets in-progress operations on transparent data encryption server keys
Microsoft.Sql/locations/serverKeyOperationResults/read	Gets in-progress operations on transparent data encryption server keys
Microsoft.Sql/locations/shortTermRetentionPolicyOperationResults/read	Gets the status of a short term retention policy operation
Microsoft.Sql/locations/syncAgentOperationResults/read	Retrieve result of the sync agent resource operation
Microsoft.Sql/locations/syncDatabaseIds/read	Retrieve the sync database ids for a particular region and subscription
Microsoft.Sql/locations/syncGroupOperationResults/read	Retrieve result of the sync group resource operation
Microsoft.Sql/locations/syncMemberOperationResults/read	Retrieve result of the sync member resource operation

ACTION	DESCRIPTION
Microsoft.Sql/locations/timeZones/read	Return the list of managed instance time zones by location.
Microsoft.Sql/locations/transparentDataEncryptionAzureAsyncOperation/read	Gets in-progress operations on logical database transparent data encryption
Microsoft.Sql/locations/transparentDataEncryptionOperationResults/read	Gets in-progress operations on logical database transparent data encryption
Microsoft.Sql/locations/usages/read	Gets a collection of usage metrics for this subscription in a location
Microsoft.Sql/locations/virtualNetworkRulesAzureAsyncOperation/read	Returns the details of the specified virtual network rules azure async operation
Microsoft.Sql/locations/virtualNetworkRulesOperationResults/read	Returns the details of the specified virtual network rules operation
Microsoft.Sql/managedInstances/tdeCertificates/action	Create/Update TDE certificate
Microsoft.Sql/managedInstances/export/action	Export system database and SMK key
Microsoft.Sql/managedInstances/read	Return the list of managed instances or gets the properties for the specified managed instance.
Microsoft.Sql/managedInstances/write	Creates a managed instance with the specified parameters or update the properties or tags for the specified managed instance.
Microsoft.Sql/managedInstances/delete	Deletes an existing managed instance.
Microsoft.Sql/managedInstances/failover/action	Customer initiated managed instance failover.
Microsoft.Sql/managedInstances/administrators/read	Gets a list of managed instance administrators.
Microsoft.Sql/managedInstances/administrators/write	Creates or updates managed instance administrator with the specified parameters.
Microsoft.Sql/managedInstances/administrators/delete	Deletes an existing administrator of managed instance.
Microsoft.Sql/managedInstances/databases/read	Gets existing managed database
Microsoft.Sql/managedInstances/databases/delete	Deletes an existing managed database
Microsoft.Sql/managedInstances/databases/write	Creates a new database or updates an existing database.
Microsoft.Sql/managedInstances/databases/completeRestore/action	Completes managed database restore operation
Microsoft.Sql/managedInstances/databases/backupLongTermRetentionPolicies/write	Updates a long term retention policy for a managed database

ACTION	DESCRIPTION
Microsoft.Sql/managedInstances/databases/backupLongTermRetentionPolicies/read	Gets a long term retention policy for a managed database
Microsoft.Sql/managedInstances/databases/backupShortTermRetentionPolicies/read	Gets a short term retention policy for a managed database
Microsoft.Sql/managedInstances/databases/backupShortTermRetentionPolicies/write	Updates a short term retention policy for a managed database
Microsoft.Sql/managedInstances/databases/columns/read	Return a list of columns for a managed database
Microsoft.Sql/managedInstances/databases/currentSensitivityLabels/read	List sensitivity labels of a given database
Microsoft.Sql/managedInstances/databases/currentSensitivityLabels/write	Batch update sensitivity labels
Microsoft.Sql/managedInstances/databases/providers/Microsoft.Insights/diagnosticSettings/read	Gets the diagnostic setting for the resource
Microsoft.Sql/managedInstances/databases/providers/Microsoft.Insights/diagnosticSettings/write	Creates or updates the diagnostic setting for the resource
Microsoft.Sql/managedInstances/databases/providers/Microsoft.Insights/logDefinitions/read	Gets the available logs for managed instance databases
Microsoft.Sql/managedInstances/databases/queries/read	Get query text by query id
Microsoft.Sql/managedInstances/databases/queries/statistics/read	Get query execution statistics by query id
Microsoft.Sql/managedInstances/databases/recommendedSensitivityLabels/read	List sensitivity labels of a given database
Microsoft.Sql/managedInstances/databases/recommendedSensitivityLabels/write	Batch update recommended sensitivity labels
Microsoft.Sql/managedInstances/databases/restoreDetails/read	Returns managed database restore details while restore is in progress.
Microsoft.Sql/managedInstances/databases/schemas/read	Get a managed database schema.
Microsoft.Sql/managedInstances/databases/schemas/tables/read	Get a managed database table
Microsoft.Sql/managedInstances/databases/schemas/tables/columns/read	Get a managed database column
Microsoft.Sql/managedInstances/databases/schemas/tables/columns/sensitivityLabels/read	Get the sensitivity label of a given column
Microsoft.Sql/managedInstances/databases/schemas/tables/columns/sensitivityLabels/write	Create or update the sensitivity label of a given column

ACTION	DESCRIPTION
Microsoft.Sql/managedInstances/databases/schemas/tables/columns/sensitivityLabels/delete	Delete the sensitivity label of a given column
Microsoft.Sql/managedInstances/databases/schemas/tables/columns/sensitivityLabels/disable/action	Disable sensitivity recommendations on a given column
Microsoft.Sql/managedInstances/databases/schemas/tables/columns/sensitivityLabels/enable/action	Enable sensitivity recommendations on a given column
Microsoft.Sql/managedInstances/databases/securityAlertPolicies/write	Change the database threat detection policy for a given managed database
Microsoft.Sql/managedInstances/databases/securityAlertPolicies/read	Retrieve a list of managed database threat detection policies configured for a given server
Microsoft.Sql/managedInstances/databases/securityEvents/read	Retrieves the managed database security events
Microsoft.Sql/managedInstances/databases/sensitivityLabels/read	List sensitivity labels of a given database
Microsoft.Sql/managedInstances/databases/transparentDataEncryption/read	Retrieve details of the database Transparent Data Encryption on a given managed database
Microsoft.Sql/managedInstances/databases/transparentDataEncryption/write	Change the database Transparent Data Encryption for a given managed database
Microsoft.Sql/managedInstances/databases/vulnerabilityAssessments/write	Change the vulnerability assessment for a given database
Microsoft.Sql/managedInstances/databases/vulnerabilityAssessments/delete	Remove the vulnerability assessment for a given database
Microsoft.Sql/managedInstances/databases/vulnerabilityAssessments/read	Retrieve the vulnerability assessment policies on a given database
Microsoft.Sql/managedInstances/databases/vulnerabilityAssessments/rules/baselines/delete	Remove the vulnerability assessment rule baseline for a given database
Microsoft.Sql/managedInstances/databases/vulnerabilityAssessments/rules/baselines/write	Change the vulnerability assessment rule baseline for a given database
Microsoft.Sql/managedInstances/databases/vulnerabilityAssessments/rules/baselines/read	Get the vulnerability assessment rule baseline for a given database
Microsoft.Sql/managedInstances/databases/vulnerabilityAssessments/scans/initiateScan/action	Execute vulnerability assessment database scan.
Microsoft.Sql/managedInstances/databases/vulnerabilityAssessments/scans/export/action	Convert an existing scan result to a human readable format. If already exists nothing happens
Microsoft.Sql/managedInstances/databases/vulnerabilityAssessments/scans/read	Return the list of database vulnerability assessment scan records or get the scan record for the specified scan ID.

ACTION	DESCRIPTION
Microsoft.Sql/managedInstances/encryptionProtector/revalidate/action	Update the properties for the specified Server Encryption Protector.
Microsoft.Sql/managedInstances/encryptionProtector/read	Returns a list of server encryption protectors or gets the properties for the specified server encryption protector.
Microsoft.Sql/managedInstances/encryptionProtector/write	Update the properties for the specified Server Encryption Protector.
Microsoft.Sql/managedInstances/exportOperationResults/read	Gets in-progress export operations
Microsoft.Sql/managedInstances/inaccessibleManagedDatabases/read	Gets a list of inaccessible managed databases in a managed instance
Microsoft.Sql/managedInstances/keys/read	Return the list of managed instance keys or gets the properties for the specified managed instance key.
Microsoft.Sql/managedInstances/keys/write	Creates a key with the specified parameters or update the properties or tags for the specified managed instance key.
Microsoft.Sql/managedInstances/keys/delete	Deletes an existing Azure SQL Managed Instance key.
Microsoft.Sql/managedInstances/metricDefinitions/read	Get managed instance metric definitions
Microsoft.Sql/managedInstances/metrics/read	Get managed instance metrics
Microsoft.Sql/managedInstances/operations/read	Get managed instance operations
Microsoft.Sql/managedInstances/operations/cancel/action	Cancels Azure SQL Managed Instance pending asynchronous operation that is not finished yet.
Microsoft.Sql/managedInstances/privateEndpointConnectionProxies/read	Returns the list of private endpoint connection proxies or gets the properties for the specified private endpoint connection proxy.
Microsoft.Sql/managedInstances/privateEndpointConnectionProxies/write	Creates a private endpoint connection proxy with the specified parameters or updates the properties or tags for the specified private endpoint connection proxy.
Microsoft.Sql/managedInstances/privateEndpointConnectionProxies/delete	Deletes an existing private endpoint connection proxy
Microsoft.Sql/managedInstances/privateEndpointConnectionProxies/validate/action	Validates a private endpoint connection create call from NRP side
Microsoft.Sql/managedInstances/privateEndpointConnections/read	Returns the list of private endpoint connections or gets the properties for the specified private endpoint connection.
Microsoft.Sql/managedInstances/privateEndpointConnections/delete	Deletes an existing private endpoint connection

ACTION	DESCRIPTION
Microsoft.Sql/managedInstances/privateEndpointConnections/write	Approves or rejects an existing private endpoint connection
Microsoft.Sql/managedInstances/privateLinkResources/read	Get the private link resources for the corresponding sql server
Microsoft.Sql/managedInstances/providers/Microsoft.Insights/diagnosticSettings/read	Gets the diagnostic setting for the resource
Microsoft.Sql/managedInstances/providers/Microsoft.Insights/diagnosticSettings/write	Creates or updates the diagnostic setting for the resource
Microsoft.Sql/managedInstances/providers/Microsoft.Insights/logDefinitions/read	Gets the available logs for managed instances
Microsoft.Sql/managedInstances/providers/Microsoft.Insights/metricDefinitions/read	Return types of metrics that are available for managed instances
Microsoft.Sql/managedInstances/recoverableDatabases/read	Returns a list of recoverable managed databases
Microsoft.Sql/managedInstances/restorableDroppedDatabases/read	Returns a list of restorable dropped managed databases.
Microsoft.Sql/managedInstances/restorableDroppedDatabases/backupShortTermRetentionPolicies/read	Gets a short term retention policy for a dropped managed database
Microsoft.Sql/managedInstances/restorableDroppedDatabases/backupShortTermRetentionPolicies/write	Updates a short term retention policy for a dropped managed database
Microsoft.Sql/managedInstances/securityAlertPolicies/write	Change the managed server threat detection policy for a given managed server
Microsoft.Sql/managedInstances/securityAlertPolicies/read	Retrieve a list of managed server threat detection policies configured for a given server
Microsoft.Sql/managedInstances/topqueries/read	Get top resource consuming queries of a managed instance
Microsoft.Sql/managedInstances/vulnerabilityAssessments/write	Change the vulnerability assessment for a given managed instance
Microsoft.Sql/managedInstances/vulnerabilityAssessments/delete	Remove the vulnerability assessment for a given managed instance
Microsoft.Sql/managedInstances/vulnerabilityAssessments/read	Retrieve the vulnerability assessment policies on a given managed instance
Microsoft.Sql/operations/read	Gets available REST operations
Microsoft.Sql/servers/tdeCertificates/action	Create/Update TDE certificate
Microsoft.Sql/servers/enableAzureADOnlyAuthentication/action	Enable Azure Active Directory only authentication on logical Server

ACTION	DESCRIPTION
Microsoft.Sql/servers/disableAzureADOnlyAuthentication/action	Disable Azure Active Directory only authentication on logical Server
Microsoft.Sql/servers/read	Return the list of servers or gets the properties for the specified server.
Microsoft.Sql/servers/write	Creates a server with the specified parameters or update the properties or tags for the specified server.
Microsoft.Sql/servers/delete	Deletes an existing server.
Microsoft.Sql/servers/privateEndpointConnectionsApproval/action	Determines if user is allowed to approve a private endpoint connection
Microsoft.Sql/servers/import/action	Create a new database on the server and deploy schema and data from a DacPac package
Microsoft.Sql/servers/administratorOperationResults/read	Gets in-progress operations on server administrators
Microsoft.Sql/servers/administrators/read	Gets a specific Azure Active Directory administrator object
Microsoft.Sql/servers/administrators/write	Adds or updates a specific Azure Active Directory administrator object
Microsoft.Sql/servers/administrators/delete	Deletes a specific Azure Active Directory administrator object
Microsoft.Sql/servers/advisors/read	Returns list of advisors available for the server
Microsoft.Sql/servers/advisors/write	Updates auto-execute status of an advisor on server level.
Microsoft.Sql/servers/advisors/recommendedActions/read	Returns list of recommended actions of specified advisor for the server
Microsoft.Sql/servers/advisors/recommendedActions/write	Apply the recommended action on the server
Microsoft.Sql/servers/auditingPolicies/read	Retrieve details of the default server table auditing policy configured on a given server
Microsoft.Sql/servers/auditingPolicies/write	Change the default server table auditing for a given server
Microsoft.Sql/servers/auditingSettings/read	Retrieve details of the server blob auditing policy configured on a given server
Microsoft.Sql/servers/auditingSettings/write	Change the server blob auditing for a given server
Microsoft.Sql/servers/auditingSettings/operationResults/read	Retrieve result of the server blob auditing policy Set operation
Microsoft.Sql/servers/automaticTuning/read	Returns automatic tuning settings for the server
Microsoft.Sql/servers/automaticTuning/write	Updates automatic tuning settings for the server and returns updated settings

ACTION	DESCRIPTION
Microsoft.Sql/servers/communicationLinks/read	Return the list of communication links of a specified server.
Microsoft.Sql/servers/communicationLinks/write	Create or update a server communication link.
Microsoft.Sql/servers/communicationLinks/delete	Deletes an existing server communication link.
Microsoft.Sql/servers/connectionPolicies/read	Return the list of server connection policies of a specified server.
Microsoft.Sql/servers/connectionPolicies/write	Create or update a server connection policy.
Microsoft.Sql/servers/databases/read	Return the list of databases or gets the properties for the specified database.
Microsoft.Sql/servers/databases/write	Creates a database with the specified parameters or update the properties or tags for the specified database.
Microsoft.Sql/servers/databases/delete	Deletes an existing database.
Microsoft.Sql/servers/databases/pause/action	Pause Azure SQL Datawarehouse Database
Microsoft.Sql/servers/databases/resume/action	Resume Azure SQL Datawarehouse Database
Microsoft.Sql/servers/databases/export/action	Export Azure SQL Database
Microsoft.Sql/servers/databases/upgradeDataWarehouse/act ion	Upgrade Azure SQL Datawarehouse Database
Microsoft.Sql/servers/databases/move/action	Change the name of an existing database.
Microsoft.Sql/servers/databases/restorePoints/action	Creates a new restore point
Microsoft.Sql/servers/databases/failover/action	Customer initiated database failover.
Microsoft.Sql/servers/databases/vulnerabilityAssessmentScan s/action	Execute vulnerability assessment database scan.
Microsoft.Sql/servers/databases/advisors/read	Returns list of advisors available for the database
Microsoft.Sql/servers/databases/advisors/write	Update auto-execute status of an advisor on database level.
Microsoft.Sql/servers/databases/advisors/recommendedActio ns/read	Returns list of recommended actions of specified advisor for the database
Microsoft.Sql/servers/databases/advisors/recommendedActio ns/write	Apply the recommended action on the database
Microsoft.Sql/servers/databases/auditingPolicies/read	Retrieve details of the table auditing policy configured on a given database
Microsoft.Sql/servers/databases/auditingPolicies/write	Change the table auditing policy for a given database

ACTION	DESCRIPTION
Microsoft.Sql/servers/databases/auditingSettings/read	Retrieve details of the blob auditing policy configured on a given database
Microsoft.Sql/servers/databases/auditingSettings/write	Change the blob auditing policy for a given database
Microsoft.Sql/servers/databases/auditRecords/read	Retrieve the database blob audit records
Microsoft.Sql/servers/databases/automaticTuning/read	Returns automatic tuning settings for a database
Microsoft.Sql/servers/databases/automaticTuning/write	Updates automatic tuning settings for a database and returns updated settings
Microsoft.Sql/servers/databases/azureAsyncOperation/read	Gets the status of a database operation.
Microsoft.Sql/servers/databases/backupLongTermRetentionPolicies/write	Create or update a database backup archival policy.
Microsoft.Sql/servers/databases/backupLongTermRetentionPolicies/read	Return the list of backup archival policies of a specified database.
Microsoft.Sql/servers/databases/backupShortTermRetentionPolicies/read	Gets a short term retention policy for a database
Microsoft.Sql/servers/databases/backupShortTermRetentionPolicies/write	Updates a short term retention policy for a database
Microsoft.Sql/servers/databases/columns/read	Return a list of columns for a database
Microsoft.Sql/servers/databases/connectionPolicies/read	Retrieve details of the connection policy configured on a given database
Microsoft.Sql/servers/databases/connectionPolicies/write	Change connection policy for a given database
Microsoft.Sql/servers/databases/currentSensitivityLabels/read	List sensitivity labels of a given database
Microsoft.Sql/servers/databases/currentSensitivityLabels/write	Batch update sensitivity labels
Microsoft.Sql/servers/databases/dataMaskingPolicies/read	Return the list of database data masking policies.
Microsoft.Sql/servers/databases/dataMaskingPolicies/write	Change data masking policy for a given database
Microsoft.Sql/servers/databases/dataMaskingPolicies/rules/read	Retrieve details of the data masking policy rule configured on a given database
Microsoft.Sql/servers/databases/dataMaskingPolicies/rules/write	Change data masking policy rule for a given database
Microsoft.Sql/servers/databases/dataMaskingPolicies/rules/delete	Delete data masking policy rule for a given database

ACTION	DESCRIPTION
Microsoft.Sql/servers/databases/dataWarehouseQueries/read	Returns the data warehouse distribution query information for selected query ID
Microsoft.Sql/servers/databases/dataWarehouseQueries/dataWarehouseQuerySteps/read	Returns the distributed query step information of data warehouse query for selected step ID
Microsoft.Sql/servers/databases/dataWarehouseUserActivities/read	Retrieves the user activities of a SQL Data Warehouse instance which includes running and suspended queries
Microsoft.Sql/servers/databases/extendedAuditingSettings/read	Retrieve details of the extended blob auditing policy configured on a given database
Microsoft.Sql/servers/databases/extendedAuditingSettings/write	Change the extended blob auditing policy for a given database
Microsoft.Sql/servers/databases/extensions/read	Gets a collection of extensions for the database.
Microsoft.Sql/servers/databases/extensions/write	Change the extension for a given database
Microsoft.Sql/servers/databases/extensions/importExtensionOperationResults/read	Gets in-progress import operations
Microsoft.Sql/servers/databases/geoBackupPolicies/read	Retrieve geo backup policies for a given database
Microsoft.Sql/servers/databases/geoBackupPolicies/write	Create or update a database geobackup policy
Microsoft.Sql/servers/databases/importExportOperationResults/read	Gets in-progress import/export operations
Microsoft.Sql/servers/databases/maintenanceWindowOptions/read	Gets a list of available maintenance windows for a selected database.
Microsoft.Sql/servers/databases/maintenanceWindows/read	Gets maintenance windows settings for a selected database.
Microsoft.Sql/servers/databases/maintenanceWindows/write	Sets maintenance windows settings for a selected database.
Microsoft.Sql/servers/databases/metricDefinitions/read	Return types of metrics that are available for databases
Microsoft.Sql/servers/databases/metrics/read	Return metrics for databases
Microsoft.Sql/servers/databases/operationResults/read	Gets the status of a database operation.
Microsoft.Sql/servers/databases/operations/cancel/action	Cancels Azure SQL Database pending asynchronous operation that is not finished yet.
Microsoft.Sql/servers/databases/operations/read	Return the list of operations performed on the database
Microsoft.Sql/servers/databases/providers/Microsoft.Insights/diagnosticSettings/read	Gets the diagnostic setting for the resource
Microsoft.Sql/servers/databases/providers/Microsoft.Insights/diagnosticSettings/write	Creates or updates the diagnostic setting for the resource

ACTION	DESCRIPTION
Microsoft.Sql/servers/databases/providers/Microsoft.Insights /logDefinitions/read	Gets the available logs for databases
Microsoft.Sql/servers/databases/providers/Microsoft.Insights /metricDefinitions/read	Return types of metrics that are available for databases
Microsoft.Sql/servers/databases/queryStore/read	Returns current values of Query Store settings for the database.
Microsoft.Sql/servers/databases/queryStore/write	Updates Query Store setting for the database
Microsoft.Sql/servers/databases/queryStore/queryTexts/read	Returns the collection of query texts that correspond to the specified parameters.
Microsoft.Sql/servers/databases/recommendedSensitivityLabels/read	List sensitivity labels of a given database
Microsoft.Sql/servers/databases/recommendedSensitivityLabels/write	Batch update recommended sensitivity labels
Microsoft.Sql/servers/databases/replicationLinks/read	Return the list of replication links or gets the properties for the specified replication links.
Microsoft.Sql/servers/databases/replicationLinks/delete	Terminate the replication relationship forcefully and with potential data loss
Microsoft.Sql/servers/databases/replicationLinks/failover/action	Failover after synchronizing all changes from the primary, making this database into the replication relationship's primary and making the remote primary into a secondary
Microsoft.Sql/servers/databases/replicationLinks/forceFailoverAllowDataLoss/action	Failover immediately with potential data loss, making this database into the replication relationship's primary and making the remote primary into a secondary
Microsoft.Sql/servers/databases/replicationLinks/updateReplicationMode/action	Update replication mode for link to synchronous or asynchronous mode
Microsoft.Sql/servers/databases/replicationLinks/unlink/action	Terminate the replication relationship forcefully or after synchronizing with the partner
Microsoft.Sql/servers/databases/restorePoints/read	Returns restore points for the database.
Microsoft.Sql/servers/databases/restorePoints/delete	Deletes a restore point for the database.
Microsoft.Sql/servers/databases/schemas/read	Get a database schema.
Microsoft.Sql/servers/databases/schemas/tables/read	Get a database table.
Microsoft.Sql/servers/databases/schemas/tables/columns/read	Get a database column.

ACTION	DESCRIPTION
Microsoft.Sql/servers/databases/schemas/tables/columns/sensitivityLabels/enable/action	Enable sensitivity recommendations on a given column
Microsoft.Sql/servers/databases/schemas/tables/columns/sensitivityLabels/disable/action	Disable sensitivity recommendations on a given column
Microsoft.Sql/servers/databases/schemas/tables/columns/sensitivityLabels/read	Get the sensitivity label of a given column
Microsoft.Sql/servers/databases/schemas/tables/columns/sensitivityLabels/write	Create or update the sensitivity label of a given column
Microsoft.Sql/servers/databases/schemas/tables/columns/sensitivityLabels/delete	Delete the sensitivity label of a given column
Microsoft.Sql/servers/databases/schemas/tables/recommendEdIndexes/read	Retrieve list of index recommendations on a database
Microsoft.Sql/servers/databases/schemas/tables/recommendEdIndexes/write	Apply index recommendation
Microsoft.Sql/servers/databases/securityAlertPolicies/write	Change the database threat detection policy for a given database
Microsoft.Sql/servers/databases/securityAlertPolicies/read	Retrieve a list of database threat detection policies configured for a given server
Microsoft.Sql/servers/databases/securityMetrics/read	Gets a collection of database security metrics
Microsoft.Sql/servers/databases/sensitivityLabels/read	List sensitivity labels of a given database
Microsoft.Sql/servers/databases/serviceTierAdvisors/read	Return suggestion about scaling database up or down based on query execution statistics to improve performance or reduce cost
Microsoft.Sql/servers/databases/skus/read	Gets a collection of skus available for a database
Microsoft.Sql/servers/databases/syncGroups/refreshHubSchema/action	Refresh sync hub database schema
Microsoft.Sql/servers/databases/syncGroups/cancelSync/action	Cancel sync group synchronization
Microsoft.Sql/servers/databases/syncGroups/triggerSync/action	Trigger sync group synchronization
Microsoft.Sql/servers/databases/syncGroups/read	Return the list of sync groups or gets the properties for the specified sync group.
Microsoft.Sql/servers/databases/syncGroups/write	Creates a sync group with the specified parameters or update the properties for the specified sync group.
Microsoft.Sql/servers/databases/syncGroups/delete	Deletes an existing sync group.

ACTION	DESCRIPTION
Microsoft.Sql/servers/databases/syncGroups/hubSchemas/read	Return the list of sync hub database schemas
Microsoft.Sql/servers/databases/syncGroups/logs/read	Return the list of sync group logs
Microsoft.Sql/servers/databases/syncGroups/refreshHubSchemaOperationResults/read	Retrieve result of the sync hub schema refresh operation
Microsoft.Sql/servers/databases/syncGroups/syncMembers/read	Return the list of sync members or gets the properties for the specified sync member.
Microsoft.Sql/servers/databases/syncGroups/syncMembers/write	Creates a sync member with the specified parameters or update the properties for the specified sync member.
Microsoft.Sql/servers/databases/syncGroups/syncMembers/delete	Deletes an existing sync member.
Microsoft.Sql/servers/databases/syncGroups/syncMembers/refreshSchema/action	Refresh sync member schema
Microsoft.Sql/servers/databases/syncGroups/syncMembers/refreshSchemaOperationResults/read	Retrieve result of the sync member schema refresh operation
Microsoft.Sql/servers/databases/syncGroups/syncMembers/schemas/read	Return the list of sync member database schemas
Microsoft.Sql/servers/databases/topQueries/queryText/action	Returns the Transact-SQL text for selected query ID
Microsoft.Sql/servers/databases/topQueries/read	Returns aggregated runtime statistics for selected query in selected time period
Microsoft.Sql/servers/databases/topQueries/statistics/read	Returns aggregated runtime statistics for selected query in selected time period
Microsoft.Sql/servers/databases/transparentDataEncryption/read	Retrieve details of the logical database Transparent Data Encryption on a given managed database
Microsoft.Sql/servers/databases/transparentDataEncryption/write	Change the database Transparent Data Encryption for a given logical database
Microsoft.Sql/servers/databases/transparentDataEncryption/operationResults/read	Gets in-progress operations on transparent data encryption
Microsoft.Sql/servers/databases/usages/read	Gets the Azure SQL Database usages information
Microsoft.Sql/servers/databases/vulnerabilityAssessments/write	Change the vulnerability assessment for a given database
Microsoft.Sql/servers/databases/vulnerabilityAssessments/delete	Remove the vulnerability assessment for a given database

ACTION	DESCRIPTION
Microsoft.Sql/servers/databases/vulnerabilityAssessments/read	Retrieve the vulnerability assessment policies on a given database
Microsoft.Sql/servers/databases/vulnerabilityAssessments/rules/baselines/delete	Remove the vulnerability assessment rule baseline for a given database
Microsoft.Sql/servers/databases/vulnerabilityAssessments/rules/baselines/write	Change the vulnerability assessment rule baseline for a given database
Microsoft.Sql/servers/databases/vulnerabilityAssessments/rules/baselines/read	Get the vulnerability assessment rule baseline for a given database
Microsoft.Sql/servers/databases/vulnerabilityAssessments/scans/initiateScan/action	Execute vulnerability assessment database scan.
Microsoft.Sql/servers/databases/vulnerabilityAssessments/scans/read	Return the list of database vulnerability assessment scan records or get the scan record for the specified scan ID.
Microsoft.Sql/servers/databases/vulnerabilityAssessments/scans/export/action	Convert an existing scan result to a human readable format. If already exists nothing happens
Microsoft.Sql/servers/databases/vulnerabilityAssessmentScans/operationResults/read	Retrieve the result of the database vulnerability assessment scan Execute operation
Microsoft.Sql/servers/databases/vulnerabilityAssessmentSettings/read	Retrieve details of the vulnerability assessment configured on a given database
Microsoft.Sql/servers/databases/vulnerabilityAssessmentSettings/write	Change the vulnerability assessment for a given database
Microsoft.Sql/servers/databases/workloadGroups/read	Lists the workload groups for a selected database.
Microsoft.Sql/servers/databases/workloadGroups/write	Sets the properties for a specific workload group.
Microsoft.Sql/servers/databases/workloadGroups/delete	Drops a specific workload group.
Microsoft.Sql/servers/databases/workloadGroups/workloadClassifiers/read	Lists the workload classifiers for a selected database.
Microsoft.Sql/servers/databases/workloadGroups/workloadClassifiers/write	Sets the properties for a specific workload classifier.
Microsoft.Sql/servers/databases/workloadGroups/workloadClassifiers/delete	Drops a specific workload classifier.
Microsoft.Sql/servers/disasterRecoveryConfiguration/read	Gets a collection of disaster recovery configurations that include this server
Microsoft.Sql/servers/disasterRecoveryConfiguration/write	Change server disaster recovery configuration
Microsoft.Sql/servers/disasterRecoveryConfiguration/delete	Deletes an existing disaster recovery configurations for a given server

ACTION	DESCRIPTION
Microsoft.Sql/servers/disasterRecoveryConfiguration/failover/action	Failover a DisasterRecoveryConfiguration
Microsoft.Sql/servers/disasterRecoveryConfiguration/forceFailoverAllowDataLoss/action	Force Failover a DisasterRecoveryConfiguration
Microsoft.Sql/servers/elasticPoolEstimates/read	Returns list of elastic pool estimates already created for this server
Microsoft.Sql/servers/elasticPoolEstimates/write	Creates new elastic pool estimate for list of databases provided
Microsoft.Sql/servers/elasticPools/read	Retrieve details of elastic pool on a given server
Microsoft.Sql/servers/elasticPools/write	Create a new or change properties of existing elastic pool
Microsoft.Sql/servers/elasticPools/delete	Delete existing elastic pool
Microsoft.Sql/servers/elasticPools/failover/action	Customer initiated elastic pool failover.
Microsoft.Sql/servers/elasticPools/advisors/read	Returns list of advisors available for the elastic pool
Microsoft.Sql/servers/elasticPools/advisors/write	Update auto-execute status of an advisor on elastic pool level.
Microsoft.Sql/servers/elasticPools/advisors/recommendedActions/read	Returns list of recommended actions of specified advisor for the elastic pool
Microsoft.Sql/servers/elasticPools/advisors/recommendedActions/write	Apply the recommended action on the elastic pool
Microsoft.Sql/servers/elasticPools/databases/read	Gets a list of databases for an elastic pool
Microsoft.Sql/servers/elasticPools/elasticPoolActivity/read	Retrieve activities and details on a given elastic database pool
Microsoft.Sql/servers/elasticPools/elasticPoolDatabaseActivity/read	Retrieve activities and details on a given database that is part of elastic database pool
Microsoft.Sql/servers/elasticPools/metricDefinitions/read	Return types of metrics that are available for elastic database pools
Microsoft.Sql/servers/elasticPools/metrics/read	Return metrics for elastic database pools
Microsoft.Sql/servers/elasticPools/operations/cancel/action	Cancels Azure SQL elastic pool pending asynchronous operation that is not finished yet.
Microsoft.Sql/servers/elasticPools/operations/read	Return the list of operations performed on the elastic pool
Microsoft.Sql/servers/elasticPools/providers/Microsoft.Insights/diagnosticSettings/read	Gets the diagnostic setting for the resource

ACTION	DESCRIPTION
Microsoft.Sql/servers/elasticPools/providers/Microsoft.Insights/diagnosticSettings/write	Creates or updates the diagnostic setting for the resource
Microsoft.Sql/servers/elasticPools/providers/Microsoft.Insights/metricDefinitions/read	Return types of metrics that are available for elastic database pools
Microsoft.Sql/servers/elasticPools/skus/read	Gets a collection of skus available for an elastic pool
Microsoft.Sql/servers/encryptionProtector/revalidate/action	Update the properties for the specified Server Encryption Protector.
Microsoft.Sql/servers/encryptionProtector/read	Returns a list of server encryption protectors or gets the properties for the specified server encryption protector.
Microsoft.Sql/servers/encryptionProtector/write	Update the properties for the specified Server Encryption Protector.
Microsoft.Sql/servers/extendedAuditingSettings/read	Retrieve details of the extended server blob auditing policy configured on a given server
Microsoft.Sql/servers/extendedAuditingSettings/write	Change the extended server blob auditing for a given server
Microsoft.Sql/servers/failoverGroups/read	Returns the list of failover groups or gets the properties for the specified failover group.
Microsoft.Sql/servers/failoverGroups/write	Creates a failover group with the specified parameters or updates the properties or tags for the specified failover group.
Microsoft.Sql/servers/failoverGroups/delete	Deletes an existing failover group.
Microsoft.Sql/servers/failoverGroups/failover/action	Executes planned failover in an existing failover group.
Microsoft.Sql/servers/failoverGroups/forceFailoverAllowDataloss/action	Executes forced failover in an existing failover group.
Microsoft.Sql/servers/firewallRules/write	Creates a server firewall rule with the specified parameters, update the properties for the specified rule or overwrite all existing rules with new server firewall rule(s).
Microsoft.Sql/servers/firewallRules/read	Return the list of server firewall rules or gets the properties for the specified server firewall rule.
Microsoft.Sql/servers/firewallRules/delete	Deletes an existing server firewall rule.
Microsoft.Sql/servers/importExportOperationResults/read	Gets in-progress import/export operations
Microsoft.Sql/servers/inaccessibleDatabases/read	Return a list of inaccessible database(s) in a logical server.
Microsoft.Sql/servers/interfaceEndpointProfiles/write	Creates a interface endpoint profile with the specified parameters or updates the properties or tags for the specified interface endpoint

ACTION	DESCRIPTION
Microsoft.Sql/servers/interfaceEndpointProfiles/read	Returns the properties for the specified interface endpoint profile
Microsoft.Sql/servers/interfaceEndpointProfiles/delete	Deletes the specified interface endpoint profile
Microsoft.Sql/servers/jobAgents/read	Gets an Azure SQL DB job agent
Microsoft.Sql/servers/jobAgents/write	Creates or updates an Azure SQL DB job agent
Microsoft.Sql/servers/jobAgents/delete	Deletes an Azure SQL DB job agent
Microsoft.Sql/servers/keys/read	Return the list of server keys or gets the properties for the specified server key.
Microsoft.Sql/servers/keys/write	Creates a key with the specified parameters or update the properties or tags for the specified server key.
Microsoft.Sql/servers/keys/delete	Deletes an existing server key.
Microsoft.Sql/servers/operationResults/read	Gets in-progress server operations
Microsoft.Sql/servers/operations/read	Return the list of operations performed on the server
Microsoft.Sql/servers/privateEndpointConnectionProxies/updatePrivateEndpointProperties/action	Used by NRP to backfill properties to a private endpoint connection
Microsoft.Sql/servers/privateEndpointConnectionProxies/validate/action	Validates a private endpoint connection create call from NRP side
Microsoft.Sql/servers/privateEndpointConnectionProxies/read	Returns the list of private endpoint connection proxies or gets the properties for the specified private endpoint connection proxy.
Microsoft.Sql/servers/privateEndpointConnectionProxies/write	Creates a private endpoint connection proxy with the specified parameters or updates the properties or tags for the specified private endpoint connection proxy.
Microsoft.Sql/servers/privateEndpointConnectionProxies/delete	Deletes an existing private endpoint connection proxy
Microsoft.Sql/servers/privateEndpointConnections/read	Returns the list of private endpoint connections or gets the properties for the specified private endpoint connection.
Microsoft.Sql/servers/privateEndpointConnections/delete	Deletes an existing private endpoint connection
Microsoft.Sql/servers/privateEndpointConnections/write	Approves or rejects an existing private endpoint connection
Microsoft.Sql/servers/privateLinkResources/read	Get the private link resources for the corresponding sql server
Microsoft.Sql/servers/providers/Microsoft.Insights/metricDefinitions/read	Return types of metrics that are available for servers

ACTION	DESCRIPTION
Microsoft.Sql/servers/recommendedElasticPools/read	Retrieve recommendation for elastic database pools to reduce cost or improve performance based on historical resource utilization
Microsoft.Sql/servers/recommendedElasticPools/databases/read	Retrieve metrics for recommended elastic database pools for a given server
Microsoft.Sql/servers/recoverableDatabases/read	This operation is used for disaster recovery of live database to restore database to last-known good backup point. It returns information about the last good backup but it doesn't actually restore the database.
Microsoft.Sql/servers/replicationLinks/read	Return the list of replication links or gets the properties for the specified replication links.
Microsoft.Sql/servers/restorableDroppedDatabases/read	Get a list of databases that were dropped on a given server that are still within retention policy.
Microsoft.Sql/servers/securityAlertPolicies/write	Change the server threat detection policy for a given server
Microsoft.Sql/servers/securityAlertPolicies/read	Retrieve a list of server threat detection policies configured for a given server
Microsoft.Sql/servers/securityAlertPolicies/operationResults/read	Retrieve results of the server threat detection policy write operation
Microsoft.Sql/servers/serviceObjectives/read	Retrieve list of service level objectives (also known as performance tiers) available on a given server
Microsoft.Sql/servers/syncAgents/read	Return the list of sync agents or gets the properties for the specified sync agent.
Microsoft.Sql/servers/syncAgents/write	Creates a sync agent with the specified parameters or update the properties for the specified sync agent.
Microsoft.Sql/servers/syncAgents/delete	Deletes an existing sync agent.
Microsoft.Sql/servers/syncAgents/generateKey/action	Generate sync agent registration key
Microsoft.Sql/servers/syncAgents/linkedDatabases/read	Return the list of sync agent linked databases
Microsoft.Sql/servers/usages/read	Return server DTU quota and current DTU consumption by all databases within the server
Microsoft.Sql/servers/virtualNetworkRules/read	Return the list of virtual network rules or gets the properties for the specified virtual network rule.
Microsoft.Sql/servers/virtualNetworkRules/write	Creates a virtual network rule with the specified parameters or update the properties or tags for the specified virtual network rule.
Microsoft.Sql/servers/virtualNetworkRules/delete	Deletes an existing Virtual Network Rule

ACTION	DESCRIPTION
Microsoft.Sql/servers/vulnerabilityAssessments/write	Change the vulnerability assessment for a given server
Microsoft.Sql/servers/vulnerabilityAssessments/delete	Remove the vulnerability assessment for a given server
Microsoft.Sql/servers/vulnerabilityAssessments/read	Retrieve the vulnerability assessment policies on a given server
Microsoft.Sql/virtualClusters/read	Return the list of virtual clusters or gets the properties for the specified virtual cluster.
Microsoft.Sql/virtualClusters/write	Updates virtual cluster tags.
Microsoft.Sql/virtualClusters/delete	Deletes an existing virtual cluster.

## Microsoft.SqlVirtualMachine

Azure service: [SQL Server on Azure Virtual Machines](#)

ACTION	DESCRIPTION
Microsoft.SqlVirtualMachine/register/action	Register subscription with Microsoft.SqlVirtualMachine resource provider
Microsoft.SqlVirtualMachine/unregister/action	Unregister subscription with Microsoft.SqlVirtualMachine resource provider
Microsoft.SqlVirtualMachine/locations/registerSqlVmCandidate/action	Register SQL Vm Candidate
Microsoft.SqlVirtualMachine/locations/availabilityGroupListenerOperationResults/read	Get result of an availability group listener operation
Microsoft.SqlVirtualMachine/locations/sqlVirtualMachineGroupOperationResults/read	Get result of a SQL virtual machine group operation
Microsoft.SqlVirtualMachine/locations/sqlVirtualMachineOperationResults/read	Get result of SQL virtual machine operation
Microsoft.SqlVirtualMachine/operations/read	
Microsoft.SqlVirtualMachine/sqlVirtualMachineGroups/read	Retrive details of SQL virtual machine group
Microsoft.SqlVirtualMachine/sqlVirtualMachineGroups/write	Create a new or change properties of existing SQL virtual machine group
Microsoft.SqlVirtualMachine/sqlVirtualMachineGroups/delete	Delete existing SQL virtual machine group
Microsoft.SqlVirtualMachine/sqlVirtualMachineGroups/availabilityGroupListeners/read	Retrieve details of SQL availability group listener on a given SQL virtual machine group
Microsoft.SqlVirtualMachine/sqlVirtualMachineGroups/availabilityGroupListeners/write	Create a new or changes properties of existing SQL availability group listener

ACTION	DESCRIPTION
Microsoft.SqlVirtualMachine/sqlVirtualMachineGroups/availabilityGroupListeners/delete	Delete existing availability group listener
Microsoft.SqlVirtualMachine/sqlVirtualMachineGroups/sqlVirtualMachines/read	List Sql virtual machines by a particular sql virtual virtual machine group
Microsoft.SqlVirtualMachine/sqlVirtualMachines/read	Retrieve details of SQL virtual machine
Microsoft.SqlVirtualMachine/sqlVirtualMachines/write	Create a new or change properties of existing SQL virtual machine
Microsoft.SqlVirtualMachine/sqlVirtualMachines/delete	Delete existing SQL virtual machine

## Analytics

### Microsoft.AnalysisServices

Azure service: [Azure Analysis Services](#)

ACTION	DESCRIPTION
Microsoft.AnalysisServices/register/action	Registers Analysis Services resource provider.
Microsoft.AnalysisServices/locations/checkNameAvailability/action	Checks that given Analysis Server name is valid and not in use.
Microsoft.AnalysisServices/locations/operationresults/read	Retrieves the information of the specified operation result.
Microsoft.AnalysisServices/locations/operationstatuses/read	Retrieves the information of the specified operation status.
Microsoft.AnalysisServices/operations/read	Retrieves the information of operations
Microsoft.AnalysisServices/servers/read	Retrieves the information of the specified Analysis Server.
Microsoft.AnalysisServices/servers/write	Creates or updates the specified Analysis Server.
Microsoft.AnalysisServices/servers/delete	Deletes the Analysis Server.
Microsoft.AnalysisServices/servers/suspend/action	Suspends the Analysis Server.
Microsoft.AnalysisServices/servers/resume/action	Resumes the Analysis Server.
Microsoft.AnalysisServices/servers/listGatewayStatus/action	List the status of the gateway associated with the server.
Microsoft.AnalysisServices/servers/skus/read	Retrieve available SKU information for the server
Microsoft.AnalysisServices/skus/read	Retrieves the information of Skus

### Microsoft.Databricks

Azure service: [Azure Databricks](#)

ACTION	DESCRIPTION
Microsoft.Databricks/register/action	Register to Databricks.
Microsoft.Databricks/locations/getNetworkPolicies/action	Get Network Intent Policies for a subnet based on the location used by NRP
Microsoft.Databricks/locations/operationstatuses/read	Reads the operation status for the resource.
Microsoft.Databricks/operations/read	Gets the list of operations.
Microsoft.Databricks/workspaces/read	Retrieves a list of Databricks workspaces.
Microsoft.Databricks/workspaces/write	Creates a Databricks workspace.
Microsoft.Databricks/workspaces/delete	Removes a Databricks workspace.
Microsoft.Databricks/workspaces/refreshPermissions/action	Refresh permissions for a workspace
Microsoft.Databricks/workspaces/updateDenyAssignment/action	Update deny assignment not actions for a managed resource group of a workspace
Microsoft.Databricks/workspaces/refreshWorkspaces/action	Refresh a workspace with new details like URL
Microsoft.Databricks/workspaces/dbWorkspaces/write	Initializes the Databricks workspace (internal only)
Microsoft.Databricks/workspaces/providers/Microsoft.Insights/diagnosticSettings/read	Sets the available diagnostic settings for the Databricks workspace
Microsoft.Databricks/workspaces/providers/Microsoft.Insights/diagnosticSettings/write	Add or modify diagnostics settings.
Microsoft.Databricks/workspaces/providers/Microsoft.Insights/logDefinitions/read	Gets the available log definitions for the Databricks workspace
Microsoft.Databricks/workspaces/storageEncryption/write	Enables the Customer managed Key encryption on the managed storage account of the Databricks workspace
Microsoft.Databricks/workspaces/storageEncryption/delete	Disables the Customer Managed Key encryption on the managed storage account of the Databricks workspace
Microsoft.Databricks/workspaces/virtualNetworkPeerings/read	Gets the virtual network peering.
Microsoft.Databricks/workspaces/virtualNetworkPeerings/write	Add or modify virtual network peering
Microsoft.Databricks/workspaces/virtualNetworkPeerings/delete	Deletes a virtual network peering

## Microsoft.DataLakeAnalytics

Azure service: [Data Lake Analytics](#)

ACTION	DESCRIPTION
Microsoft.DataLakeAnalytics/register/action	Register subscription to DataLakeAnalytics.
Microsoft.DataLakeAnalytics/accounts/read	Get information about an existing DataLakeAnalytics account.
Microsoft.DataLakeAnalytics/accounts/write	Create or update a DataLakeAnalytics account.
Microsoft.DataLakeAnalytics/accounts/delete	Delete a DataLakeAnalytics account.
Microsoft.DataLakeAnalytics/accounts/transferAnalyticsUnits /action	Transfer SystemMaxAnalyticsUnits among DataLakeAnalytics accounts.
Microsoft.DataLakeAnalytics/accounts/TakeOwnership/action	Grant permissions to cancel jobs submitted by other users.
Microsoft.DataLakeAnalytics/accounts/computePolicies/read	Get information about a compute policy.
Microsoft.DataLakeAnalytics/accounts/computePolicies/write	Create or update a compute policy.
Microsoft.DataLakeAnalytics/accounts/computePolicies/delet e	Delete a compute policy.
Microsoft.DataLakeAnalytics/accounts/dataLakeStoreAccount s/read	Get information about a linked DataLakeStore account of a DataLakeAnalytics account.
Microsoft.DataLakeAnalytics/accounts/dataLakeStoreAccount s/write	Create or update a linked DataLakeStore account of a DataLakeAnalytics account.
Microsoft.DataLakeAnalytics/accounts/dataLakeStoreAccount s/delete	Unlink a DataLakeStore account from a DataLakeAnalytics account.
Microsoft.DataLakeAnalytics/accounts/dataLakeStoreGen2Ac counts/read	Get information about a linked DataLakeStoreGen2 account of a DataLakeAnalytics account.
Microsoft.DataLakeAnalytics/accounts/dataLakeStoreGen2Ac counts/write	Create or update a linked DataLakeStoreGen2 account of a DataLakeAnalytics account.
Microsoft.DataLakeAnalytics/accounts/dataLakeStoreGen2Ac counts/delete	Unlink a DataLakeStoreGen2 account from a DataLakeAnalytics account.
Microsoft.DataLakeAnalytics/accounts/firewallRules/read	Get information about a firewall rule.
Microsoft.DataLakeAnalytics/accounts/firewallRules/write	Create or update a firewall rule.
Microsoft.DataLakeAnalytics/accounts/firewallRules/delete	Delete a firewall rule.
Microsoft.DataLakeAnalytics/accounts/operationResults/read	Get result of a DataLakeAnalytics account operation.
Microsoft.DataLakeAnalytics/accounts/storageAccounts/read	Get information about a linked Storage account of a DataLakeAnalytics account.
Microsoft.DataLakeAnalytics/accounts/storageAccounts/writ e	Create or update a linked Storage account of a DataLakeAnalytics account.

ACTION	DESCRIPTION
Microsoft.DataLakeAnalytics/accounts/storageAccounts/delete	Unlink a Storage account from a DataLakeAnalytics account.
Microsoft.DataLakeAnalytics/accounts/storageAccounts/Containers/read	Get containers of a linked Storage account of a DataLakeAnalytics account.
Microsoft.DataLakeAnalytics/accounts/storageAccounts/Containers/listSasTokens/action	List SAS tokens for storage containers of a linked Storage account of a DataLakeAnalytics account.
Microsoft.DataLakeAnalytics/accounts/virtualNetworkRules/read	Get information about a virtual network rule.
Microsoft.DataLakeAnalytics/accounts/virtualNetworkRules/write	Create or update a virtual network rule.
Microsoft.DataLakeAnalytics/accounts/virtualNetworkRules/delete	Delete a virtual network rule.
Microsoft.DataLakeAnalytics/locations/checkNameAvailability /action	Check availability of a DataLakeAnalytics account name.
Microsoft.DataLakeAnalytics/locations/capability/read	Get capability information of a subscription regarding using DataLakeAnalytics.
Microsoft.DataLakeAnalytics/locations/operationResults/read	Get result of a DataLakeAnalytics account operation.
Microsoft.DataLakeAnalytics/locations/usages/read	Get quota usages information of a subscription regarding using DataLakeAnalytics.
Microsoft.DataLakeAnalytics/operations/read	Get available operations of DataLakeAnalytics.

## Microsoft.DataLakeStore

Azure service: [Azure Data Lake Store](#)

ACTION	DESCRIPTION
Microsoft.DataLakeStore/register/action	Register subscription to DataLakeStore.
Microsoft.DataLakeStore/accounts/read	Get information about an existing DataLakeStore account.
Microsoft.DataLakeStore/accounts/write	Create or update a DataLakeStore account.
Microsoft.DataLakeStore/accounts/delete	Delete a DataLakeStore account.
Microsoft.DataLakeStore/accounts/enableKeyVault/action	Enable KeyVault for a DataLakeStore account.
Microsoft.DataLakeStore/accounts/Superuser/action	Grant Superuser on Data Lake Store when granted with Microsoft.Authorization/roleAssignments/write.
Microsoft.DataLakeStore/accounts/eventGridFilters/read	Get an EventGrid Filter.
Microsoft.DataLakeStore/accounts/eventGridFilters/write	Create or update an EventGrid Filter.

ACTION	DESCRIPTION
Microsoft.DataLakeStore/accounts/eventGridFilters/delete	Delete an EventGrid Filter.
Microsoft.DataLakeStore/accounts/firewallRules/read	Get information about a firewall rule.
Microsoft.DataLakeStore/accounts/firewallRules/write	Create or update a firewall rule.
Microsoft.DataLakeStore/accounts/firewallRules/delete	Delete a firewall rule.
Microsoft.DataLakeStore/accounts/operationResults/read	Get result of a DataLakeStore account operation.
Microsoft.DataLakeStore/accounts/shares/read	Get information about a share.
Microsoft.DataLakeStore/accounts/shares/write	Create or update a share.
Microsoft.DataLakeStore/accounts/shares/delete	Delete a share.
Microsoft.DataLakeStore/accounts/trustedIdProviders/read	Get information about a trusted identity provider.
Microsoft.DataLakeStore/accounts/trustedIdProviders/write	Create or update a trusted identity provider.
Microsoft.DataLakeStore/accounts/trustedIdProviders/delete	Delete a trusted identity provider.
Microsoft.DataLakeStore/accounts/virtualNetworkRules/read	Get information about a virtual network rule.
Microsoft.DataLakeStore/accounts/virtualNetworkRules/write	Create or update a virtual network rule.
Microsoft.DataLakeStore/accounts/virtualNetworkRules/delete	Delete a virtual network rule.
Microsoft.DataLakeStore/locations/checkNameAvailability/action	Check availability of a DataLakeStore account name.
Microsoft.DataLakeStore/locations/capability/read	Get capability information of a subscription regarding using DataLakeStore.
Microsoft.DataLakeStore/locations/operationResults/read	Get result of a DataLakeStore account operation.
Microsoft.DataLakeStore/locations/usages/read	Get quota usages information of a subscription regarding using DataLakeStore.
Microsoft.DataLakeStore/operations/read	Get available operations of DataLakeStore.

## Microsoft.EventHub

Azure service: [Event Hubs](#)

ACTION	DESCRIPTION
Microsoft.EventHub/checkNamespaceAvailability/action	Checks availability of namespace under given subscription. This API is deprecated please use CheckNameAvailability instead.

ACTION	DESCRIPTION
Microsoft.EventHub/checkNameAvailability/action	Checks availability of namespace under given subscription.
Microsoft.EventHub/register/action	Registers the subscription for the EventHub resource provider and enables the creation of EventHub resources
Microsoft.EventHub/unregister/action	Registers the EventHub Resource Provider
Microsoft.EventHub/availableClusterRegions/read	Read operation to list available pre-provisioned clusters by Azure region.
Microsoft.EventHub/clusters/read	Gets the Cluster Resource Description
Microsoft.EventHub/clusters/write	Creates or modifies an existing Cluster resource.
Microsoft.EventHub/clusters/delete	Deletes an existing Cluster resource.
Microsoft.EventHub/clusters/namespaces/read	List namespace Azure Resource Manager IDs for namespaces within a cluster.
Microsoft.EventHub/clusters/operationresults/read	Get the status of an asynchronous cluster operation.
Microsoft.EventHub/clusters/providers/Microsoft.Insights/metricDefinitions/read	Get list of Cluster metrics Resource Descriptions
Microsoft.EventHub/locations/deleteVirtualNetworkOrSubnets/action	Deletes the VNet rules in EventHub Resource Provider for the specified VNet
Microsoft.EventHub/namespaces/write	Create a Namespace Resource and Update its properties. Tags and Capacity of the Namespace are the properties which can be updated.
Microsoft.EventHub/namespaces/read	Get the list of Namespace Resource Description
Microsoft.EventHub/namespaces/Delete	Delete Namespace Resource
Microsoft.EventHub/namespaces/authorizationRules/action	Updates Namespace Authorization Rule. This API is deprecated. Please use a PUT call to update the Namespace Authorization Rule instead.. This operation is not supported on API version 2017-04-01.
Microsoft.EventHub/namespaces/removeAcsNamepsace/acti on	Remove ACS namespace
Microsoft.EventHub/namespaces/authorizationRules/read	Get the list of Namespaces Authorization Rules description.
Microsoft.EventHub/namespaces/authorizationRules/write	Create a Namespace level Authorization Rules and update its properties. The Authorization Rules Access Rights, the Primary and Secondary Keys can be updated.
Microsoft.EventHub/namespaces/authorizationRules/delete	Delete Namespace Authorization Rule. The Default Namespace Authorization Rule cannot be deleted.

ACTION	DESCRIPTION
Microsoft.EventHub/namespaces/authorizationRules/listkeys/action	Get the Connection String to the Namespace
Microsoft.EventHub/namespaces/authorizationRules/regenerateKeys/action	Regenerate the Primary or Secondary key to the Resource
Microsoft.EventHub/namespaces/disasterrecoveryconfigs/checkNameAvailability/action	Checks availability of namespace alias under given subscription.
Microsoft.EventHub/namespaces/disasterRecoveryConfigs/write	Creates or Updates the Disaster Recovery configuration associated with the namespace.
Microsoft.EventHub/namespaces/disasterRecoveryConfigs/read	Gets the Disaster Recovery configuration associated with the namespace.
Microsoft.EventHub/namespaces/disasterRecoveryConfigs/delete	Deletes the Disaster Recovery configuration associated with the namespace. This operation can only be invoked via the primary namespace.
Microsoft.EventHub/namespaces/disasterRecoveryConfigs/breakPairing/action	Disables Disaster Recovery and stops replicating changes from primary to secondary namespaces.
Microsoft.EventHub/namespaces/disasterRecoveryConfigs/failover/action	Invokes a GEO DR failover and reconfigures the namespace alias to point to the secondary namespace.
Microsoft.EventHub/namespaces/disasterRecoveryConfigs/authorizationRules/read	Get Disaster Recovery Primary Namespace's Authorization Rules
Microsoft.EventHub/namespaces/disasterRecoveryConfigs/authorizationRules/listkeys/action	Gets the authorization rules keys for the Disaster Recovery primary namespace
Microsoft.EventHub/namespaces/eventhubs/write	Create or Update EventHub properties.
Microsoft.EventHub/namespaces/eventhubs/read	Get list of EventHub Resource Descriptions
Microsoft.EventHub/namespaces/eventhubs/Delete	Operation to delete EventHub Resource
Microsoft.EventHub/namespaces/eventhubs/authorizationRules/action	Operation to update EventHub. This operation is not supported on API version 2017-04-01. Authorization Rules. Please use a PUT call to update Authorization Rule.
Microsoft.EventHub/namespaces/eventhubs/authorizationRules/read	Get the list of EventHub Authorization Rules
Microsoft.EventHub/namespaces/eventhubs/authorizationRules/write	Create EventHub Authorization Rules and Update its properties. The Authorization Rules Access Rights can be updated.
Microsoft.EventHub/namespaces/eventhubs/authorizationRules/delete	Operation to delete EventHub Authorization Rules
Microsoft.EventHub/namespaces/eventhubs/authorizationRules/listkeys/action	Get the Connection String to EventHub

ACTION	DESCRIPTION
Microsoft.EventHub/namespaces/eventhubs/authorizationRules/regenerateKeys/action	Regenerate the Primary or Secondary key to the Resource
Microsoft.EventHub/namespaces/eventHubs/consumergroups/write	Create or Update ConsumerGroup properties.
Microsoft.EventHub/namespaces/eventHubs/consumergroups/read	Get list of ConsumerGroup Resource Descriptions
Microsoft.EventHub/namespaces/eventHubs/consumergroups/Delete	Operation to delete ConsumerGroup Resource
Microsoft.EventHub/namespaces/ipFilterRules/read	Get IP Filter Resource
Microsoft.EventHub/namespaces/ipFilterRules/write	Create IP Filter Resource
Microsoft.EventHub/namespaces/ipFilterRules/delete	Delete IP Filter Resource
Microsoft.EventHub/namespaces/messagingPlan/read	Gets the Messaging Plan for a namespace. This API is deprecated. Properties exposed via the MessagingPlan resource are moved to the (parent) Namespace resource in later API versions.. This operation is not supported on API version 2017-04-01.
Microsoft.EventHub/namespaces/messagingPlan/write	Updates the Messaging Plan for a namespace. This API is deprecated. Properties exposed via the MessagingPlan resource are moved to the (parent) Namespace resource in later API versions.. This operation is not supported on API version 2017-04-01.
Microsoft.EventHub/namespaces/networkruleset/read	Gets NetworkRuleSet Resource
Microsoft.EventHub/namespaces/networkruleset/write	Create VNET Rule Resource
Microsoft.EventHub/namespaces/networkruleset/delete	Delete VNET Rule Resource
Microsoft.EventHub/namespaces/networkrulesets/read	Gets NetworkRuleSet Resource
Microsoft.EventHub/namespaces/networkrulesets/write	Create VNET Rule Resource
Microsoft.EventHub/namespaces/networkrulesets/delete	Delete VNET Rule Resource
Microsoft.EventHub/namespaces/operationresults/read	Get the status of Namespace operation
Microsoft.EventHub/namespaces/privateEndpointConnectionProxies/validate/action	Validate Private Endpoint Connection Proxy
Microsoft.EventHub/namespaces/privateEndpointConnectionProxies/read	Get Private Endpoint Connection Proxy

ACTION	DESCRIPTION
Microsoft.EventHub/namespaces/privateEndpointConnectionProxies/write	Create Private Endpoint Connection Proxy
Microsoft.EventHub/namespaces/privateEndpointConnectionProxies/delete	Delete Private Endpoint Connection Proxy
Microsoft.EventHub/namespaces/providers/Microsoft.Insights/diagnosticSettings/read	Get list of Namespace diagnostic settings Resource Descriptions
Microsoft.EventHub/namespaces/providers/Microsoft.Insights/diagnosticSettings/write	Get list of Namespace diagnostic settings Resource Descriptions
Microsoft.EventHub/namespaces/providers/Microsoft.Insights/logDefinitions/read	Get list of Namespace logs Resource Descriptions
Microsoft.EventHub/namespaces/providers/Microsoft.Insights/metricDefinitions/read	Get list of Namespace metrics Resource Descriptions
Microsoft.EventHub/namespaces/schemagroups/write	Create or Update SchemaGroup properties.
Microsoft.EventHub/namespaces/schemagroups/read	Get list of SchemaGroup Resource Descriptions
Microsoft.EventHub/namespaces/schemagroups/delete	Operation to delete SchemaGroup Resource
Microsoft.EventHub/namespaces/virtualNetworkRules/read	Gets VNET Rule Resource
Microsoft.EventHub/namespaces/virtualNetworkRules/write	Create VNET Rule Resource
Microsoft.EventHub/namespaces/virtualNetworkRules/delete	Delete VNET Rule Resource
Microsoft.EventHub/operations/read	Get Operations
Microsoft.EventHub/sku/read	Get list of Sku Resource Descriptions
Microsoft.EventHub/sku/regions/read	Get list of SkuRegions Resource Descriptions
DataAction	Description
Microsoft.EventHub/namespaces/messages/send/action	Send messages
Microsoft.EventHub/namespaces/messages/receive/action	Receive messages
Microsoft.EventHub/namespaces/schemas/read	Retrieve schemas
Microsoft.EventHub/namespaces/schemas/write	Write schemas
Microsoft.EventHub/namespaces/schemas/delete	Delete schemas

## Microsoft.HDInsight

Azure service: [HDInsight](#)

ACTION	DESCRIPTION
Microsoft.HDInsight/register/action	Register HDInsight resource provider for the subscription
Microsoft.HDInsight/unregister/action	Unregister HDInsight resource provider for the subscription
Microsoft.HDInsight/clusters/write	Create or Update HDInsight Cluster
Microsoft.HDInsight/clusters/read	Get details about HDInsight Cluster
Microsoft.HDInsight/clusters/delete	Delete a HDInsight Cluster
Microsoft.HDInsight/clusters/changerdpsetting/action	Change RDP setting for HDInsight Cluster
Microsoft.HDInsight/clusters/getGatewaySettings/action	Get gateway settings for HDInsight Cluster
Microsoft.HDInsight/clusters/updateGatewaySettings/action	Update gateway settings for HDInsight Cluster
Microsoft.HDInsight/clusters/configurations/action	Get HDInsight Cluster Configurations
Microsoft.HDInsight/clusters/applications/read	Get Application for HDInsight Cluster
Microsoft.HDInsight/clusters/applications/write	Create or Update Application for HDInsight Cluster
Microsoft.HDInsight/clusters/applications/delete	Delete Application for HDInsight Cluster
Microsoft.HDInsight/clusters/configurations/read	Get HDInsight Cluster Configurations
Microsoft.HDInsight/clusters/extensions/write	Create Cluster Extension for HDInsight Cluster
Microsoft.HDInsight/clusters/extensions/read	Get Cluster Extension for HDInsight Cluster
Microsoft.HDInsight/clusters/extensions/delete	Delete Cluster Extension for HDInsight Cluster
Microsoft.HDInsight/clusters/providers/Microsoft.Insights/diagnosticSettings/read	Gets the diagnostic setting for the resource HDInsight Cluster
Microsoft.HDInsight/clusters/providers/Microsoft.Insights/diagnosticSettings/write	Creates or updates the diagnostic setting for the resource HDInsight Cluster
Microsoft.HDInsight/clusters/providers/Microsoft.Insights/metricDefinitions/read	Gets the available metrics for HDInsight Cluster
Microsoft.HDInsight/clusters/roles/resize/action	Resize a HDInsight Cluster
Microsoft.HDInsight/locations/capabilities/read	Get Subscription Capabilities
Microsoft.HDInsight/locations/checkNameAvailability/read	Check Name Availability

## Microsoft.Kusto

Azure service: [Azure Data Explorer](#)

ACTION	DESCRIPTION
Microsoft.Kusto/register/action	Subscription Registration Action
Microsoft.Kusto/Register/action	Registers the subscription to the Kusto Resource Provider.
Microsoft.Kusto/Unregister/action	Unregisters the subscription to the Kusto Resource Provider.
Microsoft.Kusto/Clusters/read	Reads a cluster resource.
Microsoft.Kusto/Clusters/write	Writes a cluster resource.
Microsoft.Kusto/Clusters/delete	Deletes a cluster resource.
Microsoft.Kusto/Clusters/Start/action	Starts the cluster.
Microsoft.Kusto/Clusters/Stop/action	Stops the cluster.
Microsoft.Kusto/Clusters/Activate/action	Starts the cluster.
Microsoft.Kusto/Clusters/Deactivate/action	Stops the cluster.
Microsoft.Kusto/Clusters/CheckNameAvailability/action	Checks the cluster name availability.
Microsoft.Kusto/Clusters/DetachFollowerDatabases/action	Detaches follower's databases.
Microsoft.Kusto/Clusters/ListFollowerDatabases/action	Lists the follower's databases.
Microsoft.Kusto/Clusters/DiagnoseVirtualNetwork/action	Diagnoses network connectivity status for external resources on which the service is dependent on.
Microsoft.Kusto/Clusters/ListLanguageExtensions/action	Lists language extensions.
Microsoft.Kusto/Clusters/AddLanguageExtensions/action	Add language extensions.
Microsoft.Kusto/Clusters/RemoveLanguageExtensions/action	Remove language extensions.
Microsoft.Kusto/Clusters/AttachedDatabaseConfigurations/read	Reads an attached database configuration resource.
Microsoft.Kusto/Clusters/AttachedDatabaseConfigurations/write	Writes an attached database configuration resource.
Microsoft.Kusto/Clusters/AttachedDatabaseConfigurations/delete	Deletes an attached database configuration resource.
Microsoft.Kusto/Clusters/Database/read	Reads a database resource.
Microsoft.Kusto/Clusters/Database/write	Writes a database resource.
Microsoft.Kusto/Clusters/Database/delete	Deletes a database resource.
Microsoft.Kusto/Clusters/Database/ListPrincipals/action	Lists database principals.

ACTION	DESCRIPTION
Microsoft.Kusto/Clusters/Databases/AddPrincipals/action	Adds database principals.
Microsoft.Kusto/Clusters/Databases/RemovePrincipals/action	Removes database principals.
Microsoft.Kusto/Clusters/Databases/DataConnectionValidation/action	Validates database data connection.
Microsoft.Kusto/Clusters/Databases/CheckNameAvailability/action	Checks name availability for a given type.
Microsoft.Kusto/Clusters/Databases/EventHubConnectionValidation/action	Validates database Event Hub connection.
Microsoft.Kusto/Clusters/Databases/DataConnections/read	Reads a data connections resource.
Microsoft.Kusto/Clusters/Databases/DataConnections/write	Writes a data connections resource.
Microsoft.Kusto/Clusters/Databases/DataConnections/delete	Deletes a data connections resource.
Microsoft.Kusto/Clusters/Databases/EventHubConnections/read	Reads an Event Hub connections resource.
Microsoft.Kusto/Clusters/Databases/EventHubConnections/write	Writes an Event Hub connections resource.
Microsoft.Kusto/Clusters/Databases/EventHubConnections/delete	Deletes an Event Hub connections resource.
Microsoft.Kusto/Clusters/Databases/PrincipalAssignments/read	Reads a database principal assignments resource.
Microsoft.Kusto/Clusters/Databases/PrincipalAssignments/write	Writes a database principal assignments resource.
Microsoft.Kusto/Clusters/Databases/PrincipalAssignments/delete	Deletes a database principal assignments resource.
Microsoft.Kusto/Clusters/DataConnections/read	Reads a cluster's data connections resource.
Microsoft.Kusto/Clusters/DataConnections/write	Writes a cluster's data connections resource.
Microsoft.Kusto/Clusters/DataConnections/delete	Deletes a cluster's data connections resource.
Microsoft.Kusto/Clusters/PrincipalAssignments/read	Reads a Cluster principal assignments resource.
Microsoft.Kusto/Clusters/PrincipalAssignments/write	Writes a Cluster principal assignments resource.
Microsoft.Kusto/Clusters/PrincipalAssignments/delete	Deletes a Cluster principal assignments resource.
Microsoft.Kusto/Clusters/SKUs/read	Reads a cluster SKU resource.
Microsoft.Kusto/Locations/CheckNameAvailability/action	Checks resource name availability.

ACTION	DESCRIPTION
Microsoft.Kusto/Locations/GetNetworkPolicies/action	Gets Network Intent Policies
Microsoft.Kusto/locations/operationresults/read	Reads operations resources
Microsoft.Kusto/Operations/read	Reads operations resources
Microsoft.Kusto/SKUs/read	Reads a SKU resource.

## Microsoft.PowerBDedicated

Azure service: [Power BI Embedded](#)

ACTION	DESCRIPTION
Microsoft.PowerBDedicated/register/action	Registers Power BI Dedicated resource provider.
Microsoft.PowerBDedicated/capacities/read	Retrieves the information of the specified Power BI Dedicated Capacity.
Microsoft.PowerBDedicated/capacities/write	Creates or updates the specified Power BI Dedicated Capacity.
Microsoft.PowerBDedicated/capacities/delete	Deletes the Power BI Dedicated Capacity.
Microsoft.PowerBDedicated/capacities/suspend/action	Suspends the Capacity.
Microsoft.PowerBDedicated/capacities/resume/action	Resumes the Capacity.
Microsoft.PowerBDedicated/capacities/skus/read	Retrieve available SKU information for the capacity
Microsoft.PowerBDedicated/locations/checkNameAvailability /action	Checks that given Power BI Dedicated Capacity name is valid and not in use.
Microsoft.PowerBDedicated/locations/operationresults/read	Retrieves the information of the specified operation result.
Microsoft.PowerBDedicated/locations/operationstatuses/read	Retrieves the information of the specified operation status.
Microsoft.PowerBDedicated/operations/read	Retrieves the information of operations
Microsoft.PowerBDedicated/skus/read	Retrieves the information of Skus

## Microsoft.StreamAnalytics

Azure service: [Stream Analytics](#)

ACTION	DESCRIPTION
Microsoft.StreamAnalytics/Register/action	Register subscription with Stream Analytics Resource Provider
Microsoft.StreamAnalytics/locations/quotas/Read	Read Stream Analytics Subscription Quota

ACTION	DESCRIPTION
Microsoft.StreamAnalytics/operations/Read	Read Stream Analytics Operations
Microsoft.StreamAnalytics/streamingjobs/Delete	Delete Stream Analytics Job
Microsoft.StreamAnalytics/streamingjobs/PublishEdgePackage/action	Publish edge package for Stream Analytics Job
Microsoft.StreamAnalytics/streamingjobs/Read	Read Stream Analytics Job
Microsoft.StreamAnalytics/streamingjobs/Scale/action	Scale Stream Analytics Job
Microsoft.StreamAnalytics/streamingjobs/Start/action	Start Stream Analytics Job
Microsoft.StreamAnalytics/streamingjobs/Stop/action	Stop Stream Analytics Job
Microsoft.StreamAnalytics/streamingjobs/Write	Write Stream Analytics Job
Microsoft.StreamAnalytics/streamingjobs/functions/Delete	Delete Stream Analytics Job Function
Microsoft.StreamAnalytics/streamingjobs/functions/Read	Read Stream Analytics Job Function
Microsoft.StreamAnalytics/streamingjobs/functions/RetrieveDefaultDefinition/action	Retrieve Default Definition of a Stream Analytics Job Function
Microsoft.StreamAnalytics/streamingjobs/functions/Test/action	Test Stream Analytics Job Function
Microsoft.StreamAnalytics/streamingjobs/functions/Write	Write Stream Analytics Job Function
Microsoft.StreamAnalytics/streamingjobs/functions/operationresults/Read	Read operation results for Stream Analytics Job Function
Microsoft.StreamAnalytics/streamingjobs/inputs/Delete	Delete Stream Analytics Job Input
Microsoft.StreamAnalytics/streamingjobs/inputs/Read	Read Stream Analytics Job Input
Microsoft.StreamAnalytics/streamingjobs/inputs/Sample/action	Sample Stream Analytics Job Input
Microsoft.StreamAnalytics/streamingjobs/inputs/Test/action	Test Stream Analytics Job Input
Microsoft.StreamAnalytics/streamingjobs/inputs/Write	Write Stream Analytics Job Input
Microsoft.StreamAnalytics/streamingjobs/inputs/operationresults/Read	Read operation results for Stream Analytics Job Input
Microsoft.StreamAnalytics/streamingjobs/metricdefinitions/Read	Read Metric Definitions
Microsoft.StreamAnalytics/streamingjobs/operationresults/Read	Read operation results for Stream Analytics Job

ACTION	DESCRIPTION
Microsoft.StreamAnalytics/streamingjobs/outputs/Delete	Delete Stream Analytics Job Output
Microsoft.StreamAnalytics/streamingjobs/outputs/Read	Read Stream Analytics Job Output
Microsoft.StreamAnalytics/streamingjobs/outputs/Test/action	Test Stream Analytics Job Output
Microsoft.StreamAnalytics/streamingjobs/outputs/Write	Write Stream Analytics Job Output
Microsoft.StreamAnalytics/streamingjobs/outputs/operationResults/Read	Read operation results for Stream Analytics Job Output
Microsoft.StreamAnalytics/streamingjobs/providers/Microsoft.Insights/diagnosticSettings/read	Read diagnostic setting.
Microsoft.StreamAnalytics/streamingjobs/providers/Microsoft.Insights/diagnosticSettings/write	Write diagnostic setting.
Microsoft.StreamAnalytics/streamingjobs/providers/Microsoft.Insights/logDefinitions/read	Gets the available logs for streamingjobs
Microsoft.StreamAnalytics/streamingjobs/providers/Microsoft.Insights/metricDefinitions/read	Gets the available metrics for streamingjobs
Microsoft.StreamAnalytics/streamingjobs/transformations/Delete	Delete Stream Analytics Job Transformation
Microsoft.StreamAnalytics/streamingjobs/transformations/Read	Read Stream Analytics Job Transformation
Microsoft.StreamAnalytics/streamingjobs/transformations/Write	Write Stream Analytics Job Transformation

## Blockchain

### Microsoft.Blockchain

Azure service: [Azure Blockchain Service](#)

ACTION	DESCRIPTION
Microsoft.Blockchain/register/action	Registers the subscription for the Blockchain Resource Provider.
Microsoft.Blockchain/blockchainMembers/read	Gets or Lists existing Blockchain Member(s).
Microsoft.Blockchain/blockchainMembers/write	Creates or Updates a Blockchain Member.
Microsoft.Blockchain/blockchainMembers/delete	Deletes an existing Blockchain Member.
Microsoft.Blockchain/blockchainMembers/listApiKeys/action	Gets or Lists existing Blockchain Member API keys.

ACTION	DESCRIPTION
Microsoft.Blockchain/blockchainMembers/transactionNodes/read	Gets or Lists existing Blockchain Member Transaction Node(s).
Microsoft.Blockchain/blockchainMembers/transactionNodes/write	Creates or Updates a Blockchain Member Transaction Node.
Microsoft.Blockchain/blockchainMembers/transactionNodes/delete	Deletes an existing Blockchain Member Transaction Node.
Microsoft.Blockchain/blockchainMembers/transactionNodes/listApiKeys/action	Gets or Lists existing Blockchain Member Transaction Node API keys.
Microsoft.Blockchain/cordaMembers/read	Gets or Lists existing Blockchain Corda Member(s).
Microsoft.Blockchain/cordaMembers/write	Creates or Updates a Blockchain Corda Member.
Microsoft.Blockchain/cordaMembers/delete	Deletes an existing Blockchain Corda Member.
Microsoft.Blockchain/locations/checkNameAvailability/action	Checks that resource name is valid and is not in use.
Microsoft.Blockchain/locations/blockchainMemberOperationResults/read	Gets the Operation Results of Blockchain Members.
Microsoft.Blockchain/operations/read	List all Operations in Microsoft Blockchain Resource Provider.
DataAction	Description
Microsoft.Blockchain/blockchainMembers/transactionNodes/connect/action	Connects to a Blockchain Member Transaction Node.

## AI + machine learning

### Microsoft.BotService

Azure service: [Azure Bot Service](#)

ACTION	DESCRIPTION
Microsoft.BotService/checknameavailability/action	Check Name Availability of a Bot
Microsoft.BotService/listauthserviceproviders/action	List Auth Service Providers
Microsoft.BotService/botServices/read	Read a Bot Service
Microsoft.BotService/botServices/write	Write a Bot Service
Microsoft.BotService/botServices/delete	Delete a Bot Service
Microsoft.BotService/botServices/channels/read	Read a Bot Service Channel
Microsoft.BotService/botServices/channels/write	Write a Bot Service Channel

ACTION	DESCRIPTION
Microsoft.BotService/botServices/channels/delete	Delete a Bot Service Channel
Microsoft.BotService/botServices/channels/listchannelwithkeys/action	List Botservice channels with secrets
Microsoft.BotService/botServices/connections/read	Read a Bot Service Connection
Microsoft.BotService/botServices/connections/write	Write a Bot Service Connection
Microsoft.BotService/botServices/connections/delete	Delete a Bot Service Connection
Microsoft.BotService/botServices/connections/listwithsecrets/write	Write a Bot Service Connection List
Microsoft.BotService/locations/operationresults/read	Read the status of an asynchronous operation
Microsoft.BotService/Operations/read	Read the operations for all resource types

## Microsoft.CognitiveServices

Azure service: [Cognitive Services](#)

ACTION	DESCRIPTION
Microsoft.CognitiveServices/register/action	Subscription Registration Action
Microsoft.CognitiveServices/register/action	Registers Subscription for Cognitive Services
Microsoft.CognitiveServices/checkDomainAvailability/action	Reads available SKUs for a subscription.
Microsoft.CognitiveServices/register/action	Registers Subscription for Cognitive Services
Microsoft.CognitiveServices/accounts/read	Reads API accounts.
Microsoft.CognitiveServices/accounts/write	Writes API Accounts.
Microsoft.CognitiveServices/accounts/delete	Deletes API accounts
Microsoft.CognitiveServices/accounts/listKeys/action	List Keys
Microsoft.CognitiveServices/accounts/regenerateKey/action	Regenerate Key
Microsoft.CognitiveServices/accounts/privateEndpointConnectionProxies/read	Reads private endpoint connections.
Microsoft.CognitiveServices/accounts/privateEndpointConnectionProxies/write	Writes a private endpoint connections.
Microsoft.CognitiveServices/accounts/privateEndpointConnectionProxies/delete	Deletes a private endpoint connections.

ACTION	DESCRIPTION
Microsoft.CognitiveServices/accounts/privateEndpointConnectionProxies/validate/action	Validate a private endpoint connections.
Microsoft.CognitiveServices/accounts/privateEndpointConnections/read	Reads private endpoint connections.
Microsoft.CognitiveServices/accounts/privateEndpointConnections/write	Writes a private endpoint connections.
Microsoft.CognitiveServices/accounts/privateEndpointConnections/delete	Deletes a private endpoint connections.
Microsoft.CognitiveServices/accounts/privateLinkResources/read	Reads private link resources for an account.
Microsoft.CognitiveServices/accounts/skus/read	Reads available SKUs for an existing resource.
Microsoft.CognitiveServices/accounts/usages/read	Get the quota usage for an existing resource.
Microsoft.CognitiveServices/locations/checkSkuAvailability/action	Reads available SKUs for a subscription.
Microsoft.CognitiveServices/locations/deleteVirtualNetworkOrSubnets/action	Notification from Microsoft.Network of deleting VirtualNetworks or Subnets.
Microsoft.CognitiveServices/locations/checkSkuAvailability/action	Reads available SKUs for a subscription.
Microsoft.CognitiveServices/locations/operationresults/read	Read the status of an asynchronous operation.
Microsoft.CognitiveServices/Operations/read	List all available operations
DataAction	Description
Microsoft.CognitiveServices/accounts/AnomalyDetector/timeSeries/entire/detect/action	This operation generates a model using an entire series, each point is detected with the same model. With this method, points before and after a certain point are used to determine whether it is an anomaly. The entire detection can give the user an overall status of the time series.
Microsoft.CognitiveServices/accounts/AnomalyDetector/timeSeries/last/detect/action	This operation generates a model using points before the latest one. With this method, only historical points are used to determine whether the target point is an anomaly. The latest point detecting matches the scenario of real-time monitoring of business metrics.
Microsoft.CognitiveServices/accounts/Autosuggest/search/action	This operation provides suggestions for a given query or partial query.
Microsoft.CognitiveServices/accounts/ComputerVision/analyze/action	This operation extracts a rich set of visual features based on the image content.

ACTION	DESCRIPTION
Microsoft.CognitiveServices/accounts/ComputerVision/describe/action	<p>This operation generates a description of an image in human readable language with complete sentences.</p> <p>The description is based on a collection of content tags, which are also returned by the operation.</p> <p>More than one description can be generated for each image.</p> <p>Descriptions are ordered by their confidence score.</p> <p>All descriptions are in English.</p>
Microsoft.CognitiveServices/accounts/ComputerVision/generateThumbnail/action	<p>This operation generates a thumbnail image with the user-specified width and height.</p> <p>By default, the service analyzes the image, identifies the region of interest (ROI), and generates smart cropping coordinates based on the ROI.</p> <p>Smart cropping helps when you specify an aspect ratio that differs from that of the input image</p>
Microsoft.CognitiveServices/accounts/ComputerVision/ocr/action	<p>Optical Character Recognition (OCR) detects text in an image and extracts the recognized characters into a machine-readable character stream.</p>
Microsoft.CognitiveServices/accounts/ComputerVision/recognizeText/action	<p>Use this interface to get the result of a Recognize Text operation. When you use the Recognize Text interface, the response contains a field called "Operation-Location". The "Operation-Location" field contains the URL that you must use for your Get Recognize Text Operation Result operation.</p>
Microsoft.CognitiveServices/accounts/ComputerVision/tag/action	<p>This operation generates a list of words, or tags, that are relevant to the content of the supplied image.</p> <p>The Computer Vision API can return tags based on objects, living beings, scenery or actions found in images.</p> <p>Unlike categories, tags are not organized according to a hierarchical classification system, but correspond to image content.</p> <p>Tags may contain hints to avoid ambiguity or provide context, for example the tag "cello" may be accompanied by the hint "musical instrument".</p> <p>All tags are in English.</p>
Microsoft.CognitiveServices/accounts/ComputerVision/areaOfInterest/action	<p>This operation returns a bounding box around the most important area of the image.</p>
Microsoft.CognitiveServices/accounts/ComputerVision/detect/action	<p>This operation Performs object detection on the specified image.</p>
Microsoft.CognitiveServices/accounts/ComputerVision/models/read	<p>This operation returns the list of domain-specific models that are supported by the Computer Vision API. Currently, the API supports following domain-specific models: celebrity recognizer, landmark recognizer.</p>
Microsoft.CognitiveServices/accounts/ComputerVision/models/analyze/action	<p>This operation recognizes content within an image by applying a domain-specific model.</p> <p>The list of domain-specific models that are supported by the Computer Vision API can be retrieved using the /models GET request.</p> <p>Currently, the API provides following domain-specific models: celebrities, landmarks.</p>

ACTION	DESCRIPTION
Microsoft.CognitiveServices/accounts/ComputerVision/read/analyze/action	<p>Use this interface to perform a Read operation, employing the state-of-the-art Optical Character Recognition (OCR) algorithms optimized for text-heavy documents.</p> <p>It can handle hand-written, printed or mixed documents.</p> <p>When you use the Read interface, the response contains a header called 'Operation-Location'.</p> <p>The 'Operation-Location' header contains the URL that you must use for your Get Read Result operation to access OCR results.</p>
Microsoft.CognitiveServices/accounts/ComputerVision/read/analyzeresults/read	<p>Use this interface to retrieve the status and OCR result of a Read operation. The URL containing the 'operationId' is returned in the Read operation 'Operation-Location' response header.</p>
Microsoft.CognitiveServices/accounts/ComputerVision/read/core/asyncbatchanalyze/action	<p>Use this interface to get the result of a Batch Read File operation, employing the state-of-the-art Optical Character</p>
Microsoft.CognitiveServices/accounts/ComputerVision/read/operations/read	<p>This interface is used for getting OCR results of Read operation. The URL to this interface should be retrieved from "<b>Operation-Location</b>" field returned from Batch Read File interface.</p>
Microsoft.CognitiveServices/accounts/ComputerVision/textoperations/read	<p>This interface is used for getting recognize text operation result. The URL to this interface should be retrieved from "<b>Operation-Location</b>" field returned from Recognize Text interface.</p>
Microsoft.CognitiveServices/accounts/ContentModerator/imageLists/action	<p>Create image list.</p>
Microsoft.CognitiveServices/accounts/ContentModerator/termLists/action	<p>Create term list.</p>
Microsoft.CognitiveServices/accounts/ContentModerator/imageLists/read	<p>Image Lists - Get Details - Image Lists - Get All</p>
Microsoft.CognitiveServices/accounts/ContentModerator/imageLists/delete	<p>Image Lists - Delete</p>
Microsoft.CognitiveServices/accounts/ContentModerator/imageLists/refreshIndex/action	<p>Image Lists - Refresh Search Index</p>
Microsoft.CognitiveServices/accounts/ContentModerator/imageLists/write	<p>Image Lists - Update Details</p>
Microsoft.CognitiveServices/accounts/ContentModerator/imageLists/images/write	<p>Add an Image to your image list. The image list can be used to do fuzzy matching against other images when using Image/Match API.</p>
Microsoft.CognitiveServices/accounts/ContentModerator/imageLists/images/delete	<p>Delete an Image from your image list. The image list can be used to do fuzzy matching against other images when using Image/Match API. Delete all images from your list. The image list can be used to do fuzzy matching against other images when using Image/Match API.*</p>

ACTION	DESCRIPTION
Microsoft.CognitiveServices/accounts/ContentModerator/images/agelists/images/read	Image - Get all Image Ids
Microsoft.CognitiveServices/accounts/ContentModerator/processimage/evaluate/action	Returns probabilities of the image containing racy or adult content.
Microsoft.CognitiveServices/accounts/ContentModerator/processimage/findfaces/action	Find faces in images.
Microsoft.CognitiveServices/accounts/ContentModerator/processimage/match/action	Fuzzily match an image against one of your custom Image Lists. You can create and manage your custom image lists using this API.
Microsoft.CognitiveServices/accounts/ContentModerator/processimage/ocr/action	Returns any text found in the image for the language specified. If no language is specified in input then the detection defaults to English.
Microsoft.CognitiveServices/accounts/ContentModerator/processstext/detectlanguage/action	This operation will detect the language of given input content. Returns the ISO 639-3 code for the predominant language comprising the submitted text. Over 110 languages supported.
Microsoft.CognitiveServices/accounts/ContentModerator/processstext/screen/action	The operation detects profanity in more than 100 languages and match against custom and shared blacklists.
Microsoft.CognitiveServices/accounts/ContentModerator/teams/jobs/action	A job Id will be returned for the Image content posted on this endpoint.
Microsoft.CognitiveServices/accounts/ContentModerator/teams/reviews/action	The reviews created would show up for Reviewers on your team. As Reviewers complete reviewing, results of the Review would be POSTED (i.e. HTTP POST) on the specified CallBackEndpoint.
Microsoft.CognitiveServices/accounts/ContentModerator/teams/jobs/read	Get the Job Details for a Job Id.
Microsoft.CognitiveServices/accounts/ContentModerator/teams/reviews/read	Returns review details for the review Id passed.
Microsoft.CognitiveServices/accounts/ContentModerator/teams/reviews/publish/action	Video reviews are initially created in an unpublished state - which means it is not available for reviewers on your team to review yet.
Microsoft.CognitiveServices/accounts/ContentModerator/teams/reviews/transcript/action	This API adds a transcript file (text version of all the words spoken in a video) to a video review. The file should be a valid WebVTT format.
Microsoft.CognitiveServices/accounts/ContentModerator/teams/reviews/transcriptmoderationresult/action	This API adds a transcript screen text result file for a video review. Transcript screen text result file is a result of Screen Text API . In order to generate transcript screen text result file , a transcript file has to be screened for profanity using Screen Text API.
Microsoft.CognitiveServices/accounts/ContentModerator/teams/reviews/accesskey/read	Get the review content access key for your team.

ACTION	DESCRIPTION
Microsoft.CognitiveServices/accounts/ContentModerator/teams/reviews/frames/write	Use this method to add frames for a video review.
Microsoft.CognitiveServices/accounts/ContentModerator/teams/reviews/frames/read	<i>NotDefined</i>
Microsoft.CognitiveServices/accounts/ContentModerator/teams/settings/templates/write	Creates or updates the specified template
Microsoft.CognitiveServices/accounts/ContentModerator/teams/settings/templates/delete	Delete a template in your team
Microsoft.CognitiveServices/accounts/ContentModerator/teams/settings/templates/read	Returns an array of review templates provisioned on this team.
Microsoft.CognitiveServices/accounts/ContentModerator/teams/workflows/write	Create a new workflow or update an existing one.
Microsoft.CognitiveServices/accounts/ContentModerator/teams/workflows/read	Get the details of a specific Workflow on your Team Get all the Workflows available for you Team*
Microsoft.CognitiveServices/accounts/ContentModerator/termlists/bulkupdate/action	Term Lists - Bulk Update
Microsoft.CognitiveServices/accounts/ContentModerator/termlists/delete	Term Lists - Delete
Microsoft.CognitiveServices/accounts/ContentModerator/termlists/read	Term Lists - Get All - Term Lists - Get Details
Microsoft.CognitiveServices/accounts/ContentModerator/termlists/refreshindex/action	Term Lists - Refresh Search Index
Microsoft.CognitiveServices/accounts/ContentModerator/termlists/write	Term Lists - Update Details
Microsoft.CognitiveServices/accounts/ContentModerator/termlists/terms/write	Term - Add Term
Microsoft.CognitiveServices/accounts/ContentModerator/termlists/terms/delete	Term - Delete - Term - Delete All Terms
Microsoft.CognitiveServices/accounts/ContentModerator/termlists/terms/read	Term - Get All Terms
Microsoft.CognitiveServices/accounts/CustomVision/projects/action	Create a project.
Microsoft.CognitiveServices/accounts/CustomVision/user/action	<i>NotDefined</i>
Microsoft.CognitiveServices/accounts/CustomVision/quota/action	<i>NotDefined</i>

ACTION	DESCRIPTION
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/action	Create a project.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/user/action	<i>NotDefined</i>
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/quota/action	<i>NotDefined</i>
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/classify/iterations/image/action	Classify an image and saves the result.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/classify/iterations/url/action	Classify an image url and saves the result.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/classify/iterations/image/nostore/action	Classify an image without saving the result.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/classify/iterations/url/nostore/action	Classify an image url without saving the result.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/detect/iterations/image/action	Detect objects in an image and saves the result.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/detect/iterations/url/action	Detect objects in an image url and saves the result.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/detect/iterations/image/nostore/action	Detect objects in an image without saving the result.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/detect/iterations/url/nostore/action	Detect objects in an image url without saving the result.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/domains/read	Get information about a specific domain. Get a list of the available domains.*
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/labelproposals/setting/action	Set pool size of Label Proposal.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/labelproposals/setting/read	Get pool size of Label Proposal for this project.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/project/migrate/action	<i>NotDefined</i>
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/images/action	This API accepts body content as multipart/form-data and application/octet-stream. When using multipart
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/tags/action	Create a tag for the project.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/delete	Delete a specific project.

ACTION	DESCRIPTION
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/read	Get a specific project. Get your projects.*
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/train/action	Queues project for training.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/write	Update a specific project.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/import/action	Imports a project.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/export/read	Exports a project.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/images/regions/action	This API accepts a batch of image regions, and optionally tags, to update existing images with region information.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/images/files/action	This API accepts a batch of files, and optionally tags, to create images. There is a limit of 64 images and 20 tags.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/images/predictions/action	This API creates a batch of images from predicted images specified. There is a limit of 64 images and 20 tags.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/images/urls/action	This API accepts a batch of urls, and optionally tags, to create images. There is a limit of 64 images and 20 tags.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/images/tags/action	Associate a set of images with a set of tags.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/images/delete	Delete images from the set of training images.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/images/regionproposals/action	This API will get region proposals for an image along with confidences for the region. It returns an empty array if no proposals are found.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/images/suggested/action	This API will fetch untagged images filtered by suggested tags lds. It returns an empty array if no images are found.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/images/id/read	This API will return a set of Images for the specified tags and optionally iteration. If no iteration is specified the
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/images/regions/delete	Delete a set of image regions.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/images/suggested/count/action	This API takes in tagIds to get count of untagged images per suggested tags for a given threshold.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/images/tagged/read	This API supports batching and range selection. By default it will only return first 50 images matching images.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/images/tagged/count/read	The filtering is on an and/or relationship. For example, if the provided tag ids are for the "Dog" and

ACTION	DESCRIPTION
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/images/tags/delete	Remove a set of tags from a set of images.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/images/untagged/read	This API supports batching and range selection. By default it will only return first 50 images matching images.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/images/untagged/count/read	This API returns the images which have no tags for a given project and optionally an iteration. If no iteration is specified the
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/iterations/delete	Delete a specific iteration of a project.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/iterations/export/action	Export a trained iteration.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/iterations/read	Get a specific iteration. Get iterations for the project.*
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/iterations/publish/action	Publish a specific iteration.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/iterations/write	Update a specific iteration.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/iterations/export/read	Get the list of exports for a specific iteration.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/iterations/performance/read	Get detailed performance information about an iteration.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/iterations/performance/images/read	This API supports batching and range selection. By default it will only return first 50 images matching images.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/iterations/performance/images/count/read	The filtering is on an and/or relationship. For example, if the provided tag ids are for the "Dog" and
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/iterations/publish/delete	Unpublish a specific iteration.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/predictions/delete	Delete a set of predicted images and their associated prediction results.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/predictions/query/action	Get images that were sent to your prediction endpoint.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/quicktest/image/action	Quick test an image.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/quicktest/url/action	Quick test an image url.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/tags/delete	Delete a tag from the project.

ACTION	DESCRIPTION
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/tags/read	Get information about a specific tag. Get the tags for a given project and iteration.*
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/tags/write	Update a tag.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/tagsandregions/suggestions/action	This API will get suggested tags and regions for an array/batch of untagged images along with confidences for the tags. It returns an empty array if no tags are found.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/projects/train/advanced/action	Queues project for training with PipelineConfiguration and training type.
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/quota/delete	<i>NotDefined</i>
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/quota/refresh/write	<i>NotDefined</i>
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/usage/prediction/user/read	Get usage for prediction resource for Oxford user
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/usage/training/resource/tier/read	Get usage for training resource for Azure user
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/usage/training/user/read	Get usage for training resource for Oxford user
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/user/delete	<i>NotDefined</i>
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/user/state/write	Update user state
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/user/tier/write	<i>NotDefined</i>
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/users/read	<i>NotDefined</i>
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/whitelist/delete	Deletes a whitelisted user with specific capability
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/whitelist/read	Gets a list of whitelisted users with specific capability
Microsoft.CognitiveServices/accounts/CustomVision.Prediction/whitelist/write	Updates or creates a user in the whitelist with specific capability
Microsoft.CognitiveServices/accounts/CustomVision/classify/iterations/image/action	Classify an image and saves the result.
Microsoft.CognitiveServices/accounts/CustomVision/classify/iterations/url/action	Classify an image url and saves the result.

ACTION	DESCRIPTION
Microsoft.CognitiveServices/accounts/CustomVision/classify/iterations/image/nostore/action	Classify an image without saving the result.
Microsoft.CognitiveServices/accounts/CustomVision/classify/iterations/url/nostore/action	Classify an image url without saving the result.
Microsoft.CognitiveServices/accounts/CustomVision/detect/iterations/image/action	Detect objects in an image and saves the result.
Microsoft.CognitiveServices/accounts/CustomVision/detect/iterations/url/action	Detect objects in an image url and saves the result.
Microsoft.CognitiveServices/accounts/CustomVision/detect/iterations/image/nostore/action	Detect objects in an image without saving the result.
Microsoft.CognitiveServices/accounts/CustomVision/detect/iterations/url/nostore/action	Detect objects in an image url without saving the result.
Microsoft.CognitiveServices/accounts/CustomVision/domain/read	Get information about a specific domain. Get a list of the available domains.*
Microsoft.CognitiveServices/accounts/CustomVision/labelproposals/setting/action	Set pool size of Label Proposal.
Microsoft.CognitiveServices/accounts/CustomVision/labelproposals/setting/read	Get pool size of Label Proposal for this project.
Microsoft.CognitiveServices/accounts/CustomVision/project/migrate/action	<i>NotDefined</i>
Microsoft.CognitiveServices/accounts/CustomVision/projects/images/action	This API accepts body content as multipart/form-data and application/octet-stream. When using multipart
Microsoft.CognitiveServices/accounts/CustomVision/projects/tags/action	Create a tag for the project.
Microsoft.CognitiveServices/accounts/CustomVision/projects/delete	Delete a specific project.
Microsoft.CognitiveServices/accounts/CustomVision/projects/read	Get a specific project. Get your projects.*
Microsoft.CognitiveServices/accounts/CustomVision/projects/train/action	Queues project for training.
Microsoft.CognitiveServices/accounts/CustomVision/projects/write	Update a specific project.
Microsoft.CognitiveServices/accounts/CustomVision/projects/import/action	Imports a project.
Microsoft.CognitiveServices/accounts/CustomVision/projects/artifacts/read	Get artifact content from blob storage, based on artifact relative path in the blob.

ACTION	DESCRIPTION
Microsoft.CognitiveServices/accounts/CustomVision/projects /export/read	Exports a project.
Microsoft.CognitiveServices/accounts/CustomVision/projects /images/regions/action	This API accepts a batch of image regions, and optionally tags, to update existing images with region information.
Microsoft.CognitiveServices/accounts/CustomVision/projects /images/files/action	This API accepts a batch of files, and optionally tags, to create images. There is a limit of 64 images and 20 tags.
Microsoft.CognitiveServices/accounts/CustomVision/projects /images/predictions/action	This API creates a batch of images from predicted images specified. There is a limit of 64 images and 20 tags.
Microsoft.CognitiveServices/accounts/CustomVision/projects /images/urls/action	This API accepts a batch of urls, and optionally tags, to create images. There is a limit of 64 images and 20 tags.
Microsoft.CognitiveServices/accounts/CustomVision/projects /images/tags/action	Associate a set of images with a set of tags.
Microsoft.CognitiveServices/accounts/CustomVision/projects /images/delete	Delete images from the set of training images.
Microsoft.CognitiveServices/accounts/CustomVision/projects /images/regionproposals/action	This API will get region proposals for an image along with confidences for the region. It returns an empty array if no proposals are found.
Microsoft.CognitiveServices/accounts/CustomVision/projects /images/suggested/action	This API will fetch untagged images filtered by suggested tags lds. It returns an empty array if no images are found.
Microsoft.CognitiveServices/accounts/CustomVision/projects /images/read	This API supports batching and range selection. By default it will only return first 50 images matching images.
Microsoft.CognitiveServices/accounts/CustomVision/projects /images/metadata/action	This API accepts a batch of image lds, and metadata, to update images. There is a limit of 64 images.
Microsoft.CognitiveServices/accounts/CustomVision/projects /images/count/read	The filtering is on an and/or relationship. For example, if the provided tag ids are for the "Dog" and
Microsoft.CognitiveServices/accounts/CustomVision/projects /images/id/read	This API will return a set of Images for the specified tags and optionally iteration. If no iteration is specified the
Microsoft.CognitiveServices/accounts/CustomVision/projects /images/regions/delete	Delete a set of image regions.
Microsoft.CognitiveServices/accounts/CustomVision/projects /images/suggested/count/action	This API takes in taglds to get count of untagged images per suggested tags for a given threshold.
Microsoft.CognitiveServices/accounts/CustomVision/projects /images/tagged/read	This API supports batching and range selection. By default it will only return first 50 images matching images.
Microsoft.CognitiveServices/accounts/CustomVision/projects /images/tagged/count/read	The filtering is on an and/or relationship. For example, if the provided tag ids are for the "Dog" and
Microsoft.CognitiveServices/accounts/CustomVision/projects /images/tags/delete	Remove a set of tags from a set of images.

ACTION	DESCRIPTION
Microsoft.CognitiveServices/accounts/CustomVision/projects /images/untagged/read	This API supports batching and range selection. By default it will only return first 50 images matching images.
Microsoft.CognitiveServices/accounts/CustomVision/projects /images/untagged/count/read	This API returns the images which have no tags for a given project and optionally an iteration. If no iteration is specified the
Microsoft.CognitiveServices/accounts/CustomVision/projects /iterations/delete	Delete a specific iteration of a project.
Microsoft.CognitiveServices/accounts/CustomVision/projects /iterations/export/action	Export a trained iteration.
Microsoft.CognitiveServices/accounts/CustomVision/projects /iterations/read	Get a specific iteration. Get iterations for the project.*
Microsoft.CognitiveServices/accounts/CustomVision/projects /iterations/publish/action	Publish a specific iteration.
Microsoft.CognitiveServices/accounts/CustomVision/projects /iterations/write	Update a specific iteration.
Microsoft.CognitiveServices/accounts/CustomVision/projects /iterations/export/read	Get the list of exports for a specific iteration.
Microsoft.CognitiveServices/accounts/CustomVision/projects /iterations/performance/read	Get detailed performance information about an iteration.
Microsoft.CognitiveServices/accounts/CustomVision/projects /iterations/performance/images/read	This API supports batching and range selection. By default it will only return first 50 images matching images.
Microsoft.CognitiveServices/accounts/CustomVision/projects /iterations/performance/images/count/read	The filtering is on an and/or relationship. For example, if the provided tag ids are for the "Dog" and
Microsoft.CognitiveServices/accounts/CustomVision/projects /iterations/publish/delete	Unpublish a specific iteration.
Microsoft.CognitiveServices/accounts/CustomVision/projects /predictions/delete	Delete a set of predicted images and their associated prediction results.
Microsoft.CognitiveServices/accounts/CustomVision/projects /predictions/query/action	Get images that were sent to your prediction endpoint.
Microsoft.CognitiveServices/accounts/CustomVision/projects /quicktest/image/action	Quick test an image.
Microsoft.CognitiveServices/accounts/CustomVision/projects /quicktest/url/action	Quick test an image url.
Microsoft.CognitiveServices/accounts/CustomVision/projects /tags/delete	Delete a tag from the project.
Microsoft.CognitiveServices/accounts/CustomVision/projects /tags/read	Get information about a specific tag. Get the tags for a given project and iteration.*

ACTION	DESCRIPTION
Microsoft.CognitiveServices/accounts/CustomVision/projects /tags/write	Update a tag.
Microsoft.CognitiveServices/accounts/CustomVision/projects /tagsandregions/suggestions/action	This API will get suggested tags and regions for an array/batch of untagged images along with confidences for the tags. It returns an empty array if no tags are found.
Microsoft.CognitiveServices/accounts/CustomVision/projects /train/advanced/action	Queues project for training with PipelineConfiguration and training type.
Microsoft.CognitiveServices/accounts/CustomVision/quota/delete	<i>NotDefined</i>
Microsoft.CognitiveServices/accounts/CustomVision/quota/refresh/write	<i>NotDefined</i>
Microsoft.CognitiveServices/accounts/CustomVision/usage/prediction/user/read	Get usage for prediction resource for Oxford user
Microsoft.CognitiveServices/accounts/CustomVision/usage/training/resource/tier/read	Get usage for training resource for Azure user
Microsoft.CognitiveServices/accounts/CustomVision/usage/training/user/read	Get usage for training resource for Oxford user
Microsoft.CognitiveServices/accounts/CustomVision/user/delete	<i>NotDefined</i>
Microsoft.CognitiveServices/accounts/CustomVision/user/state/write	Update user state
Microsoft.CognitiveServices/accounts/CustomVision/user/tier/write	<i>NotDefined</i>
Microsoft.CognitiveServices/accounts/CustomVision/users/read	<i>NotDefined</i>
Microsoft.CognitiveServices/accounts/CustomVision/whitelist/delete	Deletes a whitelisted user with specific capability
Microsoft.CognitiveServices/accounts/CustomVision/whitelist/read	Gets a list of whitelisted users with specific capability
Microsoft.CognitiveServices/accounts/CustomVision/whitelist/write	Updates or creates a user in the whitelist with specific capability
Microsoft.CognitiveServices/accounts/EntitySearch/search/action	Get entities and places results for a given query.
Microsoft.CognitiveServices/accounts/Face/detect/action	Detect human faces in an image, return face rectangles, and optionally with facelds, landmarks, and attributes.
Microsoft.CognitiveServices/accounts/Face/findsimilar/action	Given query face's faceld, to search the similar-looking faces from a faceld array, a face list or a large face list. faceld

ACTION	DESCRIPTION
Microsoft.CognitiveServices/accounts/Face/group/action	Divide candidate faces into groups based on face similarity.
Microsoft.CognitiveServices/accounts/Face/identify/action	1-to-many identification to find the closest matches of the specific query person face from a person group or large person group.
Microsoft.CognitiveServices/accounts/Face/verify/action	Verify whether two faces belong to a same person or whether one face belongs to a person.
Microsoft.CognitiveServices/accounts/Face/facelists/write	Create an empty face list with user-specified faceListId, name and an optional userData. Up to 64 face lists are allowed Update information of a face list, including name and userData.
Microsoft.CognitiveServices/accounts/Face/facelists/delete	Delete a specified face list. The related face images in the face list will be deleted, too.
Microsoft.CognitiveServices/accounts/Face/facelists/read	Retrieve a face list's faceListId, name, userData and faces in the face list. List face lists' faceListId, name and userData.
Microsoft.CognitiveServices/accounts/Face/facelists/persistedfaces/write	Add a face to a specified face list, up to 1,000 faces.
Microsoft.CognitiveServices/accounts/Face/facelists/persistedfaces/delete	Delete a face from a face list by specified faceListId and persistedFacId. The related face image will be deleted, too.
Microsoft.CognitiveServices/accounts/Face/largefacelists/write	Create an empty large face list with user-specified largeFaceListId, name and an optional userData. Update information of a large face list, including name and userData.
Microsoft.CognitiveServices/accounts/Face/largefacelists/delete	Delete a specified large face list. The related face images in the large face list will be deleted, too.
Microsoft.CognitiveServices/accounts/Face/largefacelists/read	Retrieve a large face list's largeFaceListId, name, userData. List large face lists' information of largeFaceListId, name and userData.
Microsoft.CognitiveServices/accounts/Face/largefacelists/training/action	Submit a large face list training task. Training is a crucial step that only a trained large face list can use.
Microsoft.CognitiveServices/accounts/Face/largefacelists/persistedfaces/write	Add a face to a specified large face list, up to 1,000,000 faces. Update a specified face's userData field in a large face list by its persistedFacId.
Microsoft.CognitiveServices/accounts/Face/largefacelists/persistedfaces/delete	Delete a face from a large face list by specified largeFaceListId and persistedFacId. The related face image will be deleted, too.
Microsoft.CognitiveServices/accounts/Face/largefacelists/persistedfaces/read	Retrieve persisted face in large face list by largeFaceListId and persistedFacId. List faces' persistedFacId and userData in a specified large face list.
Microsoft.CognitiveServices/accounts/Face/largefacelists/training/read	To check the large face list training status completed or still ongoing. LargeFaceList Training is an asynchronous operation

ACTION	DESCRIPTION
Microsoft.CognitiveServices/accounts/Face/largepersongroups/write	Create a new large person group with user-specified largePersonGroupId, name, and optional userData. Update an existing large person group's name and userData. The properties keep unchanged if they are not in request body.
Microsoft.CognitiveServices/accounts/Face/largepersongroups/delete	Delete an existing large person group with specified personGroupId. Persisted data in this large person group will be deleted.
Microsoft.CognitiveServices/accounts/Face/largepersongroups/read	Retrieve the information of a large person group, including its name and userData. This API returns large person group information List all existing large person groups's largePersonGroupId, name, and userData.
Microsoft.CognitiveServices/accounts/Face/largepersongroups/train/action	Submit a large person group training task. Training is a crucial step that only a trained large person group can use.
Microsoft.CognitiveServices/accounts/Face/largepersongroups/persons/action	Create a new person in a specified large person group. To add face to this person, please call
Microsoft.CognitiveServices/accounts/Face/largepersongroups/persons/delete	Delete an existing person from a large person group. All stored person data, and face images in the person entry will be deleted.
Microsoft.CognitiveServices/accounts/Face/largepersongroups/persons/read	Retrieve a person's name and userData, and the persisted faceIds representing the registered person face image. List all persons' information in the specified large person group, including personId, name, userData and persistedFaceIds.
Microsoft.CognitiveServices/accounts/Face/largepersongroups/persons/write	Update name or userData of a person.
Microsoft.CognitiveServices/accounts/Face/largepersongroups/persons/persistedfaces/write	Add a face image to a person into a large person group for face identification or verification. To deal with the image of Update a person persisted face's userData field.
Microsoft.CognitiveServices/accounts/Face/largepersongroups/persons/persistedfaces/delete	Delete a face from a person in a large person group. Face data and image related to this face entry will be also deleted.
Microsoft.CognitiveServices/accounts/Face/largepersongroups/persons/persistedfaces/read	Retrieve person face information. The persisted person face is specified by its largePersonGroupId, personId and persistedFaceId.
Microsoft.CognitiveServices/accounts/Face/largepersongroups/training/read	To check large person group training status completed or still ongoing. LargePersonGroup Training is an asynchronous operation
Microsoft.CognitiveServices/accounts/Face/persongroups/write	Create a new person group with specified personGroupId, name, and user-provided userData. Update an existing person group's name and userData. The properties keep unchanged if they are not in request body.

ACTION	DESCRIPTION
Microsoft.CognitiveServices/accounts/Face/persongroups/delete	Delete an existing person group with specified personGroupId. Persisted data in this person group will be deleted.
Microsoft.CognitiveServices/accounts/Face/persongroups/read	Retrieve person group name and userData. To get person information under this personGroup, use List person groups's pesonGroupId, name, and userData.
Microsoft.CognitiveServices/accounts/Face/persongroups/train/action	Submit a person group training task. Training is a crucial step that only a trained person group can use.
Microsoft.CognitiveServices/accounts/Face/persongroups/people/action	Create a new person in a specified person group. To add face to this person, please call
Microsoft.CognitiveServices/accounts/Face/persongroups/people/delete	Delete an existing person from a person group. All stored person data, and face images in the person entry will be deleted.
Microsoft.CognitiveServices/accounts/Face/persongroups/people/read	Retrieve a person's name and userData, and the persisted facelids representing the registered person face image. List all persons' information in the specified person group, including personId, name, userData and persistedFacelids of registered.
Microsoft.CognitiveServices/accounts/Face/persongroups/people/write	Update name or userData of a person.
Microsoft.CognitiveServices/accounts/Face/persongroups/people/persistedfaces/write	Add a face image to a person into a person group for face identification or verification. To deal with the image of multiple Update a person persisted face's userData field.
Microsoft.CognitiveServices/accounts/Face/persongroups/people/persistedfaces/delete	Delete a face from a person in a person group. Face data and image related to this face entry will be also deleted.
Microsoft.CognitiveServices/accounts/Face/persongroups/people/persistedfaces/read	Retrieve person face information. The persisted person face is specified by its personGroupId, personId and persistedFacelid.
Microsoft.CognitiveServices/accounts/Face/persongroups/training/read	To check person group training status completed or still ongoing. PersonGroup Training is an asynchronous operation triggered
Microsoft.CognitiveServices/accounts/Face/snapshot/take/action	Take a snapshot for an object.
Microsoft.CognitiveServices/accounts/Face/snapshot/read	Get status of a snapshot operation.
Microsoft.CognitiveServices/accounts/Face/snapshot/apply/action	Apply a snapshot, providing a user-specified object id.
Microsoft.CognitiveServices/accounts/Face/snapshot/delete	Delete a snapshot.
Microsoft.CognitiveServices/accounts/Face/snapshot/write	Update properties of a snapshot.
Microsoft.CognitiveServices/accounts/Face/snapshots/read	List all of the user's accessible snapshots with information.*

ACTION	DESCRIPTION
Microsoft.CognitiveServices/accounts/FormRecognizer/custom/train/action	<p>Create and train a custom model.</p> <p>The train request must include a source parameter that is either an externally accessible Azure Storage blob container Uri (preferably a Shared Access Signature Uri) or valid path to a data folder in a locally mounted drive.</p> <p>When local paths are specified, they must follow the Linux/Unix path format and be an absolute path rooted to the input mount configuration</p>
Microsoft.CognitiveServices/accounts/FormRecognizer/custom/models/analyze/action	<p>Extract key-value pairs from a given document. The input document must be of one of the supported content types - 'application/pdf', 'image/jpeg' or 'image/png'. A success response is returned in JSON.</p>
Microsoft.CognitiveServices/accounts/FormRecognizer/custom/models/delete	<p>Delete model artifacts.</p>
Microsoft.CognitiveServices/accounts/FormRecognizer/custom/models/read	<p>Get information about a model. Get information about all trained custom models*</p>
Microsoft.CognitiveServices/accounts/FormRecognizer/custom/models/keys/read	<p>Retrieve the keys for the model.</p>
Microsoft.CognitiveServices/accounts/FormRecognizer/prebuilt/receipt/asyncbatchanalyze/action	<p>Extract field text and semantic values from a given receipt document. The input image document must be one of the supported content types - JPEG, PNG, BMP, PDF, or TIFF. A success response is a JSON containing a field called 'Operation-Location', which contains the URL for the Get Receipt Result operation to asynchronously retrieve the results.</p>
Microsoft.CognitiveServices/accounts/FormRecognizer/prebuilt/receipt/operations/action	<p>Query the status and retrieve the result of an Analyze Receipt operation. The URL to this interface can be obtained from the 'Operation-Location' header in the Analyze Receipt response.</p>
Microsoft.CognitiveServices/accounts/ImageSearch/details/action	<p>Returns insights about an image, such as webpages that include the image.</p>
Microsoft.CognitiveServices/accounts/ImageSearch/search/action	<p>Get relevant images for a given query.</p>
Microsoft.CognitiveServices/accounts/ImageSearch/trending/action	<p>Get currently trending images.</p>
Microsoft.CognitiveServices/accounts/ImmersiveReader/getcontentmodelforreader/action	<p>Creates an Immersive Reader session</p>
Microsoft.CognitiveServices/accounts/InkRecognizer/recognize/action	<p>Given a set of stroke data analyzes the content and generates a list of recognized entities including recognized text.</p>
Microsoft.CognitiveServices/accounts/LUIS/predict/action	<p>Gets the published endpoint prediction for the given query.</p>

ACTION	DESCRIPTION
Microsoft.CognitiveServices/accounts/NewsSearch/categoriesearch/action	Returns news for a provided category.
Microsoft.CognitiveServices/accounts/NewsSearch/search/action	Get news articles relevant for a given query.
Microsoft.CognitiveServices/accounts/NewsSearch/trendingtopics/action	Get trending topics identified by Bing. These are the same topics shown in the banner at the bottom of the Bing home page.
Microsoft.CognitiveServices/accounts/QnAMaker/root/action	QnA Maker
Microsoft.CognitiveServices/accounts/QnAMaker.v2/root/acti on	QnA Maker
Microsoft.CognitiveServices/accounts/QnAMaker.v2/alteratio ns/read	Download alterations from runtime.
Microsoft.CognitiveServices/accounts/QnAMaker.v2/alteratio ns/write	Replace alterations data.
Microsoft.CognitiveServices/accounts/QnAMaker.v2/endpoi ntkeys/read	Gets endpoint keys for an endpoint
Microsoft.CognitiveServices/accounts/QnAMaker.v2/endpoi ntkeys/refreshkeys/action	Re-generates an endpoint key.
Microsoft.CognitiveServices/accounts/QnAMaker.v2/endpoi ntsettings/read	Gets endpoint settings for an endpoint
Microsoft.CognitiveServices/accounts/QnAMaker.v2/endpoi ntsettings/write	Update endpoint seettings for an endpoint.
Microsoft.CognitiveServices/accounts/QnAMaker.v2/knowled gebases/publish/action	Publishes all changes in test index of a knowledgebase to its prod index.
Microsoft.CognitiveServices/accounts/QnAMaker.v2/knowled gebases/delete	Deletes the knowledgebase and all its data.
Microsoft.CognitiveServices/accounts/QnAMaker.v2/knowled gebases/read	Gets List of Knowledgebases or details of a specific knowledgebaser.
Microsoft.CognitiveServices/accounts/QnAMaker.v2/knowled gebases/write	Asynchronous operation to modify a knowledgebase or Replace knowledgebase contents.
Microsoft.CognitiveServices/accounts/QnAMaker.v2/knowled gebases/generateanswer/action	GenerateAnswer call to query the knowledgebase.
Microsoft.CognitiveServices/accounts/QnAMaker.v2/knowled gebases/train/action	Train call to add suggestions to the knowledgebase.
Microsoft.CognitiveServices/accounts/QnAMaker.v2/knowled gebases/create/write	Asynchronous operation to create a new knowledgebase.

ACTION	DESCRIPTION
Microsoft.CognitiveServices/accounts/QnAMaker:v2/knowledgebases/download/read	Download the knowledgebase.
Microsoft.CognitiveServices/accounts/QnAMaker:v2/operations/read	Gets details of a specific long running operation.
Microsoft.CognitiveServices/accounts/QnAMaker/alterations/read	Download alterations from runtime.
Microsoft.CognitiveServices/accounts/QnAMaker/alterations/write	Replace alterations data.
Microsoft.CognitiveServices/accounts/QnAMaker/endpointkeys/read	Gets endpoint keys for an endpoint
Microsoft.CognitiveServices/accounts/QnAMaker/endpointkeys/refreshkeys/action	Re-generates an endpoint key.
Microsoft.CognitiveServices/accounts/QnAMaker/endpointsettings/read	Gets endpoint settings for an endpoint
Microsoft.CognitiveServices/accounts/QnAMaker/endpointsettings/write	Update endpoint settings for an endpoint.
Microsoft.CognitiveServices/accounts/QnAMaker/knowledgebases/publish/action	Publishes all changes in test index of a knowledgebase to its prod index.
Microsoft.CognitiveServices/accounts/QnAMaker/knowledgebases/delete	Deletes the knowledgebase and all its data.
Microsoft.CognitiveServices/accounts/QnAMaker/knowledgebases/read	Gets List of Knowledgebases or details of a specific knowledgebase.
Microsoft.CognitiveServices/accounts/QnAMaker/knowledgebases/write	Asynchronous operation to modify a knowledgebase or Replace knowledgebase contents.
Microsoft.CognitiveServices/accounts/QnAMaker/knowledgebases/generateanswer/action	GenerateAnswer call to query the knowledgebase.
Microsoft.CognitiveServices/accounts/QnAMaker/knowledgebases/train/action	Train call to add suggestions to the knowledgebase.
Microsoft.CognitiveServices/accounts/QnAMaker/knowledgebases/create/write	Asynchronous operation to create a new knowledgebase.
Microsoft.CognitiveServices/accounts/QnAMaker/knowledgebases/download/read	Download the knowledgebase.
Microsoft.CognitiveServices/accounts/QnAMaker/operations/read	Gets details of a specific long running operation.
Microsoft.CognitiveServices/accounts/SpellCheck/spellcheck/action	Get result of a spell check query through GET or POST.

ACTION	DESCRIPTION
Microsoft.CognitiveServices/accounts/TextAnalytics/language/s/action	The API returns the detected language and a numeric score between 0 and 1. Scores close to 1 indicate 100% certainty that the identified language is true. A total of 120 languages are supported.
Microsoft.CognitiveServices/accounts/TextAnalytics/entities/action	The API returns a list of known entities and general named entities ("Person", "Location", "Organization" etc) in a given document.
Microsoft.CognitiveServices/accounts/TextAnalytics/keyphrases/action	The API returns a list of strings denoting the key talking points in the input text.
Microsoft.CognitiveServices/accounts/TextAnalytics/sentiment/action	The API returns a numeric score between 0 and 1. Scores close to 1 indicate positive sentiment, while scores close to 0 indicate negative sentiment. A score of 0.5 indicates the lack of sentiment (e.g. a factoid statement).
Microsoft.CognitiveServices/accounts/VideoSearch/trending/action	Get currently trending videos.
Microsoft.CognitiveServices/accounts/VideoSearch/details/action	Get insights about a video, such as related videos.
Microsoft.CognitiveServices/accounts/VideoSearch/search/action	Get videos relevant for a given query.
Microsoft.CognitiveServices/accounts/VisualSearch/search/action	Returns a list of tags relevant to the provided image
Microsoft.CognitiveServices/accounts/WebSearch/search/action	Get web, image, news, & videos results for a given query.

## Microsoft.MachineLearning

Azure service: [Machine Learning Studio](#)

ACTION	DESCRIPTION
Microsoft.MachineLearning/register/action	Registers the subscription for the machine learning web service resource provider and enables the creation of web services.
Microsoft.MachineLearning/webServices/action	Create regional Web Service Properties for supported regions
Microsoft.MachineLearning/commitmentPlans/read	Read any Machine Learning Commitment Plan
Microsoft.MachineLearning/commitmentPlans/write	Create or Update any Machine Learning Commitment Plan
Microsoft.MachineLearning/commitmentPlans/delete	Delete any Machine Learning Commitment Plan
Microsoft.MachineLearning/commitmentPlans/join/action	Join any Machine Learning Commitment Plan

ACTION	DESCRIPTION
Microsoft.MachineLearning/commitmentPlans/commitmentAssociations/read	Read any Machine Learning Commitment Plan Association
Microsoft.MachineLearning/commitmentPlans/commitmentAssociations/move/action	Move any Machine Learning Commitment Plan Association
Microsoft.MachineLearning/locations/operationresults/read	Get result of a Machine Learning Operation
Microsoft.MachineLearning/locations/operationsstatus/read	Get status of an ongoing Machine Learning Operation
Microsoft.MachineLearning/operations/read	Get Machine Learning Operations
Microsoft.MachineLearning/skus/read	Get Machine Learning Commitment Plan SKUs
Microsoft.MachineLearning/webServices/read	Read any Machine Learning Web Service
Microsoft.MachineLearning/webServices/write	Create or Update any Machine Learning Web Service
Microsoft.MachineLearning/webServices/delete	Delete any Machine Learning Web Service
Microsoft.MachineLearning/webServices/listkeys/read	Get keys to a Machine Learning Web Service
Microsoft.MachineLearning/Workspaces/read	Read any Machine Learning Workspace
Microsoft.MachineLearning/Workspaces/write	Create or Update any Machine Learning Workspace
Microsoft.MachineLearning/Workspaces/delete	Delete any Machine Learning Workspace
Microsoft.MachineLearning/Workspaces/listworkspacekeys/action	List keys for a Machine Learning Workspace
Microsoft.MachineLearning/Workspaces/resyncstoragekeys/action	Resync keys of storage account configured for a Machine Learning Workspace

## Microsoft.MachineLearningServices

Azure service: [Machine Learning Service](#)

ACTION	DESCRIPTION
Microsoft.MachineLearningServices/register/action	Registers the subscription for the Machine Learning Services Resource Provider
Microsoft.MachineLearningServices/locations/updateQuotas/action	Update quota for each VM family in workspace.
Microsoft.MachineLearningServices/locations/computeoperationsstatus/read	Gets the status of a particular compute operation
Microsoft.MachineLearningServices/locations/quotas/read	Gets the currently assigned Workspace Quotas based on VMFamily.

ACTION	DESCRIPTION
Microsoft.MachineLearningServices/locations/usages/read	Usage report for aml compute resources in a subscription
Microsoft.MachineLearningServices/locations/vmsizes/read	Get supported vm sizes
Microsoft.MachineLearningServices/locations/workspaceOperationsStatus/read	Gets the status of a particular workspace operation
Microsoft.MachineLearningServices/operations/read	Get all the operations for the Machine Learning Services Resource Provider
Microsoft.MachineLearningServices/workspaces/read	Gets the Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/write	Creates or updates a Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/delete	Deletes the Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/listKeys/action	List secrets for a Machine Learning Services Workspace
Microsoft.MachineLearningServices/workspaces/resynckeys/action	Resync secrets for a Machine Learning Services Workspace
Microsoft.MachineLearningServices/workspaces/computes/read	Gets the compute resources in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/computes/write	Creates or updates the compute resources in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/computes/delete	Deletes the compute resources in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/computes/listKeys/action	List secrets for compute resources in Machine Learning Services Workspace
Microsoft.MachineLearningServices/workspaces/computes/listNodes/action	List nodes for compute resource in Machine Learning Services Workspace
Microsoft.MachineLearningServices/workspaces/computes/start/action	Start compute resource in Machine Learning Services Workspace
Microsoft.MachineLearningServices/workspaces/computes/stop/action	Stop compute resource in Machine Learning Services Workspace
Microsoft.MachineLearningServices/workspaces/computes/restart/action	Restart compute resource in Machine Learning Services Workspace
Microsoft.MachineLearningServices/workspaces/computes/applicationaccess/action	Access compute resource in Machine Learning Services Workspace
Microsoft.MachineLearningServices/workspaces/connections/read	Gets the Machine Learning Services Workspace connection(s)

ACTION	DESCRIPTION
Microsoft.MachineLearningServices/workspaces/connections/write	Creates or updates a Machine Learning Services connection(s)
Microsoft.MachineLearningServices/workspaces/connections/delete	Deletes the Machine Learning Services connection(s)
Microsoft.MachineLearningServices/workspaces/datadriftdetectors/read	Gets data drift detectors in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/datadriftdetectors/write	Creates or updates data drift detectors in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/datadriftdetectors/delete	Deletes data drift detectors in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/datasets/registered/read	Gets registered datasets in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/datasets/registered/write	Creates or updates registered datasets in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/datasets/registered/delete	Deletes registered datasets in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/datasets/registered/preview/read	Gets dataset preview for registered datasets in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/datasets/registered/profile/read	Gets dataset profiles for registered datasets in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/datasets/registered/profile/write	Creates or updates dataset profiles for registered datasets in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/datasets/registered/schema/read	Gets dataset schema for registered datasets in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/datasets/unregistered/read	Gets unregistered datasets in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/datasets/unregistered/write	Creates or updates unregistered datasets in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/datasets/unregistered/delete	Deletes unregistered datasets in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/datasets/unregistered/preview/read	Gets dataset preview for unregistered datasets in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/datasets/unregistered/profile/read	Gets dataset profiles for unregistered datasets in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/datasets/unregistered/profile/write	Creates or updates dataset profiles for unregistered datasets in Machine Learning Services Workspace(s)

ACTION	DESCRIPTION
Microsoft.MachineLearningServices/workspaces/datasets/unregistered/schema/read	Gets dataset schema for unregistered datasets in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/datastores/read	Gets datastores in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/datastores/write	Creates or updates datastores in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/datastores/delete	Deletes datastores in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/endpoints/pipelines/read	Gets published pipelines and pipeline endpoints in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/endpoints/pipelines/write	Creates or updates published pipelines and pipeline endpoints in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/environments/read	Gets environments in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/environments/readSecrets/action	Gets environments with secrets in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/environments/write	Creates or updates environments in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/environments/build/action	Builds environments in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/eventGridFilters/read	Get an Event Grid filter for a particular workspace
Microsoft.MachineLearningServices/workspaces/experiments/read	Gets experiments in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/experiments/write	Creates or updates experiments in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/experiments/delete	Deletes experiments in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/experiments/runs/submit/action	Creates or updates script runs in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/experiments/runs/read	Gets runs in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/experiments/runs/write	Creates or updates runs in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/features/read	Gets all enabled features for a Machine Learning Services Workspace

ACTION	DESCRIPTION
Microsoft.MachineLearningServices/workspaces/labeling/export/action	Export labels of labeling projects in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/labeling/labels/read	Gets labels of labeling projects in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/labeling/labels/write	Creates labels of labeling projects in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/labeling/labels/reject/action	Reject labels of labeling projects in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/labeling/projects/read	Gets labeling project in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/labeling/projects/write	Creates or updates labeling project in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/labeling/projects/delete	Deletes labeling project in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/labeling/projects/summary/read	Gets labeling project summary in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/metadata/artifacts/read	Gets artifacts in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/metadata/artifacts/write	Creates or updates artifacts in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/metadata/artifacts/delete	Deletes artifacts in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/metadata/secrets/read	Gets secrets in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/metadata/secrets/write	Creates or updates secrets in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/metadata/secrets/delete	Deletes secrets in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/metadata/snapshots/read	Gets snapshots in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/metadata/snapshots/write	Creates or updates snapshots in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/metadata/snapshots/delete	Deletes snapshots in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/models/read	Gets models in Machine Learning Services Workspace(s)

ACTION	DESCRIPTION
Microsoft.MachineLearningServices/workspaces/models/write	Creates or updates models in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/models/delete	Deletes models in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/models/package/action	Packages models in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/modules/read	Gets modules in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/modules/write	Creates or updates module in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/notebooks/samples/read	Gets the sample notebooks
Microsoft.MachineLearningServices/workspaces/notebooks/storage/read	Gets the notebook files for a workspace
Microsoft.MachineLearningServices/workspaces/notebooks/storage/write	Writes files to the workspace storage
Microsoft.MachineLearningServices/workspaces/notebooks/storage/delete	Deletes files from workspace storage
Microsoft.MachineLearningServices/workspaces/notebooks/vm/read	Gets the Notebook VMs for a particular workspace
Microsoft.MachineLearningServices/workspaces/notebooks/vm/write	Change the state of a Notebook VM
Microsoft.MachineLearningServices/workspaces/notebooks/vm/delete	Deletes a Notebook VM
Microsoft.MachineLearningServices/workspaces/pipelinedrafts/read	Gets pipeline drafts in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/pipelinedrafts/write	Creates or updates pipeline drafts in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/pipelinedrafts/delete	Deletes pipeline drafts in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/services/read	Gets services in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/services/aci/write	Creates or updates ACI services in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/services/aci/listkeys/action	Lists keys for ACI services in Machine Learning Services Workspace(s)

ACTION	DESCRIPTION
Microsoft.MachineLearningServices/workspaces/services/aci/delete	Deletes ACI services in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/services/aks/write	Creates or updates AKS services in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/services/aks/listkeys/action	Lists keys for AKS services in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/services/aks/delete	Deletes AKS services in Machine Learning Services Workspace(s)
Microsoft.MachineLearningServices/workspaces/services/aks/score/action	Scores AKS services in Machine Learning Services Workspace(s)

## Internet of things

### Microsoft.Devices

Azure service: [IoT Hub](#), [IoT Hub Device Provisioning Service](#)

ACTION	DESCRIPTION
Microsoft.Devices/register/action	Register the subscription for the IoTHub resource provider and enables the creation of IoTHub resources
Microsoft.Devices/checkNameAvailability/Action	Check If IoTHub name is available
Microsoft.Devices/checkProvisioningServiceNameAvailability/Action	Check If Provisioning service name is available
Microsoft.Devices/register/action	Register the subscription for the IoTHub resource provider and enables the creation of IoTHub resources
Microsoft.Devices/checkNameAvailability/Action	Check If IoTHub name is available
Microsoft.Devices/checkProvisioningServiceNameAvailability/Action	Check If Provisioning service name is available
Microsoft.Devices/register/action	Register the subscription for the IoTHub resource provider and enables the creation of IoTHub resources
Microsoft.Devices/Account/diagnosticSettings/read	Gets the diagnostic setting for the resource
Microsoft.Devices/Account/diagnosticSettings/write	Creates or updates the diagnostic setting for the resource
Microsoft.Devices/Account/logDefinitions/read	Gets the available log definitions for the IoTHub Service
Microsoft.Devices/Account/metricDefinitions/read	Gets the available metrics for the IoTHub service
Microsoft.Devices/digitalTwins/Read	Gets a list of the Digital Twins Accounts associated to an subscription

ACTION	DESCRIPTION
Microsoft.Devices/digitalTwins/Write	Create a new Digital Twins Account
Microsoft.Devices/digitalTwins/Delete	Delete an existing Digital Twins Account and all of its children
Microsoft.Devices/digitalTwins/operationresults/Read	Get the status of an operation against a Digital Twins Account
Microsoft.Devices/digitalTwins/skus/Read	Get a list of the valid SKUs for Digital Twins Accounts
Microsoft.Devices/ElasticPools/diagnosticSettings/read	Gets the diagnostic setting for the resource
Microsoft.Devices/ElasticPools/diagnosticSettings/write	Creates or updates the diagnostic setting for the resource
Microsoft.Devices/elasticPools/eventGridFilters/Write	Create new or Update existing Elastic Pool Event Grid filter
Microsoft.Devices/elasticPools/eventGridFilters/Read	Gets the Elastic Pool Event Grid filter
Microsoft.Devices/elasticPools/eventGridFilters/Delete	Deletes the Elastic Pool Event Grid filter
Microsoft.Devices/elasticPools/iotHubTenants/Write	Create or Update the IoT Hub tenant resource
Microsoft.Devices/elasticPools/iotHubTenants/Read	Gets the IoT Hub tenant resource
Microsoft.Devices/elasticPools/iotHubTenants/Delete	Delete the IoT Hub tenant resource
Microsoft.Devices/elasticPools/iotHubTenants/listKeys/Action	Gets IoT Hub tenant keys
Microsoft.Devices/elasticPools/iotHubTenants/exportDevices/Action	Export Devices
Microsoft.Devices/elasticPools/iotHubTenants/importDevices/Action	Import Devices
Microsoft.Devices/elasticPools/iotHubTenants/certificates/Read	Gets the Certificate
Microsoft.Devices/elasticPools/iotHubTenants/certificates/Write	Create or Update Certificate
Microsoft.Devices/elasticPools/iotHubTenants/certificates/Delete	Deletes Certificate
Microsoft.Devices/elasticPools/iotHubTenants/certificates/generateVerificationCode/Action	Generate Verification code
Microsoft.Devices/elasticPools/iotHubTenants/certificates/verify/Action	Verify Certificate resource
Microsoft.Devices/ElasticPools/iotHubTenants/diagnosticSettings/read	Gets the diagnostic setting for the resource

ACTION	DESCRIPTION
Microsoft.Devices/ElasticPools/iotHubTenants/diagnosticSettings/write	Creates or updates the diagnostic setting for the resource
Microsoft.Devices/elasticPools/iotHubTenants/eventHubEndpoints/consumerGroups/Write	Create EventHub Consumer Group
Microsoft.Devices/elasticPools/iotHubTenants/eventHubEndpoints/consumerGroups/Read	Get EventHub Consumer Group(s)
Microsoft.Devices/elasticPools/iotHubTenants/eventHubEndpoints/consumerGroups/Delete	Delete EventHub Consumer Group
Microsoft.Devices/elasticPools/iotHubTenants/getStats/Read	Gets the IoTHub tenant stats resource
Microsoft.Devices/elasticPools/iotHubTenants/iotHubKeys/listKeys/Action	Gets the IoTHub tenant key
Microsoft.Devices/elasticPools/iotHubTenants/jobs/Read	Get Job(s) details submitted on given IoTHub
Microsoft.Devices/ElasticPools/iotHubTenants/logDefinitions/read	Gets the available log definitions for the IoTHub Service
Microsoft.Devices/ElasticPools/iotHubTenants/metricDefinitions/read	Gets the available metrics for the IoTHub service
Microsoft.Devices/elasticPools/iotHubTenants/quotaMetrics/Read	Get Quota Metrics
Microsoft.Devices/elasticPools/iotHubTenants/routing/routes/\$testall/Action	Test a message against all existing Routes
Microsoft.Devices/elasticPools/iotHubTenants/routing/routes/\$testnew/Action	Test a message against a provided test Route
Microsoft.Devices/elasticPools/iotHubTenants/routingEndpointsHealth/Read	Gets the health of all routing Endpoints for an IoTHub
Microsoft.Devices/elasticPools/iotHubTenants/securitySettings/Write	Update the Azure Security Center settings on IoT Tenant Hub
Microsoft.Devices/elasticPools/iotHubTenants/securitySettings/Read	Get the Azure Security Center settings on IoT Tenant Hub
Microsoft.Devices/elasticPools/iotHubTenants/securitySettings/operationResults/Read	Get the result of the Async Put operation for IoT Tenant Hub SecuritySettings
Microsoft.Devices/ElasticPools/metricDefinitions/read	Gets the available metrics for the IoTHub service
Microsoft.Devices/iotHubs/Read	Gets the IoTHub resource(s)
Microsoft.Devices/iotHubs/Write	Create or update IoTHub Resource
Microsoft.Devices/iotHubs/Delete	Delete IoTHub Resource

ACTION	DESCRIPTION
Microsoft.Devices/iotHubs/listkeys/Action	Get all IoT Hub Keys
Microsoft.Devices/iotHubs/exportDevices/Action	Export Devices
Microsoft.Devices/iotHubs/importDevices/Action	Import Devices
Microsoft.Devices/iotHubs/privateEndpointConnectionsApproval/Action	Approve or reject a private endpoint connection
Microsoft.Devices/iotHubs/certificates/Read	Gets the Certificate
Microsoft.Devices/iotHubs/certificates/Write	Create or Update Certificate
Microsoft.Devices/iotHubs/certificates/Delete	Deletes Certificate
Microsoft.Devices/iotHubs/certificates/generateVerificationCode/Action	Generate Verification code
Microsoft.Devices/iotHubs/certificates/verify/Action	Verify Certificate resource
Microsoft.Devices/iotHubs/certificates/Read	Gets the Certificate
Microsoft.Devices/iotHubs/certificates/Write	Create or Update Certificate
Microsoft.Devices/iotHubs/certificates/Delete	Deletes Certificate
Microsoft.Devices/iotHubs/certificates/generateVerificationCode/Action	Generate Verification code
Microsoft.Devices/iotHubs/certificates/verify/Action	Verify Certificate resource
Microsoft.Devices/iotHubs/diagnosticSettings/read	Gets the diagnostic setting for the resource
Microsoft.Devices/iotHubs/diagnosticSettings/write	Creates or updates the diagnostic setting for the resource
Microsoft.Devices/iotHubs/digitalTwinsLinks/Write	Links IoT Hub with a Digital Twins Service
Microsoft.Devices/iotHubs/digitalTwinsLinks/Read	Gets the information about the current linked Digital Twins Service
Microsoft.Devices/iotHubs/digitalTwinsLinks/Delete	Deletes the link to the Digital Twins Service
Microsoft.Devices/iotHubs/eventGridFilters/Write	Create new or Update existing Event Grid filter
Microsoft.Devices/iotHubs/eventGridFilters/Read	Gets the Event Grid filter
Microsoft.Devices/iotHubs/eventGridFilters/Delete	Deletes the Event Grid filter
Microsoft.Devices/iotHubs/eventHubEndpoints/consumerGroups/Write	Create EventHub Consumer Group

ACTION	DESCRIPTION
Microsoft.Devices/iotHubs/eventHubEndpoints/consumerGroups/Read	Get EventHub Consumer Group(s)
Microsoft.Devices/iotHubs/eventHubEndpoints/consumerGroups/Delete	Delete EventHub Consumer Group
Microsoft.Devices/iotHubs/iotHubKeys/listkeys/Action	Get IoT Hub Key for the given name
Microsoft.Devices/iotHubs/iotHubStats/Read	Get IoT Hub Statistics
Microsoft.Devices/iotHubs/jobs/Read	Get Job(s) details submitted on given IoT Hub
Microsoft.Devices/iotHubs/logDefinitions/read	Gets the available log definitions for the IoT Hub Service
Microsoft.Devices/iotHubs/metricDefinitions/read	Gets the available metrics for the IoT Hub service
Microsoft.Devices/iotHubs/operationresults/Read	Get Operation Result (Obsolete API)
Microsoft.Devices/iotHubs/privateEndpointConnectionProxies/validate/Action	Validates private endpoint connection proxy input during create
Microsoft.Devices/iotHubs/privateEndpointConnectionProxies/Read	Gets properties for specified private endpoint connection proxy
Microsoft.Devices/iotHubs/privateEndpointConnectionProxies/Write	Creates or updates a private endpoint connection proxy
Microsoft.Devices/iotHubs/privateEndpointConnectionProxies/Delete	Deletes an existing private endpoint connection proxy
Microsoft.Devices/iotHubs/privateEndpointConnectionProxies/operationResults/Read	Get the result of an async operation on a private endpoint connection proxy
Microsoft.Devices/iotHubs/privateEndpointConnections/Read	Gets all the private endpoint connections for the specified IoT hub
Microsoft.Devices/iotHubs/privateEndpointConnections/Delete	Deletes an existing private endpoint connection
Microsoft.Devices/iotHubs/privateEndpointConnections/Writ e	Creates or updates a private endpoint connection
Microsoft.Devices/iotHubs/privateEndpointConnections/operationResults/Read	Get the result of an async operation on a private endpoint connection
Microsoft.Devices/iotHubs/privateLinkResources/Read	Gets private link resources for IoT Hub
Microsoft.Devices/iotHubs/quotaMetrics/Read	Get Quota Metrics
Microsoft.Devices/iotHubs/routing/\$testall/Action	Test a message against all existing Routes
Microsoft.Devices/iotHubs/routing/\$testnew/Action	Test a message against a provided test Route

ACTION	DESCRIPTION
Microsoft.Devices/iotHubs/routingEndpointsHealth/Read	Gets the health of all routing Endpoints for an IoT Hub
Microsoft.Devices/iotHubs/securitySettings/Write	Update the Azure Security Center settings on IoT Hub
Microsoft.Devices/iotHubs/securitySettings/Read	Get the Azure Security Center settings on IoT Hub
Microsoft.Devices/iotHubs/securitySettings/operationResults/Read	Get the result of the Async Put operation for IoT Hub SecuritySettings
Microsoft.Devices/iotHubs/skus/Read	Get valid IoT Hub Skus
Microsoft.Devices/locations/operationresults/Read	Get Location based Operation Result
Microsoft.Devices/locations/operationresults/Read	Get Location based Operation Result
Microsoft.Devices/operationresults/Read	Get Operation Result
Microsoft.Devices/operationresults/Read	Get Operation Result
Microsoft.Devices/operations/Read	Get All ResourceProvider Operations
Microsoft.Devices/operations/Read	Get All ResourceProvider Operations
Microsoft.Devices/provisioningServices/Read	Get IoT DPs resource
Microsoft.Devices/provisioningServices/Write	Create IoT DPs resource
Microsoft.Devices/provisioningServices/Delete	Delete IoT DPs resource
Microsoft.Devices/provisioningServices/listkeys/Action	Get all IoT DPs keys
Microsoft.Devices/provisioningServices/privateEndpointConnectionsApproval/Action	Approve or reject a private endpoint connection
Microsoft.Devices/provisioningServices/certificates/Read	Gets the Certificate
Microsoft.Devices/provisioningServices/certificates/Write	Create or Update Certificate
Microsoft.Devices/provisioningServices/certificates/Delete	Deletes Certificate
Microsoft.Devices/provisioningServices/certificates/generateVerificationCode/Action	Generate Verification code
Microsoft.Devices/provisioningServices/certificates/verify/Action	Verify Certificate resource
Microsoft.Devices/provisioningServices/diagnosticSettings/read	Gets the diagnostic setting for the resource
Microsoft.Devices/provisioningServices/diagnosticSettings/write	Creates or updates the diagnostic setting for the resource

ACTION	DESCRIPTION
Microsoft.Devices/provisioningServices/keys/listkeys/Action	Get IoT Dps Keys for key name
Microsoft.Devices/provisioningServices/logDefinitions/read	Gets the available log definitions for the provisioning Service
Microsoft.Devices/provisioningServices/metricDefinitions/read	Gets the available metrics for the provisioning service
Microsoft.Devices/provisioningServices/operationresults/Read	Get DPS Operation Result
Microsoft.Devices/provisioningServices/privateEndpointConnectionProxies/validate/Action	Validates private endpoint connection proxy input during create
Microsoft.Devices/provisioningServices/privateEndpointConnectionProxies/Read	Gets properties for specified private endpoint connection proxy
Microsoft.Devices/provisioningServices/privateEndpointConnectionProxies/Write	Creates or updates a private endpoint connection proxy
Microsoft.Devices/provisioningServices/privateEndpointConnectionProxies/Delete	Deletes an existing private endpoint connection proxy
Microsoft.Devices/provisioningServices/privateEndpointConnectionProxies/operationResults/Read	Get the result of an async operation on a private endpoint connection proxy
Microsoft.Devices/provisioningServices/privateEndpointConnections/Read	Gets all the private endpoint connections for the specified IoT hub
Microsoft.Devices/provisioningServices/privateEndpointConnections/Delete	Deletes an existing private endpoint connection
Microsoft.Devices/provisioningServices/privateEndpointConnections/Write	Creates or updates a private endpoint connection
Microsoft.Devices/provisioningServices/privateEndpointConnections/operationResults/Read	Get the result of an async operation on a private endpoint connection
Microsoft.Devices/provisioningServices/privateLinkResources/Read	Gets private link resources for IoT Hub
Microsoft.Devices/provisioningServices/skus/Read	Get valid IoT Dps Skus
Microsoft.Devices/usages/Read	Get subscription usage details for this provider.
Microsoft.Devices/usages/Read	Get subscription usage details for this provider.

## Microsoft.IoTCentral

Azure service: [IoT Central](#)

ACTION	DESCRIPTION
Microsoft.IoTCentral/checkNameAvailability/action	Checks if an IoT Central Application name is available

ACTION	DESCRIPTION
Microsoft.IoTCentral/checkSubdomainAvailability/action	Checks if an IoT Central Application subdomain is available
Microsoft.IoTCentral/appTemplates/action	Gets all the available application templates on Azure IoT Central
Microsoft.IoTCentral/register/action	Register the subscription for Azure IoT Central resource provider
Microsoft.IoTCentral/IoTApps/read	Gets a single IoT Central Application
Microsoft.IoTCentral/IoTApps/write	Creates or Updates an IoT Central Applications
Microsoft.IoTCentral/IoTApps/delete	Deletes an IoT Central Applications
Microsoft.IoTCentral/operations/read	Gets all the available operations on IoT Central Applications

## Microsoft.NotificationHubs

Azure service: [Notification Hubs](#)

ACTION	DESCRIPTION
Microsoft.NotificationHubs/register/action	Registers the subscription for the NotificationHubs resource provider and enables the creation of Namespaces and NotificationHubs
Microsoft.NotificationHubs/unregister/action	Unregisters the subscription for the NotificationHubs resource provider and enables the creation of Namespaces and NotificationHubs
Microsoft.NotificationHubs/CheckNamespaceAvailability/acti on	Checks whether or not a given Namespace resource name is available within the NotificationHub service.
Microsoft.NotificationHubs/Namespaces/write	Create a Namespace Resource and Update its properties. Tags and Capacity of the Namespace are the properties which can be updated.
Microsoft.NotificationHubs/Namespaces/read	Get the list of Namespace Resource Description
Microsoft.NotificationHubs/Namespaces/Delete	Delete Namespace Resource
Microsoft.NotificationHubs/Namespaces/authorizationRules/ action	Get the list of Namespaces Authorization Rules description.
Microsoft.NotificationHubs/Namespaces/CheckNotificationH ubAvailability/action	Checks whether or not a given NotificationHub name is available inside a Namespace.
Microsoft.NotificationHubs/Namespaces/authorizationRules/ write	Create a Namespace level Authorization Rules and update its properties. The Authorization Rules Access Rights, the Primary and Secondary Keys can be updated.
Microsoft.NotificationHubs/Namespaces/authorizationRules/r ead	Get the list of Namespaces Authorization Rules description.

ACTION	DESCRIPTION
Microsoft.NotificationHubs/Namespaces/authorizationRules/delete	Delete Namespace Authorization Rule. The Default Namespace Authorization Rule cannot be deleted.
Microsoft.NotificationHubs/Namespaces/authorizationRules/listkeys/action	Get the Connection String to the Namespace
Microsoft.NotificationHubs/Namespaces/authorizationRules/regenerateKeys/action	Namespace Authorization Rule Regenerate Primary/SecondaryKey, Specify the Key that needs to be regenerated
Microsoft.NotificationHubs/Namespaces/NotificationHubs/write	Create a Notification Hub and Update its properties. Its properties mainly include PNS Credentials, Authorization Rules and TTL
Microsoft.NotificationHubs/Namespaces/NotificationHubs/read	Get list of Notification Hub Resource Descriptions
Microsoft.NotificationHubs/Namespaces/NotificationHubs/delete	Delete Notification Hub Resource
Microsoft.NotificationHubs/Namespaces/NotificationHubs/authorizationRules/action	Get the list of Notification Hub Authorization Rules
Microsoft.NotificationHubs/Namespaces/NotificationHubs/pnsCredentials/action	Get All Notification Hub PNS Credentials. This includes, WNS, MPNS, APNS, GCM and Baidu credentials
Microsoft.NotificationHubs/Namespaces/NotificationHubs/debugSend/action	Send a test push notification.
Microsoft.NotificationHubs/Namespaces/NotificationHubs/authorizationRules/write	Create Notification Hub Authorization Rules and Update its properties. The Authorization Rules Access Rights, the Primary and Secondary Keys can be updated.
Microsoft.NotificationHubs/Namespaces/NotificationHubs/authorizationRules/read	Get the list of Notification Hub Authorization Rules
Microsoft.NotificationHubs/Namespaces/NotificationHubs/authorizationRules/delete	Delete Notification Hub Authorization Rules
Microsoft.NotificationHubs/Namespaces/NotificationHubs/authorizationRules/listkeys/action	Get the Connection String to the Notification Hub
Microsoft.NotificationHubs/Namespaces/NotificationHubs/authorizationRules/regenerateKeys/action	Notification Hub Authorization Rule Regenerate Primary/SecondaryKey, Specify the Key that needs to be regenerated
Microsoft.NotificationHubs/Namespaces/NotificationHubs/metricDefinitions/read	Get list of Namespace metrics Resource Descriptions
Microsoft.NotificationHubs/operationResults/read	Returns operation results for Notification Hubs provider
Microsoft.NotificationHubs/operations/read	Returns a list of supported operations for Notification Hubs provider

## **Microsoft.TimeSeriesInsights**

Azure service: [Time Series Insights](#)

ACTION	DESCRIPTION
Microsoft.TimeSeriesInsights/register/action	Registers the subscription for the Time Series Insights resource provider and enables the creation of Time Series Insights environments.
Microsoft.TimeSeriesInsights/environments/read	Get the properties of an environment.
Microsoft.TimeSeriesInsights/environments/write	Creates a new environment, or updates an existing environment.
Microsoft.TimeSeriesInsights/environments/delete	Deletes the environment.
Microsoft.TimeSeriesInsights/environments/accesspolicies/read	Get the properties of an access policy.
Microsoft.TimeSeriesInsights/environments/accesspolicies/write	Creates a new access policy for an environment, or updates an existing access policy.
Microsoft.TimeSeriesInsights/environments/accesspolicies/delete	Deletes the access policy.
Microsoft.TimeSeriesInsights/environments/eventsources/read	Get the properties of an event source.
Microsoft.TimeSeriesInsights/environments/eventsources/write	Creates a new event source for an environment, or updates an existing event source.
Microsoft.TimeSeriesInsights/environments/eventsources/delete	Deletes the event source.
Microsoft.TimeSeriesInsights/environments/referencedatasets/read	Get the properties of a reference data set.
Microsoft.TimeSeriesInsights/environments/referencedatasets/write	Creates a new reference data set for an environment, or updates an existing reference data set.
Microsoft.TimeSeriesInsights/environments/referencedatasets/delete	Deletes the reference data set.
Microsoft.TimeSeriesInsights/environments/status/read	Get the status of the environment, state of its associated operations like ingress.

## Mixed reality

### **Microsoft.IoTSpaces**

Azure service: [Azure Digital Twins](#)

ACTION	DESCRIPTION

ACTION	DESCRIPTION
Microsoft.IoTSpaces/register/action	Register subscription for Microsoft.IoTSpaces Graph resource provider to enable creating of resources
Microsoft.IoTSpaces/Graph/write	Create Microsoft.IoTSpaces Graph resource
Microsoft.IoTSpaces/Graph/read	Gets the Microsoft.IoTSpaces Graph resource(s)
Microsoft.IoTSpaces/Graph/delete	Deletes Microsoft.IoTSpaces Graph resource

## Microsoft.MixedReality

Azure service: [Azure Spatial Anchors](#)

ACTION	DESCRIPTION
Microsoft.MixedReality/register/action	Registers a subscription for the Mixed Reality resource provider.
Microsoft.MixedReality/remoteRenderingAccounts/providers/Microsoft.Insights/metricDefinitions/read	Gets the available metrics for Microsoft.MixedReality/remoteRenderingAccounts
Microsoft.MixedReality/spatialAnchorsAccounts/providers/Microsoft.Insights/diagnosticSettings/read	Gets the diagnostic setting for Microsoft.MixedReality/spatialAnchorsAccounts
Microsoft.MixedReality/spatialAnchorsAccounts/providers/Microsoft.Insights/diagnosticSettings/write	Creates or updates the diagnostic setting for Microsoft.MixedReality/spatialAnchorsAccounts
Microsoft.MixedReality/spatialAnchorsAccounts/providers/Microsoft.Insights/metricDefinitions/read	Gets the available metrics for Microsoft.MixedReality/spatialAnchorsAccounts
DataAction	Description
Microsoft.MixedReality/ObjectUnderstandingAccounts/ingest/action	Create Model Ingestion Job
Microsoft.MixedReality/ObjectUnderstandingAccounts/ingest/read	Get model Ingestion Job Status
Microsoft.MixedReality/RemoteRenderingAccounts/convert/action	Start asset conversion
Microsoft.MixedReality/RemoteRenderingAccounts/manageSessions/action	Start sessions
Microsoft.MixedReality/RemoteRenderingAccounts/convert/read	Get asset conversion properties
Microsoft.MixedReality/RemoteRenderingAccounts/convert/delete	Stop asset conversion
Microsoft.MixedReality/RemoteRenderingAccounts/diagnostic/read	Connect to the Remote Rendering inspector

ACTION	DESCRIPTION
Microsoft.MixedReality/RemoteRenderingAccounts/managedsessions/read	Get session properties
Microsoft.MixedReality/RemoteRenderingAccounts/managedsessions/delete	Stop sessions
Microsoft.MixedReality/RemoteRenderingAccounts/render/read	Connect to a session
Microsoft.MixedReality/SpatialAnchorsAccounts/create/action	Create spatial anchors
Microsoft.MixedReality/SpatialAnchorsAccounts/delete	Delete spatial anchors
Microsoft.MixedReality/SpatialAnchorsAccounts/write	Update spatial anchors properties
Microsoft.MixedReality/SpatialAnchorsAccounts/discovery/read	Discover nearby spatial anchors
Microsoft.MixedReality/SpatialAnchorsAccounts/properties/read	Get properties of spatial anchors
Microsoft.MixedReality/SpatialAnchorsAccounts/query/read	Locate spatial anchors
Microsoft.MixedReality/SpatialAnchorsAccounts/submitdiag/read	Submit diagnostics data to help improve the quality of the Azure Spatial Anchors service

## Integration

### Microsoft.ApiManagement

Azure service: [API Management](#)

ACTION	DESCRIPTION
Microsoft.ApiManagement/register/action	Register subscription for Microsoft.ApiManagement resource provider
Microsoft.ApiManagement/unregister/action	Un-register subscription for Microsoft.ApiManagement resource provider
Microsoft.ApiManagement/checkNameAvailability/read	Checks if provided service name is available
Microsoft.ApiManagement/operations/read	Read all API operations available for Microsoft.ApiManagement resource
Microsoft.ApiManagement/reports/read	Get reports aggregated by time periods, geographical region, developers, products, APIs, operations, subscription and byRequest.
Microsoft.ApiManagement/service/write	Create or Update API Management Service instance
Microsoft.ApiManagement/service/read	Read metadata for an API Management Service instance

ACTION	DESCRIPTION
Microsoft.ApiManagement/service/delete	Delete API Management Service instance
Microsoft.ApiManagement/service/updatehostname/action	Setup, update or remove custom domain names for an API Management Service
Microsoft.ApiManagement/service/updatecertificate/action	Upload TLS/SSL certificate for an API Management Service
Microsoft.ApiManagement/service/backup/action	Backup API Management Service to the specified container in a user provided storage account
Microsoft.ApiManagement/service/restore/action	Restore API Management Service from the specified container in a user provided storage account
Microsoft.ApiManagement/service/managedeployments/action	Change SKU/units, add/remove regional deployments of API Management Service
Microsoft.ApiManagement/service/getssotoken/action	Gets SSO token that can be used to login into API Management Service Legacy portal as an administrator
Microsoft.ApiManagement/service/applynetworkconfiguration/action	Updates the Microsoft.ApiManagement resources running in Virtual Network to pick updated Network Settings.
Microsoft.ApiManagement/service/users/action	Register a new user
Microsoft.ApiManagement/service/notifications/action	Sends notification to a specified user
Microsoft.ApiManagement/service/gateways/action	Retrieves gateway configuration. or Updates gateway heartbeat.
Microsoft.ApiManagement/service/apis/read	Lists all APIs of the API Management service instance. or Gets the details of the API specified by its identifier.
Microsoft.ApiManagement/service/apis/write	Creates new or updates existing specified API of the API Management service instance. or Updates the specified API of the API Management service instance.
Microsoft.ApiManagement/service/apis/delete	Deletes the specified API of the API Management service instance.
Microsoft.ApiManagement/service/apis/diagnostics/read	Lists all diagnostics of an API. or Gets the details of the Diagnostic for an API specified by its identifier.
Microsoft.ApiManagement/service/apis/diagnostics/write	Creates a new Diagnostic for an API or updates an existing one. or Updates the details of the Diagnostic for an API specified by its identifier.
Microsoft.ApiManagement/service/apis/diagnostics/delete	Deletes the specified Diagnostic from an API.
Microsoft.ApiManagement/service/apis/issues/read	Lists all issues associated with the specified API. or Gets the details of the Issue for an API specified by its identifier.
Microsoft.ApiManagement/service/apis/issues/write	Creates a new Issue for an API or updates an existing one. or Updates an existing issue for an API.

ACTION	DESCRIPTION
Microsoft.ApiManagement/service/apis/issues/delete	Deletes the specified Issue from an API.
Microsoft.ApiManagement/service/apis/issues/attachments/read	Lists all attachments for the Issue associated with the specified API. or Gets the details of the issue Attachment for an API specified by its identifier.
Microsoft.ApiManagement/service/apis/issues/attachments/write	Creates a new Attachment for the Issue in an API or updates an existing one.
Microsoft.ApiManagement/service/apis/issues/attachments/delete	Deletes the specified comment from an Issue.
Microsoft.ApiManagement/service/apis/issues/comments/read	Lists all comments for the Issue associated with the specified API. or Gets the details of the issue Comment for an API specified by its identifier.
Microsoft.ApiManagement/service/apis/issues/comments/write	Creates a new Comment for the Issue in an API or updates an existing one.
Microsoft.ApiManagement/service/apis/issues/comments/delete	Deletes the specified comment from an Issue.
Microsoft.ApiManagement/service/apis/operations/read	Lists a collection of the operations for the specified API. or Gets the details of the API Operation specified by its identifier.
Microsoft.ApiManagement/service/apis/operations/write	Creates a new operation in the API or updates an existing one. or Updates the details of the operation in the API specified by its identifier.
Microsoft.ApiManagement/service/apis/operations/delete	Deletes the specified operation in the API.
Microsoft.ApiManagement/service/apis/operations/policies/read	Get the list of policy configuration at the API Operation level. or Get the policy configuration at the API Operation level.
Microsoft.ApiManagement/service/apis/operations/policies/write	Creates or updates policy configuration for the API Operation level.
Microsoft.ApiManagement/service/apis/operations/policies/delete	Deletes the policy configuration at the Api Operation.
Microsoft.ApiManagement/service/apis/operations/policy/read	Get the policy configuration at Operation level
Microsoft.ApiManagement/service/apis/operations/policy/write	Create policy configuration at Operation level
Microsoft.ApiManagement/service/apis/operations/policy/delete	Delete the policy configuration at Operation level
Microsoft.ApiManagement/service/apis/operations/tags/read	Lists all Tags associated with the Operation. or Get tag associated with the Operation.

ACTION	DESCRIPTION
Microsoft.ApiManagement/service/apis/operations/tags/write	Assign tag to the Operation.
Microsoft.ApiManagement/service/apis/operations/tags/delete	Detach the tag from the Operation.
Microsoft.ApiManagement/service/apis/operationsByTags/read	Lists a collection of operations associated with tags.
Microsoft.ApiManagement/service/apis/policies/read	Get the policy configuration at the API level. or Get the policy configuration at the API level.
Microsoft.ApiManagement/service/apis/policies/write	Creates or updates policy configuration for the API.
Microsoft.ApiManagement/service/apis/policies/delete	Deletes the policy configuration at the Api.
Microsoft.ApiManagement/service/apis/policy/read	Get the policy configuration at API level
Microsoft.ApiManagement/service/apis/policy/write	Create policy configuration at API level
Microsoft.ApiManagement/service/apis/policy/delete	Delete the policy configuration at API level
Microsoft.ApiManagement/service/apis/products/read	Lists all Products, which the API is part of.
Microsoft.ApiManagement/service/apis/releases/read	Lists all releases of an API. An API release is created when making an API Revision current. Releases are also used to rollback to previous revisions. Results will be paged and can be constrained by the \$top and \$skip parameters. or Returns the details of an API release.
Microsoft.ApiManagement/service/apis/releases/delete	Removes all releases of the API or Deletes the specified release in the API.
Microsoft.ApiManagement/service/apis/releases/write	Creates a new Release for the API. or Updates the details of the release of the API specified by its identifier.
Microsoft.ApiManagement/service/apis/revisions/read	Lists all revisions of an API.
Microsoft.ApiManagement/service/apis/revisions/delete	Removes all revisions of an API
Microsoft.ApiManagement/service/apis/schemas/read	Get the schema configuration at the API level. or Get the schema configuration at the API level.
Microsoft.ApiManagement/service/apis/schemas/write	Creates or updates schema configuration for the API.
Microsoft.ApiManagement/service/apis/schemas/delete	Deletes the schema configuration at the Api.
Microsoft.ApiManagement/service/apis/tagDescriptions/read	Lists all Tags descriptions in scope of API. Model similar to swagger - tagDescription is defined on API level but tag may be assigned to the Operations or Get Tag description in scope of API

ACTION	DESCRIPTION
Microsoft.ApiManagement/service/apis/tagDescriptions/write	Create/Update tag description in scope of the Api.
Microsoft.ApiManagement/service/apis/tagDescriptions/delete	Delete tag description for the Api.
Microsoft.ApiManagement/service/apis/tags/read	Lists all Tags associated with the API. or Get tag associated with the API.
Microsoft.ApiManagement/service/apis/tags/write	Assign tag to the Api.
Microsoft.ApiManagement/service/apis/tags/delete	Detach the tag from the Api.
Microsoft.ApiManagement/service/apisByTags/read	Lists a collection of apis associated with tags.
Microsoft.ApiManagement/service/apiVersionSets/read	Lists a collection of API Version Sets in the specified service instance. or Gets the details of the Api Version Set specified by its identifier.
Microsoft.ApiManagement/service/apiVersionSets/write	Creates or Updates a Api Version Set. or Updates the details of the Api VersionSet specified by its identifier.
Microsoft.ApiManagement/service/apiVersionSets/delete	Deletes specific Api Version Set.
Microsoft.ApiManagement/service/apiVersionSets/versions/read	Get list of version entities
Microsoft.ApiManagement/service/authorizationServers/read	Lists a collection of authorization servers defined within a service instance. or Gets the details of the authorization server without secrets.
Microsoft.ApiManagement/service/authorizationServers/write	Creates new authorization server or updates an existing authorization server. or Updates the details of the authorization server specified by its identifier.
Microsoft.ApiManagement/service/authorizationServers/delete	Deletes specific authorization server instance.
Microsoft.ApiManagement/service/authorizationServers/listSecrets/action	Gets secrets for the authorization server.
Microsoft.ApiManagement/service/backends/read	Lists a collection of backends in the specified service instance. or Gets the details of the backend specified by its identifier.
Microsoft.ApiManagement/service/backends/write	Creates or Updates a backend. or Updates an existing backend.
Microsoft.ApiManagement/service/backends/delete	Deletes the specified backend.
Microsoft.ApiManagement/service/backends/reconnect/action	Notifies the APIM proxy to create a new connection to the backend after the specified timeout. If no timeout was specified, timeout of 2 minutes is used.

ACTION	DESCRIPTION
Microsoft.ApiManagement/service/caches/read	Lists a collection of all external Caches in the specified service instance. or Gets the details of the Cache specified by its identifier.
Microsoft.ApiManagement/service/caches/write	Creates or updates an External Cache to be used in Api Management instance. or Updates the details of the cache specified by its identifier.
Microsoft.ApiManagement/service/caches/delete	Deletes specific Cache.
Microsoft.ApiManagement/service/certificates/read	Lists a collection of all certificates in the specified service instance. or Gets the details of the certificate specified by its identifier.
Microsoft.ApiManagement/service/certificates/write	Creates or updates the certificate being used for authentication with the backend.
Microsoft.ApiManagement/service/certificates/delete	Deletes specific certificate.
Microsoft.ApiManagement/service/contentTypes/read	Returns list of content types
Microsoft.ApiManagement/service/contentTypes/contentItems/read	Returns list of content items or Returns content item details
Microsoft.ApiManagement/service/contentTypes/contentItems/write	Creates new content item or Updates specified content item
Microsoft.ApiManagement/service/contentTypes/contentItems/delete	Removes specified content item.
Microsoft.ApiManagement/service/diagnostics/read	Lists all diagnostics of the API Management service instance. or Gets the details of the Diagnostic specified by its identifier.
Microsoft.ApiManagement/service/diagnostics/write	Creates a new Diagnostic or updates an existing one. or Updates the details of the Diagnostic specified by its identifier.
Microsoft.ApiManagement/service/diagnostics/delete	Deletes the specified Diagnostic.
Microsoft.ApiManagement/service/gateways/read	Lists a collection of gateways registered with service instance. or Gets the details of the Gateway specified by its identifier.
Microsoft.ApiManagement/service/gateways/write	Creates or updates an Gateway to be used in Api Management instance. or Updates the details of the gateway specified by its identifier.
Microsoft.ApiManagement/service/gateways/delete	Deletes specific Gateway.
Microsoft.ApiManagement/service/gateways/listKeys/action	Retrieves gateway keys.
Microsoft.ApiManagement/service/gateways/regenerateKey/action	Regenerates specified gateway key invalidating any tokens created with it.

ACTION	DESCRIPTION
Microsoft.ApiManagement/service/gateways/generateToken/action	Gets the Shared Access Authorization Token for the gateway.
Microsoft.ApiManagement/service/gateways/apis/read	Lists a collection of the APIs associated with a gateway.
Microsoft.ApiManagement/service/gateways/apis/write	Adds an API to the specified Gateway.
Microsoft.ApiManagement/service/gateways/apis/delete	Deletes the specified API from the specified Gateway.
Microsoft.ApiManagement/service/gateways/hostnameConfigurations/read	Lists the collection of hostname configurations for the specified gateway.
Microsoft.ApiManagement/service/groups/read	Lists a collection of groups defined within a service instance. or Gets the details of the group specified by its identifier.
Microsoft.ApiManagement/service/groups/write	Creates or Updates a group. or Updates the details of the group specified by its identifier.
Microsoft.ApiManagement/service/groups/delete	Deletes specific group of the API Management service instance.
Microsoft.ApiManagement/service/groups/users/read	Lists a collection of user entities associated with the group.
Microsoft.ApiManagement/service/groups/users/write	Add existing user to existing group
Microsoft.ApiManagement/service/groups/users/delete	Remove existing user from existing group.
Microsoft.ApiManagement/service/identityProviders/read	Lists a collection of Identity Provider configured in the specified service instance. or Gets the configuration details of the identity Provider without secrets.
Microsoft.ApiManagement/service/identityProviders/write	Creates or Updates the IdentityProvider configuration. or Updates an existing IdentityProvider configuration.
Microsoft.ApiManagement/service/identityProviders/delete	Deletes the specified identity provider configuration.
Microsoft.ApiManagement/service/identityProviders/listSecrets/action	Gets Identity Provider secrets.
Microsoft.ApiManagement/service/issues/read	Lists a collection of issues in the specified service instance. or Gets API Management issue details
Microsoft.ApiManagement/service/locations/networkstatus/read	Gets the network access status of resources on which the service depends on in the location.
Microsoft.ApiManagement/service/loggers/read	Lists a collection of loggers in the specified service instance. or Gets the details of the logger specified by its identifier.
Microsoft.ApiManagement/service/loggers/write	Creates or Updates a logger. or Updates an existing logger.
Microsoft.ApiManagement/service/loggers/delete	Deletes the specified logger.

ACTION	DESCRIPTION
Microsoft.ApiManagement/service/namedValues/read	Lists a collection of named values defined within a service instance. or Gets the details of the named value specified by its identifier.
Microsoft.ApiManagement/service/namedValues/write	Creates or updates named value. or Updates the specific named value.
Microsoft.ApiManagement/service/namedValues/delete	Deletes specific named value from the API Management service instance.
Microsoft.ApiManagement/service/namedValues/listValue/action	Gets the secret of the named value specified by its identifier.
Microsoft.ApiManagement/service/networkstatus/read	Gets the network access status of resources on which the service depends on.
Microsoft.ApiManagement/service/notifications/read	Lists a collection of properties defined within a service instance. or Gets the details of the Notification specified by its identifier.
Microsoft.ApiManagement/service/notifications/write	Create or Update API Management publisher notification.
Microsoft.ApiManagement/service/notifications/recipientEmails/read	Gets the list of the Notification Recipient Emails subscribed to a notification.
Microsoft.ApiManagement/service/notifications/recipientEmails/write	Adds the Email address to the list of Recipients for the Notification.
Microsoft.ApiManagement/service/notifications/recipientEmails/delete	Removes the email from the list of Notification.
Microsoft.ApiManagement/service/notifications/recipientUsers/read	Gets the list of the Notification Recipient User subscribed to the notification.
Microsoft.ApiManagement/service/notifications/recipientUsers/write	Adds the API Management User to the list of Recipients for the Notification.
Microsoft.ApiManagement/service/notifications/recipientUsers/delete	Removes the API Management user from the list of Notification.
Microsoft.ApiManagement/service/openidConnectProviders/read	Lists of all the OpenId Connect Providers. or Gets specific OpenID Connect Provider without secrets.
Microsoft.ApiManagement/service/openidConnectProviders/write	Creates or updates the OpenID Connect Provider. or Updates the specific OpenID Connect Provider.
Microsoft.ApiManagement/service/openidConnectProviders/delete	Deletes specific OpenID Connect Provider of the API Management service instance.
Microsoft.ApiManagement/service/openidConnectProviders/listSecrets/action	Gets specific OpenID Connect Provider secrets.
Microsoft.ApiManagement/service/operationresults/read	Gets current status of long running operation

ACTION	DESCRIPTION
Microsoft.ApiManagement/service/policies/read	Lists all the Global Policy definitions of the Api Management service. or Get the Global policy definition of the Api Management service.
Microsoft.ApiManagement/service/policies/write	Creates or updates the global policy configuration of the Api Management service.
Microsoft.ApiManagement/service/policies/delete	Deletes the global policy configuration of the Api Management Service.
Microsoft.ApiManagement/service/policy/read	Get the policy configuration at Tenant level
Microsoft.ApiManagement/service/policy/write	Create policy configuration at Tenant level
Microsoft.ApiManagement/service/policy/delete	Delete the policy configuration at Tenant level
Microsoft.ApiManagement/service/policyDescriptions/read	Lists all policy descriptions.
Microsoft.ApiManagement/service/policySnippets/read	Lists all policy snippets.
Microsoft.ApiManagement/service/portalsettings/read	Lists a collection of portal settings. or Get Sign In Settings for the Portal or Get Sign Up Settings for the Portal or Get Delegation Settings for the Portal.
Microsoft.ApiManagement/service/portalsettings/write	Update Sign-In settings. or Create or Update Sign-In settings. or Update Sign Up settings or Update Sign Up settings or Update Delegation settings. or Create or Update Delegation settings.
Microsoft.ApiManagement/service/portalsettings/listSecrets/action	Gets validation key of portal delegation settings.
Microsoft.ApiManagement/service/products/read	Lists a collection of products in the specified service instance. or Gets the details of the product specified by its identifier.
Microsoft.ApiManagement/service/products/write	Creates or Updates a product. or Update existing product details.
Microsoft.ApiManagement/service/products/delete	Delete product.
Microsoft.ApiManagement/service/products/apis/read	Lists a collection of the APIs associated with a product.
Microsoft.ApiManagement/service/products/apis/write	Adds an API to the specified product.
Microsoft.ApiManagement/service/products/apis/delete	Deletes the specified API from the specified product.
Microsoft.ApiManagement/service/products/groups/read	Lists the collection of developer groups associated with the specified product.
Microsoft.ApiManagement/service/products/groups/write	Adds the association between the specified developer group with the specified product.

ACTION	DESCRIPTION
Microsoft.ApiManagement/service/products/groups/delete	Deletes the association between the specified group and product.
Microsoft.ApiManagement/service/products/policies/read	Get the policy configuration at the Product level. or Get the policy configuration at the Product level.
Microsoft.ApiManagement/service/products/policies/write	Creates or updates policy configuration for the Product.
Microsoft.ApiManagement/service/products/policies/delete	Deletes the policy configuration at the Product.
Microsoft.ApiManagement/service/products/policy/read	Get the policy configuration at Product level
Microsoft.ApiManagement/service/products/policy/write	Create policy configuration at Product level
Microsoft.ApiManagement/service/products/policy/delete	Delete the policy configuration at Product level
Microsoft.ApiManagement/service/products/subscriptions/read	Lists the collection of subscriptions to the specified product.
Microsoft.ApiManagement/service/products/tags/read	Lists all Tags associated with the Product. or Get tag associated with the Product.
Microsoft.ApiManagement/service/products/tags/write	Assign tag to the Product.
Microsoft.ApiManagement/service/products/tags/delete	Detach the tag from the Product.
Microsoft.ApiManagement/service/productsByTags/read	Lists a collection of products associated with tags.
Microsoft.ApiManagement/service/properties/read	Lists a collection of properties defined within a service instance. or Gets the details of the property specified by its identifier.
Microsoft.ApiManagement/service/properties/write	Creates or updates a property. or Updates the specific property.
Microsoft.ApiManagement/service/properties/delete	Deletes specific property from the API Management service instance.
Microsoft.ApiManagement/service/properties/listSecrets/acti on	Gets the secrets of the property specified by its identifier.
Microsoft.ApiManagement/service/quotas/read	Get values for quota
Microsoft.ApiManagement/service/quotas/write	Set quota counter current value
Microsoft.ApiManagement/service/quotas/periods/read	Get quota counter value for period
Microsoft.ApiManagement/service/quotas/periods/write	Set quota counter current value
Microsoft.ApiManagement/service/regions/read	Lists all azure regions in which the service exists.

ACTION	DESCRIPTION
Microsoft.ApiManagement/service/reports/read	Get report aggregated by time periods or Get report aggregated by geographical region or Get report aggregated by developers. or Get report aggregated by products. or Get report aggregated by APIs or Get report aggregated by operations or Get report aggregated by subscription. or Get requests reporting data
Microsoft.ApiManagement/service/subscriptions/read	Lists all subscriptions of the API Management service instance. or Gets the specified Subscription entity (without keys).
Microsoft.ApiManagement/service/subscriptions/write	Creates or updates the subscription of specified user to the specified product. or Updates the details of a subscription specified by its identifier.
Microsoft.ApiManagement/service/subscriptions/delete	Deletes the specified subscription.
Microsoft.ApiManagement/service/subscriptions/regeneratePrimaryKey/action	Regenerates primary key of existing subscription of the API Management service instance.
Microsoft.ApiManagement/service/subscriptions/regenerateSecondaryKey/action	Regenerates secondary key of existing subscription of the API Management service instance.
Microsoft.ApiManagement/service/subscriptions/listSecrets/action	Gets the specified Subscription keys.
Microsoft.ApiManagement/service/tagResources/read	Lists a collection of resources associated with tags.
Microsoft.ApiManagement/service/tags/read	Lists a collection of tags defined within a service instance. or Gets the details of the tag specified by its identifier.
Microsoft.ApiManagement/service/tags/write	Creates a tag. or Updates the details of the tag specified by its identifier.
Microsoft.ApiManagement/service/tags/delete	Deletes specific tag of the API Management service instance.
Microsoft.ApiManagement/service/templates/read	Gets all email templates or Gets API Management email template details
Microsoft.ApiManagement/service/templates/write	Create or update API Management email template or Updates API Management email template
Microsoft.ApiManagement/service/templates/delete	Reset default API Management email template
Microsoft.ApiManagement/service/tenant/read	Get the Global policy definition of the Api Management service. or Get tenant access information details
Microsoft.ApiManagement/service/tenant/write	Set policy configuration for the tenant or Update tenant access information details
Microsoft.ApiManagement/service/tenant/delete	Remove policy configuration for the tenant
Microsoft.ApiManagement/service/tenant/listSecrets/action	Get tenant access information details

ACTION	DESCRIPTION
Microsoft.ApiManagement/service/tenant/regeneratePrimaryKey/action	Regenerate primary access key
Microsoft.ApiManagement/service/tenant/regenerateSecondaryKey/action	Regenerate secondary access key
Microsoft.ApiManagement/service/tenant/deploy/action	Runs a deployment task to apply changes from the specified git branch to the configuration in database.
Microsoft.ApiManagement/service/tenant/save/action	Creates commit with configuration snapshot to the specified branch in the repository
Microsoft.ApiManagement/service/tenant/validate/action	Validates changes from the specified git branch
Microsoft.ApiManagement/service/tenant/operationResults/read	Get list of operation results or Get result of a specific operation
Microsoft.ApiManagement/service/tenant/syncState/read	Get status of last git synchronization
Microsoft.ApiManagement/service/users/read	Lists a collection of registered users in the specified service instance. or Gets the details of the user specified by its identifier.
Microsoft.ApiManagement/service/users/write	Creates or Updates a user. or Updates the details of the user specified by its identifier.
Microsoft.ApiManagement/service/users/delete	Deletes specific user.
Microsoft.ApiManagement/service/users/generateSsoUrl/acti on	Retrieves a redirection URL containing an authentication token for signing a given user into the developer portal.
Microsoft.ApiManagement/service/users/token/action	Gets the Shared Access Authorization Token for the User.
Microsoft.ApiManagement/service/users/confirmations/send /action	Sends confirmation
Microsoft.ApiManagement/service/users/groups/read	Lists all user groups.
Microsoft.ApiManagement/service/users/identities/read	List of all user identities.
Microsoft.ApiManagement/service/users/keys/read	Get keys associated with user
Microsoft.ApiManagement/service/users/subscriptions/read	Lists the collection of subscriptions of the specified user.

## Microsoft.AppConfiguration

Azure service: core

ACTION	DESCRIPTION
Microsoft.AppConfiguration/register/action	Registers a subscription to use Microsoft App Configuration.

ACTION	DESCRIPTION
Microsoft.AppConfiguration/unregister/action	Unregisters a subscription from using Microsoft App Configuration.
Microsoft.AppConfiguration/checkNameAvailability/read	Check whether the resource name is available for use.
Microsoft.AppConfiguration/configurationStores/read	Gets the properties of the specified configuration store or lists all the configuration stores under the specified resource group or subscription.
Microsoft.AppConfiguration/configurationStores/write	Create or update a configuration store with the specified parameters.
Microsoft.AppConfiguration/configurationStores/delete	Deletes a configuration store.
Microsoft.AppConfiguration/configurationStores/ListKeys/action	Lists the API keys for the specified configuration store.
Microsoft.AppConfiguration/configurationStores/RegenerateKey/action	Regenerates of the API key's for the specified configuration store.
Microsoft.AppConfiguration/configurationStores/ListKeyValue/action	Lists a key-value for the specified configuration store.
Microsoft.AppConfiguration/configurationStores/PrivateEndpointConnectionsApproval/action	Auto-Approve a private endpoint connection under the specified configuration store.
Microsoft.AppConfiguration/configurationStores/eventGridFilters/read	Gets the properties of the specified configuration store event grid filter or lists all the configuration store event grid filters under the specified configuration store.
Microsoft.AppConfiguration/configurationStores/eventGridFilters/write	Create or update a configuration store event grid filter with the specified parameters.
Microsoft.AppConfiguration/configurationStores/eventGridFilters/delete	Deletes a configuration store event grid filter.
Microsoft.AppConfiguration/configurationStores/privateEndpointConnectionProxies/validate/action	Validate a private endpoint connection proxy under the specified configuration store.
Microsoft.AppConfiguration/configurationStores/privateEndpointConnectionProxies/read	Get a private endpoint connection proxy under the specified configuration store.
Microsoft.AppConfiguration/configurationStores/privateEndpointConnectionProxies/write	Create or update a private endpoint connection proxy under the specified configuration store.
Microsoft.AppConfiguration/configurationStores/privateEndpointConnectionProxies/delete	Delete a private endpoint connection proxy under the specified configuration store.
Microsoft.AppConfiguration/configurationStores/privateEndpointConnections/read	Get a private endpoint connection or list private endpoint connections under the specified configuration store.
Microsoft.AppConfiguration/configurationStores/privateEndpointConnections/write	Approve or reject a private endpoint connection under the specified configuration store.

ACTION	DESCRIPTION
Microsoft.AppConfiguration/configurationStores/privateEndpointConnections/delete	Delete a private endpoint connection under the specified configuration store.
Microsoft.AppConfiguration/configurationStores/privateLinkResources/read	Lists all the private link resources under the specified configuration store.
Microsoft.AppConfiguration/configurationStores/providers/Microsoft.Insights/diagnosticSettings/read	Read all Diagnostic Settings values for a Configuration Store.
Microsoft.AppConfiguration/configurationStores/providers/Microsoft.Insights/diagnosticSettings/write	Write/Overwrite Diagnostic Settings for Microsoft App Configuration.
Microsoft.AppConfiguration/configurationStores/providers/Microsoft.Insights/metricDefinitions/read	Retrieve all metric definitions for Microsoft App Configuration.
Microsoft.AppConfiguration/locations/operationsStatus/read	Get the status of an operation.
Microsoft.AppConfiguration/operations/read	Lists all of the operations supported by Microsoft App Configuration.
DataAction	Description
Microsoft.AppConfiguration/configurationStores/keyValues/read	Reads a key-value from the configuration store.
Microsoft.AppConfiguration/configurationStores/keyValues/write	Creates or updates a key-value in the configuration store.
Microsoft.AppConfiguration/configurationStores/keyValues/delete	Deletes an existing key-value from the configuration store.

## Microsoft.AzureStack

Azure service: core

ACTION	DESCRIPTION
Microsoft.AzureStack/register/action	Registers Subscription with Microsoft.AzureStack resource provider
Microsoft.AzureStack/cloudManifestFiles/read	Gets the Cloud Manifest File
Microsoft.AzureStack/edgeSubscriptions/read	Get the properties of an Azure Stack Edge Subscription
Microsoft.AzureStack/Operations/read	Gets the properties of a resource provider operation
Microsoft.AzureStack/registrations/read	Gets the properties of an Azure Stack registration
Microsoft.AzureStack/registrations/write	Creates or updates an Azure Stack registration
Microsoft.AzureStack/registrations/delete	Deletes an Azure Stack registration
Microsoft.AzureStack/registrations/getActivationKey/action	Gets the latest Azure Stack activation key

ACTION	DESCRIPTION
Microsoft.AzureStack/registrations/customerSubscriptions/read	Gets the properties of an Azure Stack Customer Subscription
Microsoft.AzureStack/registrations/customerSubscriptions/write	Creates or updates an Azure Stack Customer Subscription
Microsoft.AzureStack/registrations/customerSubscriptions/delete	Deletes an Azure Stack Customer Subscription
Microsoft.AzureStack/registrations/products/read	Gets the properties of an Azure Stack Marketplace product
Microsoft.AzureStack/registrations/products/listDetails/action	Retrieves extended details for an Azure Stack Marketplace product
Microsoft.AzureStack/registrations/products/getProducts/action	Retrieves a list of Azure Stack Marketplace products
Microsoft.AzureStack/registrations/products/getProduct/action	Retrieves Azure Stack Marketplace product
Microsoft.AzureStack/registrations/products/uploadProductLog/action	Record Azure Stack Marketplace product operation status and timestamp

## Microsoft.DataBoxEdge

Azure service: [Azure Stack Edge](#)

ACTION	DESCRIPTION
Microsoft.DataBoxEdge/availableSkus/read	Lists or gets the ArmApiRes_availableSkus
Microsoft.DataBoxEdge/dataBoxEdgeDevices/uploadCertificate/action	Upload certificate for device registration
Microsoft.DataBoxEdge/dataBoxEdgeDevices/write	Creates or updates the Data Box Edge devices
Microsoft.DataBoxEdge/dataBoxEdgeDevices/read	Lists or gets the Data Box Edge devices
Microsoft.DataBoxEdge/dataBoxEdgeDevices/delete	Deletes the Data Box Edge devices
Microsoft.DataBoxEdge/dataBoxEdgeDevices/read	Lists or gets the Data Box Edge devices
Microsoft.DataBoxEdge/dataBoxEdgeDevices/read	Lists or gets the Data Box Edge devices
Microsoft.DataBoxEdge/dataBoxEdgeDevices/write	Creates or updates the Data Box Edge devices
Microsoft.DataBoxEdge/dataBoxEdgeDevices/getExtendedInformation/action	Retrieves resource extended information
Microsoft.DataBoxEdge/dataBoxEdgeDevices/scanForUpdates/action	Scan for updates

ACTION	DESCRIPTION
Microsoft.DataBoxEdge/dataBoxEdgeDevices/downloadUpdates/action	Download Updates in device
Microsoft.DataBoxEdge/dataBoxEdgeDevices/installUpdates/action	Install Updates on device
Microsoft.DataBoxEdge/dataBoxEdgeDevices/alerts/read	Lists or gets the alerts
Microsoft.DataBoxEdge/dataBoxEdgeDevices/alerts/read	Lists or gets the alerts
Microsoft.DataBoxEdge/dataBoxEdgeDevices/bandwidthSchedules/read	Lists or gets the bandwidth schedules
Microsoft.DataBoxEdge/dataBoxEdgeDevices/bandwidthSchedules/read	Lists or gets the bandwidth schedules
Microsoft.DataBoxEdge/dataBoxEdgeDevices/bandwidthSchedules/write	Creates or updates the bandwidth schedules
Microsoft.DataBoxEdge/dataBoxEdgeDevices/bandwidthSchedules/delete	Deletes the bandwidth schedules
Microsoft.DataBoxEdge/dataBoxEdgeDevices/bandwidthSchedules/operationResults/read	Lists or gets the operation result
Microsoft.DataBoxEdge/dataBoxEdgeDevices/jobs/read	Lists or gets the jobs
Microsoft.DataBoxEdge/dataBoxEdgeDevices/networkSettings/read	Lists or gets the Device network settings
Microsoft.DataBoxEdge/dataBoxEdgeDevices/nodes/read	Lists or gets the nodes
Microsoft.DataBoxEdge/dataBoxEdgeDevices/operationResults/read	Lists or gets the operation result
Microsoft.DataBoxEdge/dataBoxEdgeDevices/operationsStatuses/read	Lists or gets the operation status
Microsoft.DataBoxEdge/dataBoxEdgeDevices/orders/read	Lists or gets the orders
Microsoft.DataBoxEdge/dataBoxEdgeDevices/orders/read	Lists or gets the orders
Microsoft.DataBoxEdge/dataBoxEdgeDevices/orders/write	Creates or updates the orders
Microsoft.DataBoxEdge/dataBoxEdgeDevices/orders/delete	Deletes the orders
Microsoft.DataBoxEdge/dataBoxEdgeDevices/orders/operationResults/read	Lists or gets the operation result
Microsoft.DataBoxEdge/dataBoxEdgeDevices/roles/read	Lists or gets the roles
Microsoft.DataBoxEdge/dataBoxEdgeDevices/roles/read	Lists or gets the roles

ACTION	DESCRIPTION
Microsoft.DataBoxEdge/dataBoxEdgeDevices/roles/write	Creates or updates the roles
Microsoft.DataBoxEdge/dataBoxEdgeDevices/roles/delete	Deletes the roles
Microsoft.DataBoxEdge/dataBoxEdgeDevices/roles/operationResults/read	Lists or gets the operation result
Microsoft.DataBoxEdge/dataBoxEdgeDevices/securitySettings/update/action	Update security settings
Microsoft.DataBoxEdge/dataBoxEdgeDevices/securitySettings/operationResults/read	Lists or gets the operation result
Microsoft.DataBoxEdge/dataBoxEdgeDevices/shares/read	Lists or gets the shares
Microsoft.DataBoxEdge/dataBoxEdgeDevices/shares/read	Lists or gets the shares
Microsoft.DataBoxEdge/dataBoxEdgeDevices/shares/write	Creates or updates the shares
Microsoft.DataBoxEdge/dataBoxEdgeDevices/shares/refresh/action	Refresh the share metadata with the data from the cloud
Microsoft.DataBoxEdge/dataBoxEdgeDevices/shares/delete	Deletes the shares
Microsoft.DataBoxEdge/dataBoxEdgeDevices/shares/operationResults/read	Lists or gets the operation result
Microsoft.DataBoxEdge/dataBoxEdgeDevices/storageAccountCredentials/write	Creates or updates the storage account credentials
Microsoft.DataBoxEdge/dataBoxEdgeDevices/storageAccountCredentials/read	Lists or gets the storage account credentials
Microsoft.DataBoxEdge/dataBoxEdgeDevices/storageAccountCredentials/read	Lists or gets the storage account credentials
Microsoft.DataBoxEdge/dataBoxEdgeDevices/storageAccountCredentials/delete	Deletes the storage account credentials
Microsoft.DataBoxEdge/dataBoxEdgeDevices/storageAccountCredentials/operationResults/read	Lists or gets the operation result
Microsoft.DataBoxEdge/dataBoxEdgeDevices/storageAccounts/read	Lists or gets the Storage Accounts
Microsoft.DataBoxEdge/dataBoxEdgeDevices/storageAccounts/read	Lists or gets the Storage Accounts
Microsoft.DataBoxEdge/dataBoxEdgeDevices/storageAccounts/write	Creates or updates the Storage Accounts
Microsoft.DataBoxEdge/dataBoxEdgeDevices/storageAccounts/delete	Deletes the Storage Accounts

ACTION	DESCRIPTION
Microsoft.DataBoxEdge/dataBoxEdgeDevices/storageAccounts/containers/read	Lists or gets the Containers
Microsoft.DataBoxEdge/dataBoxEdgeDevices/storageAccounts/containers/read	Lists or gets the Containers
Microsoft.DataBoxEdge/dataBoxEdgeDevices/storageAccounts/containers/write	Creates or updates the Containers
Microsoft.DataBoxEdge/dataBoxEdgeDevices/storageAccounts/containers/delete	Deletes the Containers
Microsoft.DataBoxEdge/dataBoxEdgeDevices/storageAccounts/containers/refresh/action	Refresh the container metadata with the data from the cloud
Microsoft.DataBoxEdge/dataBoxEdgeDevices/storageAccounts/containers/operationResults/read	Lists or gets the operation result
Microsoft.DataBoxEdge/dataBoxEdgeDevices/storageAccounts/operationResults/read	Lists or gets the operation result
Microsoft.DataBoxEdge/dataBoxEdgeDevices/triggers/read	Lists or gets the triggers
Microsoft.DataBoxEdge/dataBoxEdgeDevices/triggers/read	Lists or gets the triggers
Microsoft.DataBoxEdge/dataBoxEdgeDevices/triggers/write	Creates or updates the triggers
Microsoft.DataBoxEdge/dataBoxEdgeDevices/triggers/delete	Deletes the triggers
Microsoft.DataBoxEdge/dataBoxEdgeDevices/triggers/operationResults/read	Lists or gets the operation result
Microsoft.DataBoxEdge/dataBoxEdgeDevices/updateSummary/read	Lists or gets the update summary
Microsoft.DataBoxEdge/dataBoxEdgeDevices/users/read	Lists or gets the share users
Microsoft.DataBoxEdge/dataBoxEdgeDevices/users/read	Lists or gets the share users
Microsoft.DataBoxEdge/dataBoxEdgeDevices/users/write	Creates or updates the share users
Microsoft.DataBoxEdge/dataBoxEdgeDevices/users/delete	Deletes the share users
Microsoft.DataBoxEdge/dataBoxEdgeDevices/users/operationResults/read	Lists or gets the operation result
Microsoft.DataBoxEdge/operations/read	Lists or gets the operations
Microsoft.DataBoxEdge/skus/read	Lists or gets the SKUs

## Microsoft.DataCatalog

Azure service: [Data Catalog](#)

ACTION	DESCRIPTION
Microsoft.DataCatalog/checkNameAvailability/action	Checks catalog name availability for tenant.
Microsoft.DataCatalog/register/action	Registers subscription with Microsoft.DataCatalog resource provider.
Microsoft.DataCatalog/unregister/action	Unregisters subscription from Microsoft.DataCatalog resource provider.
Microsoft.DataCatalog/catalogs/read	Get properties for catalog or catalogs under subscription or resource group.
Microsoft.DataCatalog/catalogs/write	Creates catalog or updates the tags and properties for the catalog.
Microsoft.DataCatalog/catalogs/delete	Deletes the catalog.
Microsoft.DataCatalog/operations/read	Lists operations available on Microsoft.DataCatalog resource provider.

## Microsoft.EventGrid

Azure service: [Event Grid](#)

ACTION	DESCRIPTION
Microsoft.EventGrid/register/action	Registers the subscription for the EventGrid resource provider.
Microsoft.EventGrid/unregister/action	Unregisters the subscription for the EventGrid resource provider.
Microsoft.EventGrid/domains/write	Create or update a domain
Microsoft.EventGrid/domains/read	Read a domain
Microsoft.EventGrid/domains/delete	Delete a domain
Microsoft.EventGrid/domains/listKeys/action	List keys for a domain
Microsoft.EventGrid/domains/regenerateKey/action	Regenerate key for a domain
Microsoft.EventGrid/domains/privateEndpointConnectionProxies/validate/action	Validate PrivateEndpointConnectionProxies for domains
Microsoft.EventGrid/domains/privateEndpointConnectionProxies/read	Read PrivateEndpointConnectionProxies for domains
Microsoft.EventGrid/domains/privateEndpointConnectionProxies/write	Write PrivateEndpointConnectionProxies for domains
Microsoft.EventGrid/domains/privateEndpointConnectionProxies/delete	Delete PrivateEndpointConnectionProxies for domains

ACTION	DESCRIPTION
Microsoft.EventGrid/domains/privateEndpointConnections/read	Read PrivateEndpointConnections for domains
Microsoft.EventGrid/domains/privateEndpointConnections/write	Write PrivateEndpointConnections for domains
Microsoft.EventGrid/domains/privateEndpointConnections/delete	Delete PrivateEndpointConnections for domains
Microsoft.EventGrid/domains/privateLinkResources/read	Get or List PrivateLinkResources for domains
Microsoft.EventGrid/domains/providers/Microsoft.Insights/logDefinitions/read	Allows access to diagnostic logs
Microsoft.EventGrid/domains/providers/Microsoft.Insights/metricDefinitions/read	Gets the available metrics for domains
Microsoft.EventGrid/domains/topics/read	Read a domain topic
Microsoft.EventGrid/domains/topics/write	Create or update a domain topic
Microsoft.EventGrid/domains/topics/delete	Delete a domain topic
Microsoft.EventGrid/eventSubscriptions/write	Create or update an eventSubscription
Microsoft.EventGrid/eventSubscriptions/read	Read an eventSubscription
Microsoft.EventGrid/eventSubscriptions/delete	Delete an eventSubscription
Microsoft.EventGrid/eventSubscriptions/getFullUrl/action	Get full url for the event subscription
Microsoft.EventGrid/eventSubscriptions/providers/Microsoft.Insights/diagnosticSettings/read	Gets the diagnostic setting for event subscriptions
Microsoft.EventGrid/eventSubscriptions/providers/Microsoft.Insights/diagnosticSettings/write	Creates or updates the diagnostic setting for event subscriptions
Microsoft.EventGrid/eventSubscriptions/providers/Microsoft.Insights/metricDefinitions/read	Gets the available metrics for eventSubscriptions
Microsoft.EventGrid/extensionTopics/read	Read an extensionTopic.
Microsoft.EventGrid/extensionTopics/providers/Microsoft.Insights/diagnosticSettings/read	Gets the diagnostic setting for topics
Microsoft.EventGrid/extensionTopics/providers/Microsoft.Insights/diagnosticSettings/write	Creates or updates the diagnostic setting for topics
Microsoft.EventGrid/extensionTopics/providers/Microsoft.Insights/metricDefinitions/read	Gets the available metrics for topics
Microsoft.EventGrid/locations/eventSubscriptions/read	List regional event subscriptions

ACTION	DESCRIPTION
Microsoft.EventGrid/locations/operationResults/read	Read the result of a regional operation
Microsoft.EventGrid/locations/operationsStatus/read	Read the status of a regional operation
Microsoft.EventGrid/locations/topicTypes/eventSubscriptions/read	List regional event subscriptions by topicType
Microsoft.EventGrid/operationResults/read	Read the result of an operation
Microsoft.EventGrid/operations/read	List EventGrid operations.
Microsoft.EventGrid/operationsStatus/read	Read the status of an operation
Microsoft.EventGrid/partnerTopics/providers/Microsoft.Insights/metricDefinitions/read	Gets the available metrics for partner topics
Microsoft.EventGrid/sku/read	Read available Sku Definitions for event grid resources
Microsoft.EventGrid/systemTopics/providers/Microsoft.Insights/diagnosticSettings/read	Gets the diagnostic setting for system topics
Microsoft.EventGrid/systemTopics/providers/Microsoft.Insights/diagnosticSettings/write	Creates or updates the diagnostic setting for system topics
Microsoft.EventGrid/systemTopics/providers/Microsoft.Insights/logDefinitions/read	Allows access to diagnostic logs
Microsoft.EventGrid/systemTopics/providers/Microsoft.Insights/metricDefinitions/read	Gets the available metrics for system topics
Microsoft.EventGrid/topics/write	Create or update a topic
Microsoft.EventGrid/topics/read	Read a topic
Microsoft.EventGrid/topics/delete	Delete a topic
Microsoft.EventGrid/topics/listKeys/action	List keys for a topic
Microsoft.EventGrid/topics/regenerateKey/action	Regenerate key for a topic
Microsoft.EventGrid/topics/privateEndpointConnectionProxies/validate/action	Validate PrivateEndpointConnectionProxies for topics
Microsoft.EventGrid/topics/privateEndpointConnectionProxies/read	Read PrivateEndpointConnectionProxies for topics
Microsoft.EventGrid/topics/privateEndpointConnectionProxies/write	Write PrivateEndpointConnectionProxies for topics
Microsoft.EventGrid/topics/privateEndpointConnectionProxies/delete	Delete PrivateEndpointConnectionProxies for topics

ACTION	DESCRIPTION
Microsoft.EventGrid/topics/privateEndpointConnections/read	Read PrivateEndpointConnections for topics
Microsoft.EventGrid/topics/privateEndpointConnections/write	Write PrivateEndpointConnections for topics
Microsoft.EventGrid/topics/privateEndpointConnections/delete	Delete PrivateEndpointConnections for topics
Microsoft.EventGrid/topics/privateLinkResources/read	Read PrivateLinkResources for topics
Microsoft.EventGrid/topics/providers/Microsoft.Insights/diagnosticSettings/read	Gets the diagnostic setting for topics
Microsoft.EventGrid/topics/providers/Microsoft.Insights/diagnosticSettings/write	Creates or updates the diagnostic setting for topics
Microsoft.EventGrid/topics/providers/Microsoft.Insights/logDefinitions/read	Allows access to diagnostic logs
Microsoft.EventGrid/topics/providers/Microsoft.Insights/metricDefinitions/read	Gets the available metrics for topics
Microsoft.EventGrid/topicTypes/read	Read a topicType
Microsoft.EventGrid/topicTypes/eventSubscriptions/read	List global event subscriptions by topic type
Microsoft.EventGrid/topicTypes/eventTypes/read	Read eventTypes supported by a topicType

## Microsoft.Logic

Azure service: [Logic Apps](#)

ACTION	DESCRIPTION
Microsoft.Logic/register/action	Registers the Microsoft.Logic resource provider for a given subscription.
Microsoft.Logic/integrationAccounts/read	Reads the integration account.
Microsoft.Logic/integrationAccounts/write	Creates or updates the integration account.
Microsoft.Logic/integrationAccounts/delete	Deletes the integration account.
Microsoft.Logic/integrationAccounts/regenerateAccessKey/action	Regenerates the access key secrets.
Microsoft.Logic/integrationAccounts/listCallbackUrl/action	Gets the callback URL for integration account.
Microsoft.Logic/integrationAccounts/listKeyVaultKeys/action	Gets the keys in the key vault.
Microsoft.Logic/integrationAccounts/logTrackingEvents/action	Logs the tracking events in the integration account.

ACTION	DESCRIPTION
Microsoft.Logic/integrationAccounts/join/action	Joins the Integration Account.
Microsoft.Logic/integrationAccounts/agreements/read	Reads the agreement in integration account.
Microsoft.Logic/integrationAccounts/agreements/write	Creates or updates the agreement in integration account.
Microsoft.Logic/integrationAccounts/agreements/delete	Deletes the agreement in integration account.
Microsoft.Logic/integrationAccounts/agreements/listContentCallbackUrl/action	Gets the callback URL for agreement content in integration account.
Microsoft.Logic/integrationAccounts/assemblies/read	Reads the assembly in integration account.
Microsoft.Logic/integrationAccounts/assemblies/write	Creates or updates the assembly in integration account.
Microsoft.Logic/integrationAccounts/assemblies/delete	Deletes the assembly in integration account.
Microsoft.Logic/integrationAccounts/assemblies/listContentCallbackUrl/action	Gets the callback URL for assembly content in integration account.
Microsoft.Logic/integrationAccounts/batchConfigurations/read	Reads the batch configuration in integration account.
Microsoft.Logic/integrationAccounts/batchConfigurations/write	Creates or updates the batch configuration in integration account.
Microsoft.Logic/integrationAccounts/batchConfigurations/delete	Deletes the batch configuration in integration account.
Microsoft.Logic/integrationAccounts/certificates/read	Reads the certificate in integration account.
Microsoft.Logic/integrationAccounts/certificates/write	Creates or updates the certificate in integration account.
Microsoft.Logic/integrationAccounts/certificates/delete	Deletes the certificate in integration account.
Microsoft.Logic/integrationAccounts/groups/read	Reads the group in integration account.
Microsoft.Logic/integrationAccounts/groups/write	Creates or updates the group in integration account.
Microsoft.Logic/integrationAccounts/groups/delete	Deletes the group in integration account.
Microsoft.Logic/integrationAccounts/maps/read	Reads the map in integration account.
Microsoft.Logic/integrationAccounts/maps/write	Creates or updates the map in integration account.
Microsoft.Logic/integrationAccounts/maps/delete	Deletes the map in integration account.
Microsoft.Logic/integrationAccounts/maps/listContentCallbackUrl/action	Gets the callback URL for map content in integration account.
Microsoft.Logic/integrationAccounts/partners/read	Reads the partner in integration account.

ACTION	DESCRIPTION
Microsoft.Logic/integrationAccounts/partners/write	Creates or updates the partner in integration account.
Microsoft.Logic/integrationAccounts/partners/delete	Deletes the partner in integration account.
Microsoft.Logic/integrationAccounts/partners/listContentCallbackUrl/action	Gets the callback URL for partner content in integration account.
Microsoft.Logic/integrationAccounts/providers/Microsoft.Insights/logDefinitions/read	Reads the Integration Account log definitions.
Microsoft.Logic/integrationAccounts/rosettaNetProcessConfigurations/read	Reads the RosettaNet process configuration in integration account.
Microsoft.Logic/integrationAccounts/rosettaNetProcessConfigurations/write	Creates or updates the RosettaNet process configuration in integration account.
Microsoft.Logic/integrationAccounts/rosettaNetProcessConfigurations/delete	Deletes the RosettaNet process configuration in integration account.
Microsoft.Logic/integrationAccounts/schedules/read	Reads the schedule in integration account.
Microsoft.Logic/integrationAccounts/schedules/write	Creates or updates the schedule in integration account.
Microsoft.Logic/integrationAccounts/schedules/delete	Deletes the schedule in integration account.
Microsoft.Logic/integrationAccounts/schemas/read	Reads the schema in integration account.
Microsoft.Logic/integrationAccounts/schemas/write	Creates or updates the schema in integration account.
Microsoft.Logic/integrationAccounts/schemas/delete	Deletes the schema in integration account.
Microsoft.Logic/integrationAccounts/schemas/listContentCallbackUrl/action	Gets the callback URL for schema content in integration account.
Microsoft.Logic/integrationAccounts/sessions/read	Reads the session in integration account.
Microsoft.Logic/integrationAccounts/sessions/write	Creates or updates the session in integration account.
Microsoft.Logic/integrationAccounts/sessions/delete	Deletes the session in integration account.
Microsoft.Logic/integrationServiceEnvironments/read	Reads the integration service environment.
Microsoft.Logic/integrationServiceEnvironments/write	Creates or updates the integration service environment.
Microsoft.Logic/integrationServiceEnvironments/delete	Deletes the integration service environment.
Microsoft.Logic/integrationServiceEnvironments/join/action	Joins the Integration Service Environment.
Microsoft.Logic/integrationServiceEnvironments/availableManagedApis/read	Reads the integration service environment available managed APIs.

ACTION	DESCRIPTION
Microsoft.Logic/integrationServiceEnvironments/managedApis/read	Reads the integration service environment managed API.
Microsoft.Logic/integrationServiceEnvironments/managedApis/write	Creates or updates the integration service environment managed API.
Microsoft.Logic/integrationServiceEnvironments/managedApis/join/action	Joins the Integration Service Environment Managed API.
Microsoft.Logic/integrationServiceEnvironments/managedApis/apiOperations/read	Reads the integration service environment managed API operation.
Microsoft.Logic/integrationServiceEnvironments/managedApis/operationStatuses/read	Reads the integration service environment managed API operation statuses.
Microsoft.Logic/integrationServiceEnvironments/operationStatuses/read	Reads the integration service environment operation statuses.
Microsoft.Logic/integrationServiceEnvironments/providers/Microsoft.Insights/metricDefinitions/read	Reads the integration service environment metric definitions.
Microsoft.Logic/locations/workflows/validate/action	Validates the workflow.
Microsoft.Logic/locations/workflows/recommendOperationGroups/action	Gets the workflow recommend operation groups.
Microsoft.Logic/operations/read	Gets the operation.
Microsoft.Logic/workflows/read	Reads the workflow.
Microsoft.Logic/workflows/write	Creates or updates the workflow.
Microsoft.Logic/workflows/delete	Deletes the workflow.
Microsoft.Logic/workflows/run/action	Starts a run of the workflow.
Microsoft.Logic/workflows/disable/action	Disables the workflow.
Microsoft.Logic/workflows/enable/action	Enables the workflow.
Microsoft.Logic/workflows/suspend/action	Suspends the workflow.
Microsoft.Logic/workflows/validate/action	Validates the workflow.
Microsoft.Logic/workflows/move/action	Moves Workflow from its existing subscription id, resource group, and/or name to a different subscription id, resource group, and/or name.
Microsoft.Logic/workflows/listSwagger/action	Gets the workflow swagger definitions.
Microsoft.Logic/workflows/regenerateAccessKey/action	Regenerates the access key secrets.

ACTION	DESCRIPTION
Microsoft.Logic/workflows/listCallbackUrl/action	Gets the callback URL for workflow.
Microsoft.Logic/workflows/accessKeys/read	Reads the access key.
Microsoft.Logic/workflows/accessKeys/write	Creates or updates the access key.
Microsoft.Logic/workflows/accessKeys/delete	Deletes the access key.
Microsoft.Logic/workflows/accessKeys/list/action	Lists the access key secrets.
Microsoft.Logic/workflows/accessKeys/regenerate/action	Regenerates the access key secrets.
Microsoft.Logic/workflows/detectors/read	Reads the workflow detector.
Microsoft.Logic/workflows/providers/Microsoft.Insights/diagnosticSettings/read	Reads the workflow diagnostic settings.
Microsoft.Logic/workflows/providers/Microsoft.Insights/diagnosticSettings/write	Creates or updates the workflow diagnostic setting.
Microsoft.Logic/workflows/providers/Microsoft.Insights/logDefinitions/read	Reads the workflow log definitions.
Microsoft.Logic/workflows/providers/Microsoft.Insights/metricDefinitions/read	Reads the workflow metric definitions.
Microsoft.Logic/workflows/runs/read	Reads the workflow run.
Microsoft.Logic/workflows/runs/delete	Deletes a run of a workflow.
Microsoft.Logic/workflows/runs/cancel/action	Cancels the run of a workflow.
Microsoft.Logic/workflows/runs/actions/read	Reads the workflow run action.
Microsoft.Logic/workflows/runs/actions/listExpressionTraces/action	Gets the workflow run action expression traces.
Microsoft.Logic/workflows/runs/actions/repetitions/read	Reads the workflow run action repetition.
Microsoft.Logic/workflows/runs/actions/repetitions/listExpressionTraces/action	Gets the workflow run action repetition expression traces.
Microsoft.Logic/workflows/runs/actions/repetitions/requestHistories/read	Reads the workflow run repetition action request history.
Microsoft.Logic/workflows/runs/actions/requestHistories/read	Reads the workflow run action request history.
Microsoft.Logic/workflows/runs/actions/scoperepetitions/read	Reads the workflow run action scope repetition.
Microsoft.Logic/workflows/runs/operations/read	Reads the workflow run operation status.

ACTION	DESCRIPTION
Microsoft.Logic/workflows/triggers/read	Reads the trigger.
Microsoft.Logic/workflows/triggers/run/action	Executes the trigger.
Microsoft.Logic/workflows/triggers/reset/action	Resets the trigger.
Microsoft.Logic/workflows/triggers/setState/action	Sets the trigger state.
Microsoft.Logic/workflows/triggers/listCallbackUrl/action	Gets the callback URL for trigger.
Microsoft.Logic/workflows/triggers/histories/read	Reads the trigger histories.
Microsoft.Logic/workflows/triggers/histories/resubmit/action	Resubmits the workflow trigger.
Microsoft.Logic/workflows/versions/read	Reads the workflow version.
Microsoft.Logic/workflows/versions/triggers/listCallbackUrl/action	Gets the callback URL for trigger.

## Microsoft.Relay

Azure service: [Azure Relay](#)

ACTION	DESCRIPTION
Microsoft.Relay/checkNamespaceAvailability/action	Checks availability of namespace under given subscription. This API is deprecated please use CheckNameAvailability instead.
Microsoft.Relay/checkNameAvailability/action	Checks availability of namespace under given subscription.
Microsoft.Relay/register/action	Registers the subscription for the Relay resource provider and enables the creation of Relay resources
Microsoft.Relay/unregister/action	Registers the subscription for the Relay resource provider and enables the creation of Relay resources
Microsoft.Relay/namespaces/write	Create a Namespace Resource and Update its properties. Tags and Capacity of the Namespace are the properties which can be updated.
Microsoft.Relay/namespaces/read	Get the list of Namespace Resource Description
Microsoft.Relay/namespaces/Delete	Delete Namespace Resource
Microsoft.Relay/namespaces/authorizationRules/action	Updates Namespace Authorization Rule. This API is deprecated. Please use a PUT call to update the Namespace Authorization Rule instead.. This operation is not supported on API version 2017-04-01.
Microsoft.Relay/namespaces/removeAcsNamepsace/action	Remove ACS namespace
Microsoft.Relay/namespaces/authorizationRules/read	Get the list of Namespaces Authorization Rules description.

ACTION	DESCRIPTION
Microsoft.Relay/namespaces/authorizationRules/write	Create a Namespace level Authorization Rules and update its properties. The Authorization Rules Access Rights, the Primary and Secondary Keys can be updated.
Microsoft.Relay/namespaces/authorizationRules/delete	Delete Namespace Authorization Rule. The Default Namespace Authorization Rule cannot be deleted.
Microsoft.Relay/namespaces/authorizationRules/listkeys/action	Get the Connection String to the Namespace
Microsoft.Relay/namespaces/authorizationRules/regenerateKeys/action	Regenerate the Primary or Secondary key to the Resource
Microsoft.Relay/namespaces/disasterrecoveryconfigs/checkNameAvailability/action	Checks availability of namespace alias under given subscription.
Microsoft.Relay/namespaces/disasterRecoveryConfigs/write	Creates or Updates the Disaster Recovery configuration associated with the namespace.
Microsoft.Relay/namespaces/disasterRecoveryConfigs/read	Gets the Disaster Recovery configuration associated with the namespace.
Microsoft.Relay/namespaces/disasterRecoveryConfigs/delete	Deletes the Disaster Recovery configuration associated with the namespace. This operation can only be invoked via the primary namespace.
Microsoft.Relay/namespaces/disasterRecoveryConfigs/breakPairing/action	Disables Disaster Recovery and stops replicating changes from primary to secondary namespaces.
Microsoft.Relay/namespaces/disasterRecoveryConfigs/failover/action	Invokes a GEO DR failover and reconfigures the namespace alias to point to the secondary namespace.
Microsoft.Relay/namespaces/disasterRecoveryConfigs/authorizationRules/read	Get Disaster Recovery Primary Namespace's Authorization Rules
Microsoft.Relay/namespaces/disasterRecoveryConfigs/authorizationRules/listkeys/action	Gets the authorization rules keys for the Disaster Recovery primary namespace
Microsoft.Relay/namespaces/HybridConnections/write	Create or Update HybridConnection properties.
Microsoft.Relay/namespaces/HybridConnections/read	Get list of HybridConnection Resource Descriptions
Microsoft.Relay/namespaces/HybridConnections/Delete	Operation to delete HybridConnection Resource
Microsoft.Relay/namespaces/HybridConnections/authorizationRules/action	Operation to update HybridConnection. This operation is not supported on API version 2017-04-01. Authorization Rules. Please use a PUT call to update Authorization Rule.
Microsoft.Relay/namespaces/HybridConnections/authorizationRules/read	Get the list of HybridConnection Authorization Rules
Microsoft.Relay/namespaces/HybridConnections/authorizationRules/write	Create HybridConnection Authorization Rules and Update its properties. The Authorization Rules Access Rights can be updated.

ACTION	DESCRIPTION
Microsoft.Relay/namespaces/HybridConnections/authorizationRules/delete	Operation to delete HybridConnection Authorization Rules
Microsoft.Relay/namespaces/HybridConnections/authorizationRules/listkeys/action	Get the Connection String to HybridConnection
Microsoft.Relay/namespaces/HybridConnections/authorizationRules/regeneratekeys/action	Regenerate the Primary or Secondary key to the Resource
Microsoft.Relay/namespaces/messagingPlan/read	<p>Gets the Messaging Plan for a namespace.</p> <p>This API is deprecated.</p> <p>Properties exposed via the MessagingPlan resource are moved to the (parent) Namespace resource in later API versions..</p> <p>This operation is not supported on API version 2017-04-01.</p>
Microsoft.Relay/namespaces/messagingPlan/write	<p>Updates the Messaging Plan for a namespace.</p> <p>This API is deprecated.</p> <p>Properties exposed via the MessagingPlan resource are moved to the (parent) Namespace resource in later API versions..</p> <p>This operation is not supported on API version 2017-04-01.</p>
Microsoft.Relay/namespaces/networkrulesets/read	Gets NetworkRuleSet Resource
Microsoft.Relay/namespaces/networkrulesets/write	Create VNET Rule Resource
Microsoft.Relay/namespaces/networkrulesets/delete	Delete VNET Rule Resource
Microsoft.Relay/namespaces/operationresults/read	Get the status of Namespace operation
Microsoft.Relay/namespaces/privateEndpointConnectionProxies/validate/action	Validate Private Endpoint Connection Proxy
Microsoft.Relay/namespaces/privateEndpointConnectionProxies/read	Get Private Endpoint Connection Proxy
Microsoft.Relay/namespaces/privateEndpointConnectionProxies/write	Create Private Endpoint Connection Proxy
Microsoft.Relay/namespaces/privateEndpointConnectionProxies/delete	Delete Private Endpoint Connection Proxy
Microsoft.Relay/namespaces/providers/Microsoft.Insights/diagnosticSettings/read	Get list of Namespace diagnostic settings Resource Descriptions
Microsoft.Relay/namespaces/providers/Microsoft.Insights/diagnosticSettings/write	Get list of Namespace diagnostic settings Resource Descriptions
Microsoft.Relay/namespaces/providers/Microsoft.Insights/logDefinitions/read	Get list of Namespace logs Resource Descriptions
Microsoft.Relay/namespaces/providers/Microsoft.Insights/metricDefinitions/read	Get list of Namespace metrics Resource Descriptions

ACTION	DESCRIPTION
Microsoft.Relay/namespaces/WcfRelays/write	Create or Update WcfRelay properties.
Microsoft.Relay/namespaces/WcfRelays/read	Get list of WcfRelay Resource Descriptions
Microsoft.Relay/namespaces/WcfRelays/Delete	Operation to delete WcfRelay Resource
Microsoft.Relay/namespaces/WcfRelays/authorizationRules/action	Operation to update WcfRelay. This operation is not supported on API version 2017-04-01. Authorization Rules. Please use a PUT call to update Authorization Rule.
Microsoft.Relay/namespaces/WcfRelays/authorizationRules/read	Get the list of WcfRelay Authorization Rules
Microsoft.Relay/namespaces/WcfRelays/authorizationRules/write	Create WcfRelay Authorization Rules and Update its properties. The Authorization Rules Access Rights can be updated.
Microsoft.Relay/namespaces/WcfRelays/authorizationRules/delete	Operation to delete WcfRelay Authorization Rules
Microsoft.Relay/namespaces/WcfRelays/authorizationRules/listkeys/action	Get the Connection String to WcfRelay
Microsoft.Relay/namespaces/WcfRelays/authorizationRules/generatekeys/action	Regenerate the Primary or Secondary key to the Resource
Microsoft.Relay/operations/read	Get Operations

## Microsoft.ServiceBus

Azure service: [Service Bus](#)

ACTION	DESCRIPTION
Microsoft.ServiceBus/checkNamespaceAvailability/action	Checks availability of namespace under given subscription. This API is deprecated please use CheckNameAvailability instead.
Microsoft.ServiceBus/checkNameAvailability/action	Checks availability of namespace under given subscription.
Microsoft.ServiceBus/register/action	Registers the subscription for the ServiceBus resource provider and enables the creation of ServiceBus resources
Microsoft.ServiceBus/unregister/action	Registers the subscription for the ServiceBus resource provider and enables the creation of ServiceBus resources
Microsoft.ServiceBus/locations/deleteVirtualNetworkOrSubnets/action	Deletes the VNet rules in ServiceBus Resource Provider for the specified VNet
Microsoft.ServiceBus/namespaces/write	Create a Namespace Resource and Update its properties. Tags and Capacity of the Namespace are the properties which can be updated.
Microsoft.ServiceBus/namespaces/read	Get the list of Namespace Resource Description

ACTION	DESCRIPTION
Microsoft.ServiceBus/namespaces/Delete	Delete Namespace Resource
Microsoft.ServiceBus/namespaces/authorizationRules/action	Updates Namespace Authorization Rule. This API is deprecated. Please use a PUT call to update the Namespace Authorization Rule instead.. This operation is not supported on API version 2017-04-01.
Microsoft.ServiceBus/namespaces/migrate/action	Migrate namespace operation
Microsoft.ServiceBus/namespaces/removeAcsNamepsace/acti on	Remove ACS namespace
Microsoft.ServiceBus/namespaces/authorizationRules/write	Create a Namespace level Authorization Rules and update its properties. The Authorization Rules Access Rights, the Primary and Secondary Keys can be updated.
Microsoft.ServiceBus/namespaces/authorizationRules/read	Get the list of Namespaces Authorization Rules description.
Microsoft.ServiceBus/namespaces/authorizationRules/delete	Delete Namespace Authorization Rule. The Default Namespace Authorization Rule cannot be deleted.
Microsoft.ServiceBus/namespaces/authorizationRules/listkeys /action	Get the Connection String to the Namespace
Microsoft.ServiceBus/namespaces/authorizationRules/regene rateKeys/action	Regenerate the Primary or Secondary key to the Resource
Microsoft.ServiceBus/namespaces/disasterrecoveryconfigs/ch eckNameAvailability/action	Checks availability of namespace alias under given subscription.
Microsoft.ServiceBus/namespaces/disasterRecoveryConfigs/w rite	Creates or Updates the Disaster Recovery configuration associated with the namespace.
Microsoft.ServiceBus/namespaces/disasterRecoveryConfigs/r ead	Gets the Disaster Recovery configuration associated with the namespace.
Microsoft.ServiceBus/namespaces/disasterRecoveryConfigs/d elete	Deletes the Disaster Recovery configuration associated with the namespace. This operation can only be invoked via the primary namespace.
Microsoft.ServiceBus/namespaces/disasterRecoveryConfigs/b reakPairing/action	Disables Disaster Recovery and stops replicating changes from primary to secondary namespaces.
Microsoft.ServiceBus/namespaces/disasterRecoveryConfigs/f ailover/action	Invokes a GEO DR failover and reconfigures the namespace alias to point to the secondary namespace.
Microsoft.ServiceBus/namespaces/disasterRecoveryConfigs/a uthorizationRules/read	Get Disaster Recovery Primary Namespace's Authorization Rules
Microsoft.ServiceBus/namespaces/disasterRecoveryConfigs/a uthorizationRules/listkeys/action	Gets the authorization rules keys for the Disaster Recovery primary namespace
Microsoft.ServiceBus/namespaces/eventGridFilters/write	Creates or Updates the Event Grid filter associated with the namespace.

ACTION	DESCRIPTION
Microsoft.ServiceBus/namespaces/eventGridFilters/read	Gets the Event Grid filter associated with the namespace.
Microsoft.ServiceBus/namespaces/eventGridFilters/delete	Deletes the Event Grid filter associated with the namespace.
Microsoft.ServiceBus/namespaces/eventhubs/read	Get list of EventHub Resource Descriptions
Microsoft.ServiceBus/namespaces/ipFilterRules/read	Get IP Filter Resource
Microsoft.ServiceBus/namespaces/ipFilterRules/write	Create IP Filter Resource
Microsoft.ServiceBus/namespaces/ipFilterRules/delete	Delete IP Filter Resource
Microsoft.ServiceBus/namespaces/messagingPlan/read	Gets the Messaging Plan for a namespace. This API is deprecated. Properties exposed via the MessagingPlan resource are moved to the (parent) Namespace resource in later API versions.. This operation is not supported on API version 2017-04-01.
Microsoft.ServiceBus/namespaces/messagingPlan/write	Updates the Messaging Plan for a namespace. This API is deprecated. Properties exposed via the MessagingPlan resource are moved to the (parent) Namespace resource in later API versions.. This operation is not supported on API version 2017-04-01.
Microsoft.ServiceBus/namespaces/migrationConfigurations/write	Creates or Updates Migration configuration. This will start synchronizing resources from the standard to the premium namespace
Microsoft.ServiceBus/namespaces/migrationConfigurations/read	Gets the Migration configuration which indicates the state of the migration and pending replication operations
Microsoft.ServiceBus/namespaces/migrationConfigurations/delete	Deletes the Migration configuration.
Microsoft.ServiceBus/namespaces/migrationConfigurations/revert/action	Reverts the standard to premium namespace migration
Microsoft.ServiceBus/namespaces/migrationConfigurations/upgrade/action	Assigns the DNS associated with the standard namespace to the premium namespace which completes the migration and stops the syncing resources from standard to premium namespace
Microsoft.ServiceBus/namespaces/networkruleset/read	Gets NetworkRuleSet Resource
Microsoft.ServiceBus/namespaces/networkruleset/write	Create VNET Rule Resource
Microsoft.ServiceBus/namespaces/networkruleset/delete	Delete VNET Rule Resource
Microsoft.ServiceBus/namespaces/networkrulesets/read	Gets NetworkRuleSet Resource
Microsoft.ServiceBus/namespaces/networkrulesets/write	Create VNET Rule Resource

ACTION	DESCRIPTION
Microsoft.ServiceBus/namespaces/networkrulesets/delete	Delete VNET Rule Resource
Microsoft.ServiceBus/namespaces/operationresults/read	Get the status of Namespace operation
Microsoft.ServiceBus/namespaces/privateEndpointConnectio nProxies/validate/action	Validate Private Endpoint Connection Proxy
Microsoft.ServiceBus/namespaces/privateEndpointConnectio nProxies/read	Get Private Endpoint Connection Proxy
Microsoft.ServiceBus/namespaces/privateEndpointConnectio nProxies/write	Create Private Endpoint Connection Proxy
Microsoft.ServiceBus/namespaces/privateEndpointConnectio nProxies/delete	Delete Private Endpoint Connection Proxy
Microsoft.ServiceBus/namespaces/providers/Microsoft.Insigh ts/diagnosticSettings/read	Get list of Namespace diagnostic settings Resource Descriptions
Microsoft.ServiceBus/namespaces/providers/Microsoft.Insigh ts/diagnosticSettings/write	Get list of Namespace diagnostic settings Resource Descriptions
Microsoft.ServiceBus/namespaces/providers/Microsoft.Insigh ts/logDefinitions/read	Get list of Namespace logs Resource Descriptions
Microsoft.ServiceBus/namespaces/providers/Microsoft.Insigh ts/metricDefinitions/read	Get list of Namespace metrics Resource Descriptions
Microsoft.ServiceBus/namespaces/queues/write	Create or Update Queue properties.
Microsoft.ServiceBus/namespaces/queues/read	Get list of Queue Resource Descriptions
Microsoft.ServiceBus/namespaces/queues/Delete	Operation to delete Queue Resource
Microsoft.ServiceBus/namespaces/queues/authorizationRules /action	Operation to update Queue. This operation is not supported on API version 2017-04-01. Authorization Rules. Please use a PUT call to update Authorization Rule.
Microsoft.ServiceBus/namespaces/queues/authorizationRules /write	Create Queue Authorization Rules and Update its properties. The Authorization Rules Access Rights can be updated.
Microsoft.ServiceBus/namespaces/queues/authorizationRules /read	Get the list of Queue Authorization Rules
Microsoft.ServiceBus/namespaces/queues/authorizationRules /delete	Operation to delete Queue Authorization Rules
Microsoft.ServiceBus/namespaces/queues/authorizationRules /listkeys/action	Get the Connection String to Queue
Microsoft.ServiceBus/namespaces/queues/authorizationRules /regenerateKeys/action	Regenerate the Primary or Secondary key to the Resource

ACTION	DESCRIPTION
Microsoft.ServiceBus/namespaces/skus/read	List Supported SKUs for Namespace
Microsoft.ServiceBus/namespaces/topics/write	Create or Update Topic properties.
Microsoft.ServiceBus/namespaces/topics/read	Get list of Topic Resource Descriptions
Microsoft.ServiceBus/namespaces/topics/Delete	Operation to delete Topic Resource
Microsoft.ServiceBus/namespaces/topics/authorizationRules/action	Operation to update Topic. This operation is not supported on API version 2017-04-01. Authorization Rules. Please use a PUT call to update Authorization Rule.
Microsoft.ServiceBus/namespaces/topics/authorizationRules/write	Create Topic Authorization Rules and Update its properties. The Authorization Rules Access Rights can be updated.
Microsoft.ServiceBus/namespaces/topics/authorizationRules/read	Get the list of Topic Authorization Rules
Microsoft.ServiceBus/namespaces/topics/authorizationRules/delete	Operation to delete Topic Authorization Rules
Microsoft.ServiceBus/namespaces/topics/authorizationRules/listkeys/action	Get the Connection String to Topic
Microsoft.ServiceBus/namespaces/topics/authorizationRules/regenerateKeys/action	Regenerate the Primary or Secondary key to the Resource
Microsoft.ServiceBus/namespaces/topics/subscriptions/write	Create or Update TopicSubscription properties.
Microsoft.ServiceBus/namespaces/topics/subscriptions/read	Get list of TopicSubscription Resource Descriptions
Microsoft.ServiceBus/namespaces/topics/subscriptions/Delete	Operation to delete TopicSubscription Resource
Microsoft.ServiceBus/namespaces/topics/subscriptions/rules/write	Create or Update Rule properties.
Microsoft.ServiceBus/namespaces/topics/subscriptions/rules/read	Get list of Rule Resource Descriptions
Microsoft.ServiceBus/namespaces/topics/subscriptions/rules/Delete	Operation to delete Rule Resource
Microsoft.ServiceBus/namespaces/virtualNetworkRules/read	Gets VNET Rule Resource
Microsoft.ServiceBus/namespaces/virtualNetworkRules/write	Create VNET Rule Resource
Microsoft.ServiceBus/namespaces/virtualNetworkRules/delete	Delete VNET Rule Resource
Microsoft.ServiceBus/operations/read	Get Operations

ACTION	DESCRIPTION
Microsoft.ServiceBus/sku/read	Get list of Sku Resource Descriptions
Microsoft.ServiceBus/sku/regions/read	Get list of SkuRegions Resource Descriptions
DataAction	Description
Microsoft.ServiceBus/namespaces/messages/send/action	Send messages
Microsoft.ServiceBus/namespaces/messages/receive/action	Receive messages

## Identity

### Microsoft.AAD

Azure service: [Azure Active Directory Domain Services](#)

ACTION	DESCRIPTION
Microsoft.AAD/unregister/action	Unregister Domain Service
Microsoft.AAD/register/action	Register Domain Service
Microsoft.AAD/domainServices/read	Read Domain Services
Microsoft.AAD/domainServices/write	Write Domain Service
Microsoft.AAD/domainServices/delete	Delete Domain Service
Microsoft.AAD/domainServices/oucontainer/read	Read Ou Containers
Microsoft.AAD/domainServices/oucontainer/write	Write Ou Container
Microsoft.AAD/domainServices/oucontainer/delete	Delete Ou Container
Microsoft.AAD/locations/operationresults/read	
Microsoft.AAD/Operations/read	

### microsoft.aadiam

Azure service: [Azure Active Directory](#)

ACTION	DESCRIPTION
microsoft.aadiam/azureADMetrics/read	Read Azure AD Metrics Definition
microsoft.aadiam/azureADMetrics/write	Create and Update Azure AD Metrics Definition
microsoft.aadiam/azureADMetrics/delete	Delete Azure AD Metrics Definition
microsoft.aadiam/diagnosticsettings/write	Writing a diagnostic setting

ACTION	DESCRIPTION
microsoft.aadiam/diagnosticsettings/read	Reading a diagnostic setting
microsoft.aadiam/diagnosticsettings/delete	Deleting a diagnostic setting
microsoft.aadiam/diagnosticsettingcategories/read	Reading a diagnostic setting categories
microsoft.aadiam/metricDefinitions/read	Reading Tenant-Level Metric Definitions
microsoft.aadiam/metrics/read	Reading Tenant-Level Metrics
microsoft.aadiam/privateLinkForAzureAD/read	Read Private Link Policy Definition
microsoft.aadiam/privateLinkForAzureAD/write	Create and Update Private Link Policy Definition
microsoft.aadiam/privateLinkForAzureAD/delete	Delete Private Link Policy Definition
microsoft.aadiam/privateLinkForAzureAD/privateEndpointConnectionProxies/read	Read Private Link Proxies
microsoft.aadiam/privateLinkForAzureAD/privateEndpointConnectionProxies/write	Create and Update Private Link Proxies
microsoft.aadiam/privateLinkForAzureAD/privateEndpointConnectionProxies/delete	Delete Private Link Proxies
microsoft.aadiam/privateLinkForAzureAD/privateEndpointConnectionProxies/validate/action	Validate Private Link Proxies
microsoft.aadiam/privateLinkForAzureAD/privateEndpointConnections/read	Read PrivateEndpointConnections
microsoft.aadiam/privateLinkForAzureAD/privateEndpointConnections/write	Create and Update PrivateEndpointConnections
microsoft.aadiam/privateLinkForAzureAD/privateEndpointConnections/delete	Delete PrivateEndpointConnections
microsoft.aadiam/privateLinkForAzureAD/privateLinkResources/read	Read PrivateLinkResources
microsoft.aadiam/privateLinkForAzureAD/privateLinkResources/write	Create and Update PrivateLinkResources
microsoft.aadiam/privateLinkForAzureAD/privateLinkResources/delete	Delete PrivateLinkResources

## Microsoft.ADHybridHealthService

Azure service: [Azure Active Directory](#)

ACTION	DESCRIPTION
Microsoft.ADHybridHealthService/configuration/action	Updates Tenant Configuration.

ACTION	DESCRIPTION
Microsoft.ADHybridHealthService/services/action	Updates a service instance in the tenant.
Microsoft.ADHybridHealthService/addsservices/action	Create a new forest for the tenant.
Microsoft.ADHybridHealthService/register/action	Registers the ADHybrid Health Service Resource Provider and enables the creation of ADHybrid Health Service resource.
Microsoft.ADHybridHealthService/unregister/action	Unregisters the subscription for ADHybrid Health Service Resource Provider.
Microsoft.ADHybridHealthService/addsservices/write	Creates or Updates the ADDomainService instance for the tenant.
Microsoft.ADHybridHealthService/addsservices/servicemembers/action	Add a server instance to the service.
Microsoft.ADHybridHealthService/addsservices/read	Gets Service details for the specified service name.
Microsoft.ADHybridHealthService/addsservices/delete	Deletes a Service and it's servers along with Health data.
Microsoft.ADHybridHealthService/addsservices/adddomainser vicemembers/read	Gets all servers for the specified service name.
Microsoft.ADHybridHealthService/addsservices/alerts/read	Gets alerts details for the forest like alertid, alert raised date, alert last detected, alert description, last updated, alert level, alert state, alert troubleshooting links etc. .
Microsoft.ADHybridHealthService/addsservices/configuration /read	Gets Service Configuration for the forest. Example- Forest Name, Functional Level, Domain Naming master FSMO role, Schema master FSMO role etc.
Microsoft.ADHybridHealthService/addsservices/dimensions/read	Gets the domains and sites details for the forest. Example- health status, active alerts, resolved alerts, properties like Domain Functional Level, Forest, Infrastructure Master, PDC, RID master etc.
Microsoft.ADHybridHealthService/addsservices/features/user preference/read	Gets the user preference setting for the forest. Example- MetricCounterName like ldapsuccessfulbinds, ntlmauthentications, kerberosauthentications, addsi insightsagentprivatebytes, ldapsearches. Settings for the UI Charts etc.
Microsoft.ADHybridHealthService/addsservices/forestsumma ry/read	Gets forest summary for the given forest like forest name, number of domains under this forest, number of sites and sites details etc.

ACTION	DESCRIPTION
Microsoft.ADHybridHealthService/addsservices/metricmetadata/read	<p>Gets the list of supported metrics for a given service. For example Extranet Account Lockouts, Total Failed Requests, Outstanding Token Requests (Proxy), Token Requests /sec etc for ADFS service.</p> <p>NTLM Authentications/sec, LDAP Successful Binds/sec, LDAP Bind Time, LDAP Active Threads, Kerberos Authentications/sec, ATQ Threads Total etc for ADDomainService.</p> <p>Run Profile Latency, TCP Connections Established, Insights Agent Private Bytes, Export Statistics to Azure AD for ADSync service.</p>
Microsoft.ADHybridHealthService/addsservices/metrics/groups/read	<p>Given a service, this API gets the metrics information. For example, this API can be used to get information related to: Extranet Account Lockouts, Total Failed Requests, Outstanding Token Requests (Proxy), Token Requests /sec etc for ADFederation service.</p> <p>NTLM Authentications/sec, LDAP Successful Binds/sec, LDAP Bind Time, LDAP Active Threads, Kerberos Authentications/sec, ATQ Threads Total etc for ADDomain Service.</p> <p>Run Profile Latency, TCP Connections Established, Insights Agent Private Bytes, Export Statistics to Azure AD for Sync Service.</p>
Microsoft.ADHybridHealthService/addsservices/premiumcheck/read	This API gets the list of all onboarded ADDomainServices for a premium tenant.
Microsoft.ADHybridHealthService/addsservices/replicationdetails/read	Gets replication details for all the servers for the specified service name.
Microsoft.ADHybridHealthService/addsservices/replicationstatus/read	Gets the number of domain controllers and their replication errors if any.
Microsoft.ADHybridHealthService/addsservices/replicationsummary/read	Gets complete domain controller list along with replication details for the given forest.
Microsoft.ADHybridHealthService/addsservices/servicemembers/delete	Deletes a server for a given service and tenant.
Microsoft.ADHybridHealthService/addsservices/servicemembers/credentials/read	During server registration of ADDomainService, this api is called to get the credentials for onboarding new servers.
Microsoft.ADHybridHealthService/configuration/write	Creates a Tenant Configuration.
Microsoft.ADHybridHealthService/configuration/read	Reads the Tenant Configuration.
Microsoft.ADHybridHealthService/logs/read	Gets agent installation and registration logs for the tenant.
Microsoft.ADHybridHealthService/logs/contents/read	Gets the content of agent installation and registration logs stored in blob.
Microsoft.ADHybridHealthService/operations/read	Gets list of operations supported by system.

ACTION	DESCRIPTION
Microsoft.ADHybridHealthService/reports/availabledeployments/read	Gets list of available regions, used by DevOps to support customer incidents.
Microsoft.ADHybridHealthService/reports/badpassword/read	Gets the list of bad password attempts for all the users in Active Directory Federation Service.
Microsoft.ADHybridHealthService/reports/badpassworduseridfrequency/read	Gets Blob SAS URI containing status and eventual result of newly enqueued report job for frequency of Bad Username/Password attempts per UserId per IPAddress per Day for a given Tenant.
Microsoft.ADHybridHealthService/reports/consentedtodevstenants/read	Gets the list of DevOps consented tenants. Typically used for customer support.
Microsoft.ADHybridHealthService/reports/isdevops/read	Gets a value indicating whether the tenant is DevOps Consented or not.
Microsoft.ADHybridHealthService/reports/selectdevopstenant/read	Updates userid(objectid) for the selected dev ops tenant.
Microsoft.ADHybridHealthService/reports/selecteddeployment/read	Gets selected deployment for the given tenant.
Microsoft.ADHybridHealthService/reports/tenantassigneddeployment/read	Given a tenant id gets the tenant storage location.
Microsoft.ADHybridHealthService/reports/updateselecteddeployment/read	Gets the geo location from which data will be accessed.
Microsoft.ADHybridHealthService/services/write	Creates a service instance in the tenant.
Microsoft.ADHybridHealthService/services/read	Reads the service instances in the tenant.
Microsoft.ADHybridHealthService/services/delete	Deletes a service instance in the tenant.
Microsoft.ADHybridHealthService/services/servicemembers/action	Creates or updates a server instance in the service.
Microsoft.ADHybridHealthService/services/alerts/read	Reads the alerts for a service.
Microsoft.ADHybridHealthService/services/alerts/read	Reads the alerts for a service.
Microsoft.ADHybridHealthService/services/checkservicefeatureavailability/read	Given a feature name verifies if a service has everything required to use that feature.
Microsoft.ADHybridHealthService/services/exporterrors/read	Gets the export errors for a given sync service.
Microsoft.ADHybridHealthService/services/exportstatus/read	Gets the export status for a given service.
Microsoft.ADHybridHealthService/services/feedbacktype/feedback/read	Gets alerts feedback for a given service and server.

ACTION	DESCRIPTION
Microsoft.ADHybridHealthService/services/ipAddressAggregates/read	Reads the bad IPs which attempted to access the service.
Microsoft.ADHybridHealthService/services/ipAddressAggregateSettings/read	Reads alarm thresholds for bad IPs.
Microsoft.ADHybridHealthService/services/ipAddressAggregateSettings/write	Writes alarm thresholds for bad IPs.
Microsoft.ADHybridHealthService/services/metricmetadata/read	<p>Gets the list of supported metrics for a given service. For example Extranet Account Lockouts, Total Failed Requests, Outstanding Token Requests (Proxy), Token Requests /sec etc for ADFS service.</p> <p>NTLM Authentications/sec, LDAP Successful Binds/sec, LDAP Bind Time, LDAP Active Threads, Kerberos Authentications/sec, ATQ Threads Total etc for ADDomainService.</p> <p>Run Profile Latency, TCP Connections Established, Insights Agent Private Bytes, Export Statistics to Azure AD for ADSync service.</p>
Microsoft.ADHybridHealthService/services/metrics/groups/read	<p>Given a service, this API gets the metrics information. For example, this API can be used to get information related to: Extranet Account Lockouts, Total Failed Requests, Outstanding Token Requests (Proxy), Token Requests /sec etc for ADFederation service.</p> <p>NTLM Authentications/sec, LDAP Successful Binds/sec, LDAP Bind Time, LDAP Active Threads, Kerberos Authentications/sec, ATQ Threads Total etc for ADDomain Service.</p> <p>Run Profile Latency, TCP Connections Established, Insights Agent Private Bytes, Export Statistics to Azure AD for Sync Service.</p>
Microsoft.ADHybridHealthService/services/metrics/groups/average/read	<p>Given a service, this API gets the average for metrics for a given service.</p> <p>For example, this API can be used to get information related to: Extranet Account Lockouts, Total Failed Requests, Outstanding Token Requests (Proxy), Token Requests /sec etc for ADFederation service.</p> <p>NTLM Authentications/sec, LDAP Successful Binds/sec, LDAP Bind Time, LDAP Active Threads, Kerberos Authentications/sec, ATQ Threads Total etc for ADDomain Service.</p> <p>Run Profile Latency, TCP Connections Established, Insights Agent Private Bytes, Export Statistics to Azure AD for Sync Service.</p>

ACTION	DESCRIPTION
Microsoft.ADHybridHealthService/services/metrics/groups/sum/read	<p>Given a service, this API gets the aggregated view for metrics for a given service.</p> <p>For example, this API can be used to get information related to: Extranet Account Lockouts, Total Failed Requests, Outstanding Token Requests (Proxy), Token Requests /sec etc for ADFederation service.</p> <p>NTLM Authentications/sec, LDAP Successful Binds/sec, LDAP Bind Time, LDAP Active Threads, Kerberos Authentications/sec, ATQ Threads Total etc for ADDomain Service.</p> <p>Run Profile Latency, TCP Connections Established, Insights Agent Private Bytes, Export Statistics to Azure AD for Sync Service.</p>
Microsoft.ADHybridHealthService/services/monitoringconfiguration/write	Add or updates monitoring configuration for a service.
Microsoft.ADHybridHealthService/services/monitoringconfigurations/read	Gets the monitoring configurations for a given service.
Microsoft.ADHybridHealthService/services/monitoringconfigurations/write	Add or updates monitoring configurations for a service.
Microsoft.ADHybridHealthService/services/premiumcheck/read	This API gets the list of all onboarded services for a premium tenant.
Microsoft.ADHybridHealthService/services/reports/generateBlobUri/action	Generates Risky IP report and returns a URI pointing to it.
Microsoft.ADHybridHealthService/services/reports/blobUris/read	Gets all Risky IP report URLs for the last 7 days.
Microsoft.ADHybridHealthService/services/reports/details/read	Gets report of top 50 users with bad password errors from last 7 days
Microsoft.ADHybridHealthService/services/servicemembers/read	Reads the server instance in the service.
Microsoft.ADHybridHealthService/services/servicemembers/delete	Deletes a server instance in the service.
Microsoft.ADHybridHealthService/services/servicemembers/alerts/read	Reads the alerts for a server.
Microsoft.ADHybridHealthService/services/servicemembers/credentials/read	During server registration, this api is called to get the credentials for onboarding new servers.
Microsoft.ADHybridHealthService/services/servicemembers/datafreshness/read	For a given server, this API gets a list of datatypes that are being uploaded by the servers and the latest time for each upload.
Microsoft.ADHybridHealthService/services/servicemembers/exportstatus/read	Gets the Sync Export Error details for a given Sync Service.

ACTION	DESCRIPTION
Microsoft.ADHybridHealthService/services/servicemembers/metrics/read	Gets the list of connectors and run profile names for the given service and service member.
Microsoft.ADHybridHealthService/services/servicemembers/metrics/groups/read	Given a service, this API gets the metrics information. For example, this API can be used to get information related to: Extranet Account Lockouts, Total Failed Requests, Outstanding Token Requests (Proxy), Token Requests /sec etc for ADFederation service. NTLM Authentications/sec, LDAP Successful Binds/sec, LDAP Bind Time, LDAP Active Threads, Kerberos Authentications/sec, ATQ Threads Total etc for ADDomain Service. Run Profile Latency, TCP Connections Established, Insights Agent Private Bytes, Export Statistics to Azure AD for Sync Service.
Microsoft.ADHybridHealthService/services/servicemembers/serviceconfiguration/read	Gets service configuration for a given tenant.
Microsoft.ADHybridHealthService/services/tenantwhitelisting/read	Gets feature whitelisting status for a given tenant.

## Microsoft.AzureActiveDirectory

Azure service: [Azure Active Directory B2C](#)

ACTION	DESCRIPTION
Microsoft.AzureActiveDirectory/register/action	Register subscription for Microsoft.AzureActiveDirectory resource provider
Microsoft.AzureActiveDirectory/b2cDirectories/write	Create or update B2C Directory resource
Microsoft.AzureActiveDirectory/b2cDirectories/read	View B2C Directory resource
Microsoft.AzureActiveDirectory/b2cDirectories/delete	Delete B2C Directory resource
Microsoft.AzureActiveDirectory/b2ctenants/read	Lists all B2C tenants where the user is a member
Microsoft.AzureActiveDirectory/guestUsages/write	Create or update Guest Usages resource
Microsoft.AzureActiveDirectory/guestUsages/read	View Guest Usages resource
Microsoft.AzureActiveDirectory/guestUsages/delete	Delete Guest Usages resource
Microsoft.AzureActiveDirectory/operations/read	Read all API operations available for Microsoft.AzureActiveDirectory resource provider

## Microsoft.ManagedIdentity

Azure service: [Managed identities for Azure resources](#)

ACTION	DESCRIPTION

ACTION	DESCRIPTION
Microsoft.ManagedIdentity/register/action	Registers the subscription for the managed identity resource provider
Microsoft.ManagedIdentity/identities/read	Gets an existing system assigned identity
Microsoft.ManagedIdentity/operations/read	Lists operations available on Microsoft.ManagedIdentity resource provider
Microsoft.ManagedIdentity/userAssignedIdentities/read	Gets an existing user assigned identity
Microsoft.ManagedIdentity/userAssignedIdentities/write	Creates a new user assigned identity or updates the tags associated with an existing user assigned identity
Microsoft.ManagedIdentity/userAssignedIdentities/delete	Deletes an existing user assigned identity
Microsoft.ManagedIdentity/userAssignedIdentities/assign/action	RBAC action for assigning an existing user assigned identity to a resource

## Security

### Microsoft.KeyVault

Azure service: [Key Vault](#)

ACTION	DESCRIPTION
Microsoft.KeyVault/register/action	Registers a subscription
Microsoft.KeyVault/unregister/action	Unregisters a subscription
Microsoft.KeyVault/checkNameAvailability/read	Checks that a key vault name is valid and is not in use
Microsoft.KeyVault/deletedVaults/read	View the properties of soft deleted key vaults
Microsoft.KeyVault/hsmPools/read	View the properties of an HSM pool
Microsoft.KeyVault/hsmPools/write	Create a new HSM pool or update the properties of an existing HSM pool
Microsoft.KeyVault/hsmPools/delete	Delete an HSM pool
Microsoft.KeyVault/hsmPools/joinVault/action	Join a key vault to an HSM pool
Microsoft.KeyVault/locations/deleteVirtualNetworkOrSubnets/action	Notifies Microsoft.KeyVault that a virtual network or subnet is being deleted
Microsoft.KeyVault/locations/deletedVaults/read	View the properties of a soft deleted key vault
Microsoft.KeyVault/locations/deletedVaults/purge/action	Purge a soft deleted key vault
Microsoft.KeyVault/locations/operationResults/read	Check the result of a long run operation

ACTION	DESCRIPTION
Microsoft.KeyVault/operations/read	Lists operations available on Microsoft.KeyVault resource provider
Microsoft.KeyVault/vaults/read	View the properties of a key vault
Microsoft.KeyVault/vaults/write	Create a new key vault or update the properties of an existing key vault
Microsoft.KeyVault/vaults/delete	Delete a key vault
Microsoft.KeyVault/vaults/deploy/action	Enables access to secrets in a key vault when deploying Azure resources
Microsoft.KeyVault/vaults/accessPolicies/write	Update an existing access policy by merging or replacing, or add a new access policy to a vault.
Microsoft.KeyVault/vaults/eventGridFilters/read	Notifies Microsoft.KeyVault that an EventGrid Subscription for Key Vault is being viewed
Microsoft.KeyVault/vaults/eventGridFilters/write	Notifies Microsoft.KeyVault that a new EventGrid Subscription for Key Vault is being created
Microsoft.KeyVault/vaults/eventGridFilters/delete	Notifies Microsoft.KeyVault that an EventGrid Subscription for Key Vault is being deleted
Microsoft.KeyVault/vaults/secrets/read	View the properties of a secret, but not its value.
Microsoft.KeyVault/vaults/secrets/write	Create a new secret or update the value of an existing secret.
DataAction	Description
Microsoft.KeyVault/vaults/certificatecas/delete	Delete Certificate Issuer
Microsoft.KeyVault/vaults/certificatecas/read	Read Certificate Issuer
Microsoft.KeyVault/vaults/certificatecas/write	Write Certificate Issuer
Microsoft.KeyVault/vaults/certificatecontacts/write	Manage Certificate Contact
Microsoft.KeyVault/vaults/certificates/delete	Delete a certificate.
Microsoft.KeyVault/vaults/certificates/read	List certificates in a specified key vault, or get information about a certificate.
Microsoft.KeyVault/vaults/certificates/backup/action	Create the backup file of a certificate. The file can be used to restore the certificate in a Key Vault of same subscription. Restrictions may apply.
Microsoft.KeyVault/vaults/certificates/purge/action	Purges a certificate, making it unrecoverable.
Microsoft.KeyVault/vaults/certificates/update/action	Updates the specified attributes associated with the given certificate.

ACTION	DESCRIPTION
Microsoft.KeyVault/vaults/certificates/create/action	Creates a new certificate.
Microsoft.KeyVault/vaults/certificates/import/action	Imports an existing valid certificate, containing a private key, into Azure Key Vault. The certificate to be imported can be in either PFX or PEM format.
Microsoft.KeyVault/vaults/certificates/recover/action	Recovers the deleted certificate. The operation performs the reversal of the Delete operation. The operation is applicable in vaults enabled for soft-delete, and must be issued during the retention interval.
Microsoft.KeyVault/vaults/certificates/restore/action	Restores a backed up certificate, and all its versions, to a vault.
Microsoft.KeyVault/vaults/keys/read	List keys in the specified vault, or read properties and public material of a key. For asymmetric keys, this operation exposes public key and includes ability to perform public key algorithms such as encrypt and verify signature. Private keys and symmetric keys are never exposed.
Microsoft.KeyVault/vaults/keys/update/action	Updates the specified attributes associated with the given key.
Microsoft.KeyVault/vaults/keys/create/action	Creates a new key.
Microsoft.KeyVault/vaults/keys/import/action	Imports an externally created key, stores it, and returns key parameters and attributes to the client.
Microsoft.KeyVault/vaults/keys/recover/action	Recovers the deleted key. The operation performs the reversal of the Delete operation. The operation is applicable in vaults enabled for soft-delete, and must be issued during the retention interval.
Microsoft.KeyVault/vaults/keys/restore/action	Restores a backed up key, and all its versions, to a vault.
Microsoft.KeyVault/vaults/keys/delete	Delete a key.
Microsoft.KeyVault/vaults/keys/backup/action	Create the backup file of a key. The file can be used to restore the key in a Key Vault of same subscription. Restrictions may apply.
Microsoft.KeyVault/vaults/keys/purge/action	Purges a key, making it unrecoverable.
Microsoft.KeyVault/vaults/keys/encrypt/action	Encrypt plaintext with a key. Note that if the key is asymmetric, this operation can be performed by principals with read access.
Microsoft.KeyVault/vaults/keys/decrypt/action	Decrypt ciphertext with a key.
Microsoft.KeyVault/vaults/keys/wrap/action	Wrap a symmetric key with a Key Vault key. Note that if the Key Vault key is asymmetric, this operation can be performed with read access.

ACTION	DESCRIPTION
Microsoft.KeyVault/vaults/keys/unwrap/action	Unwrap a symmetric key with a Key Vault key.
Microsoft.KeyVault/vaults/keys/sign/action	Sign a hash with a key.
Microsoft.KeyVault/vaults/keys/verify/action	Verify a hash. Note that if the key is asymmetric, this operation can be performed by principals with read access.
Microsoft.KeyVault/vaults/secrets/delete	Delete a secret.
Microsoft.KeyVault/vaults/secrets/backup/action	Create the backup file of a secret. The file can be used to restore the secret in a Key Vault of same subscription. Restrictions may apply.
Microsoft.KeyVault/vaults/secrets/purge/action	Purges a secret, making it unrecoverable.
Microsoft.KeyVault/vaults/secrets/update/action	Updates the specified attributes associated with the given secret.
Microsoft.KeyVault/vaults/secrets/recover/action	Recovering the deleted secret. The operation performs the reversal of the Delete operation. The operation is applicable in vaults enabled for soft-delete, and must be issued during the retention interval.
Microsoft.KeyVault/vaults/secrets/restore/action	Restores a backed up secret, and all its versions, to a vault.
Microsoft.KeyVault/vaults/secrets/readMetadata/action	List or view the properties of a secret, but not its value.
Microsoft.KeyVault/vaults/secrets/getSecret/action	Get the value of a secret.
Microsoft.KeyVault/vaults/secrets/setSecret/action	Create new secret.
Microsoft.KeyVault/vaults/storageaccounts/read	Read definition of managed storage accounts and SAS.
Microsoft.KeyVault/vaults/storageaccounts/set/action	Create or update the definition of a managed storage account.
Microsoft.KeyVault/vaults/storageaccounts/delete	Delete the definition of a managed storage account.
Microsoft.KeyVault/vaults/storageaccounts/backup/action	Create a backup of the definition of a managed storage account and its SAS (Shared Access Signature).
Microsoft.KeyVault/vaults/storageaccounts/purge/action	Purge the soft-deleted definition of a managed storage account or SAS (Shared Access Signature).
Microsoft.KeyVault/vaults/storageaccounts/regeneratekey/action	Regenerate the access key of a managed storage account.
Microsoft.KeyVault/vaults/storageaccounts/recover/action	Recover the soft-deleted definition of a managed storage account or SAS (Shared Access Signature).
Microsoft.KeyVault/vaults/storageaccounts/restore/action	Restores the definition of a managed storage account and its SAS (Shared Access Signature).

ACTION	DESCRIPTION
Microsoft.KeyVault/vaults/storageaccounts/sas/set/action	Create or update the SAS (Shared Access Signature) definition for a managed storage account.
Microsoft.KeyVault/vaults/storageaccounts/sas/delete	Delete the SAS (Shared Access Signature) definition for a managed storage account.

## Microsoft.Security

Azure service: [Security Center](#)

ACTION	DESCRIPTION
Microsoft.Security/register/action	Registers the subscription for Azure Security Center
Microsoft.Security/unregister/action	Unregisters the subscription from Azure Security Center
Microsoft.Security/adaptiveNetworkHardenings/read	Gets Adaptive Network Hardening recommendations of an Azure protected resource
Microsoft.Security/adaptiveNetworkHardenings/enforce/actio n	Enforces the given traffic hardening rules by creating matching security rules on the given Network Security Group(s)
Microsoft.Security/advancedThreatProtectionSettings/read	Gets the Advanced Threat Protection Settings for the resource
Microsoft.Security/advancedThreatProtectionSettings/write	Updates the Advanced Threat Protection Settings for the resource
Microsoft.Security/alerts/read	Gets all available security alerts
Microsoft.Security/applicationWhitelisting/read	Gets the application whitelisting
Microsoft.Security/applicationWhitelisting/write	Creates a new application whitelisting or updates an existing one
Microsoft.Security/assessmentMetadata/read	Get available security assessment metadata on your subscription
Microsoft.Security/assessmentMetadata/write	Create or update a security assessment metadata
Microsoft.Security/assessments/read	Get security assessments on your subscription
Microsoft.Security/assessments/write	Create or update security assessments on your subscription
Microsoft.Security/automations/read	Gets the automations for the scope
Microsoft.Security/automations/write	Creates or updates the automation for the scope
Microsoft.Security/automations/delete	Deletes the automation for the scope
Microsoft.Security/automations/validate/action	Validates the automation model for the scope

ACTION	DESCRIPTION
Microsoft.Security/autoProvisioningSettings/read	Get security auto provisioning setting for the subscription
Microsoft.Security/autoProvisioningSettings/write	Create or update security auto provisioning setting for the subscription
Microsoft.Security/complianceResults/read	Gets the compliance results for the resource
Microsoft.Security/deviceSecurityGroups/write	Creates or updates IoT device security groups
Microsoft.Security/deviceSecurityGroups/delete	Deletes IoT device security groups
Microsoft.Security/deviceSecurityGroups/read	Gets IoT device security groups
Microsoft.Security/informationProtectionPolicies/read	Gets the information protection policies for the resource
Microsoft.Security/informationProtectionPolicies/write	Updates the information protection policies for the resource
Microsoft.Security/iotSecuritySolutions/write	Creates or updates IoT security solutions
Microsoft.Security/iotSecuritySolutions/delete	Deletes IoT security solutions
Microsoft.Security/iotSecuritySolutions/read	Gets IoT security solutions
Microsoft.Security/iotSecuritySolutions/analyticsModels/read	Gets IoT security analytics model
Microsoft.Security/iotSecuritySolutions/analyticsModels/aggregatedAlerts/read	Gets IoT aggregated alerts
Microsoft.Security/iotSecuritySolutions/analyticsModels/aggregatedAlerts/dismiss/action	Dismisses IoT aggregated alerts
Microsoft.Security/iotSecuritySolutions/analyticsModels/aggregatedRecommendations/read	Gets IoT aggregated recommendations
Microsoft.Security/locations/read	Gets the security data location
Microsoft.Security/locations/alerts/read	Gets all available security alerts
Microsoft.Security/locations/alerts/dismiss/action	Dismiss a security alert
Microsoft.Security/locations/alerts/activate/action	Activate a security alert
Microsoft.Security/locations/jitNetworkAccessPolicies/read	Gets the just-in-time network access policies
Microsoft.Security/locations/jitNetworkAccessPolicies/write	Creates a new just-in-time network access policy or updates an existing one
Microsoft.Security/locations/jitNetworkAccessPolicies/delete	Deletes the just-in-time network access policy
Microsoft.Security/locations/jitNetworkAccessPolicies/initiate/action	Initiates a just-in-time network access policy request

ACTION	DESCRIPTION
Microsoft.Security/locations/tasks/read	Gets all available security recommendations
Microsoft.Security/locations/tasks/start/action	Start a security recommendation
Microsoft.Security/locations/tasks/resolve/action	Resolve a security recommendation
Microsoft.Security/locations/tasks/activate/action	Activate a security recommendation
Microsoft.Security/locations/tasks/dDismiss/action	Dismiss a security recommendation
Microsoft.Security/policies/read	Gets the security policy
Microsoft.Security/policies/write	Updates the security policy
Microsoft.Security/pricings/read	Gets the pricing settings for the scope
Microsoft.Security/pricings/write	Updates the pricing settings for the scope
Microsoft.Security/pricings/delete	Deletes the pricing settings for the scope
Microsoft.Security/securityContacts/read	Gets the security contact
Microsoft.Security/securityContacts/write	Updates the security contact
Microsoft.Security/securityContacts/delete	Deletes the security contact
Microsoft.Security/securitySolutions/read	Gets the security solutions
Microsoft.Security/securitySolutions/write	Creates a new security solution or updates an existing one
Microsoft.Security/securitySolutions/delete	Deletes a security solution
Microsoft.Security/securitySolutionsReferenceData/read	Gets the security solutions reference data
Microsoft.Security/securityStatuses/read	Gets the security health statuses for Azure resources
Microsoft.Security/securityStatusesSummaries/read	Gets the security statuses summaries for the scope
Microsoft.Security/settings/read	Gets the settings for the scope
Microsoft.Security/settings/write	Updates the settings for the scope
Microsoft.Security/tasks/read	Gets all available security recommendations
Microsoft.Security/webApplicationFirewalls/read	Gets the web application firewalls
Microsoft.Security/webApplicationFirewalls/write	Creates a new web application firewall or updates an existing one
Microsoft.Security/webApplicationFirewalls/delete	Deletes a web application firewall

ACTION	DESCRIPTION
Microsoft.Security/workspaceSettings/read	Gets the workspace settings
Microsoft.Security/workspaceSettings/write	Updates the workspace settings
Microsoft.Security/workspaceSettings/delete	Deletes the workspace settings
Microsoft.Security/workspaceSettings/connect/action	Change workspace settings reconnection settings

## Microsoft.SecurityGraph

Azure service: Microsoft Monitoring Insights

ACTION	DESCRIPTION
Microsoft.SecurityGraph/diagnosticsettings/write	Writing a diagnostic setting
Microsoft.SecurityGraph/diagnosticsettings/read	Reading a diagnostic setting
Microsoft.SecurityGraph/diagnosticsettings/delete	Deleting a diagnostic setting
Microsoft.SecurityGraph/diagnosticsettingscategories/read	Reading a diagnostic setting categories

## Microsoft.SecurityInsights

Azure service: [Azure Sentinel](#)

ACTION	DESCRIPTION
Microsoft.SecurityInsights/register/action	Registers the subscription to Azure Sentinel
Microsoft.SecurityInsights/unregister/action	Unregisters the subscription from Azure Sentinel
Microsoft.SecurityInsights/dataConnectorsCheckRequirements/action	Check user authorization and license
Microsoft.SecurityInsights/Aggregations/read	Gets aggregated information
Microsoft.SecurityInsights/alertRules/read	Gets the alert rules
Microsoft.SecurityInsights/alertRules/write	Updates alert rules
Microsoft.SecurityInsights/alertRules/delete	Deletes alert rules
Microsoft.SecurityInsights/alertRules/actions/read	Gets the response actions of an alert rule
Microsoft.SecurityInsights/alertRules/actions/write	Updates the response actions of an alert rule
Microsoft.SecurityInsights/alertRules/actions/delete	Deletes the response actions of an alert rule
Microsoft.SecurityInsights/Bookmarks/read	Gets bookmarks
Microsoft.SecurityInsights/Bookmarks/write	Updates bookmarks

ACTION	DESCRIPTION
Microsoft.SecurityInsights/Bookmarks/delete	Deletes bookmarks
Microsoft.SecurityInsights/Bookmarks/expand/action	Gets related entities of an entity by a specific expansion
Microsoft.SecurityInsights/bookmarks/relations/read	Gets a bookmark relation
Microsoft.SecurityInsights/bookmarks/relations/write	Updates a bookmark relation
Microsoft.SecurityInsights/bookmarks/relations/delete	Deletes a bookmark relation
Microsoft.SecurityInsights/cases/read	Gets a case
Microsoft.SecurityInsights/cases/write	Updates a case
Microsoft.SecurityInsights/cases/delete	Deletes a case
Microsoft.SecurityInsights/cases/comments/read	Gets the case comments
Microsoft.SecurityInsights/cases/comments/write	Creates the case comments
Microsoft.SecurityInsights/cases/investigations/read	Gets the case investigations
Microsoft.SecurityInsights/cases/investigations/write	Updates the metadata of a case
Microsoft.SecurityInsights/dataConnectors/read	Gets the data connectors
Microsoft.SecurityInsights/dataConnectors/write	Updates a data connector
Microsoft.SecurityInsights/dataConnectors/delete	Deletes a data connector
Microsoft.SecurityInsights/entities/read	Gets the sentinel entities graph
Microsoft.SecurityInsights/entities/relations/read	Gets a relation between the entity and related resources
Microsoft.SecurityInsights/entities/relations/write	Updates a relation between the entity and related resources
Microsoft.SecurityInsights/entities/relations/delete	Deletes a relation between the entity and related resources
Microsoft.SecurityInsights/entityQueries/read	Gets the investigation expansions for entities
Microsoft.SecurityInsights/incidents/read	Gets an incident
Microsoft.SecurityInsights/incidents/write	Updates an incident
Microsoft.SecurityInsights/incidents/delete	Deletes an incident
Microsoft.SecurityInsights/incidents/comments/read	Gets the incident comments
Microsoft.SecurityInsights/incidents/comments/write	Creates a comment on the incident

ACTION	DESCRIPTION
Microsoft.SecurityInsights/incidents/relations/read	Gets a relation between the incident and related resources
Microsoft.SecurityInsights/incidents/relations/write	Updates a relation between the incident and related resources
Microsoft.SecurityInsights/incidents/relations/delete	Deletes a relation between the incident and related resources
Microsoft.SecurityInsights/officeConsents/read	Gets consents from Microsoft Office
Microsoft.SecurityInsights/officeConsents/delete	Deletes consents from Microsoft Office
Microsoft.SecurityInsights/operations/read	Gets operations
Microsoft.SecurityInsights/settings/read	Gets settings
Microsoft.SecurityInsights/settings/write	Updates settings
Microsoft.SecurityInsights/settings/delete	Deletes setting
Microsoft.SecurityInsights/threatintelligence/read	Gets Threat Intelligence
Microsoft.SecurityInsights/threatintelligence/write	Updates Threat Intelligence
Microsoft.SecurityInsights/threatintelligence/delete	Deletes Threat Intelligence
Microsoft.SecurityInsights/threatintelligence/query/action	Query Threat Intelligence
Microsoft.SecurityInsights/threatintelligence/metrics/action	Collect Threat Intelligence Metrics
Microsoft.SecurityInsights/threatintelligence/bulkDelete/action	Bulk Delete Threat Intelligence
Microsoft.SecurityInsights/threatintelligence/bulkTag/action	Bulk Tags Threat Intelligence

## DevOps

### Microsoft.DevTestLab

Azure service: [Azure Lab Services](#)

ACTION	DESCRIPTION
Microsoft.DevTestLab/register/action	Registers the subscription
Microsoft.DevTestLab/labCenters/delete	Delete lab centers.
Microsoft.DevTestLab/labCenters/read	Read lab centers.
Microsoft.DevTestLab/labCenters/write	Add or modify lab centers.

ACTION	DESCRIPTION
Microsoft.DevTestLab/labs/delete	Delete labs.
Microsoft.DevTestLab/labs/read	Read labs.
Microsoft.DevTestLab/labs/write	Add or modify labs.
Microsoft.DevTestLab/labs/ListVhds/action	List disk images available for custom image creation.
Microsoft.DevTestLab/labs/GenerateUploadUri/action	Generate a URI for uploading custom disk images to a Lab.
Microsoft.DevTestLab/labs/CreateEnvironment/action	Create virtual machines in a lab.
Microsoft.DevTestLab/labs/ClaimAnyVm/action	Claim a random claimable virtual machine in the lab.
Microsoft.DevTestLab/labs/ExportResourceUsage/action	Exports the lab resource usage into a storage account
Microsoft.DevTestLab/labs/ImportVirtualMachine/action	Import a virtual machine into a different lab.
Microsoft.DevTestLab/labs/EnsureCurrentUserProfile/action	Ensure the current user has a valid profile in the lab.
Microsoft.DevTestLab/labs/artifactSources/delete	Delete artifact sources.
Microsoft.DevTestLab/labs/artifactSources/read	Read artifact sources.
Microsoft.DevTestLab/labs/artifactSources/write	Add or modify artifact sources.
Microsoft.DevTestLab/labs/artifactSources/armTemplates/read	Read azure resource manager templates.
Microsoft.DevTestLab/labs/artifactSources/artifacts/read	Read artifacts.
Microsoft.DevTestLab/labs/artifactSources/artifacts/GenerateArmTemplate/action	Generates an Azure Resource Manager template for the given artifact, uploads the required files to a storage account, and validates the generated artifact.
Microsoft.DevTestLab/labs/costs/read	Read costs.
Microsoft.DevTestLab/labs/costs/write	Add or modify costs.
Microsoft.DevTestLab/labs/customImages/delete	Delete custom images.
Microsoft.DevTestLab/labs/customImages/read	Read custom images.
Microsoft.DevTestLab/labs/customImages/write	Add or modify custom images.
Microsoft.DevTestLab/labs/formulas/delete	Delete formulas.
Microsoft.DevTestLab/labs/formulas/read	Read formulas.
Microsoft.DevTestLab/labs/formulas/write	Add or modify formulas.

ACTION	DESCRIPTION
Microsoft.DevTestLab/labs/gallery/Images/read	Read gallery images.
Microsoft.DevTestLab/labs/notificationChannels/delete	Delete notification channels.
Microsoft.DevTestLab/labs/notificationChannels/read	Read notification channels.
Microsoft.DevTestLab/labs/notificationChannels/write	Add or modify notification channels.
Microsoft.DevTestLab/labs/notificationChannels/Notify/action	Send notification to provided channel.
Microsoft.DevTestLab/labs/policySets/read	Read policy sets.
Microsoft.DevTestLab/labs/policySets/EvaluatePolicies/action	Evaluates lab policy.
Microsoft.DevTestLab/labs/policySets/policies/delete	Delete policies.
Microsoft.DevTestLab/labs/policySets/policies/read	Read policies.
Microsoft.DevTestLab/labs/policySets/policies/write	Add or modify policies.
Microsoft.DevTestLab/labs/schedules/delete	Delete schedules.
Microsoft.DevTestLab/labs/schedules/read	Read schedules.
Microsoft.DevTestLab/labs/schedules/write	Add or modify schedules.
Microsoft.DevTestLab/labs/schedules/Execute/action	Execute a schedule.
Microsoft.DevTestLab/labs/schedules/ListApplicable/action	Lists all applicable schedules
Microsoft.DevTestLab/labs/serviceRunners/delete	Delete service runners.
Microsoft.DevTestLab/labs/serviceRunners/read	Read service runners.
Microsoft.DevTestLab/labs/serviceRunners/write	Add or modify service runners.
Microsoft.DevTestLab/labs/sharedGalleries/delete	Delete shared galleries.
Microsoft.DevTestLab/labs/sharedGalleries/read	Read shared galleries.
Microsoft.DevTestLab/labs/sharedGalleries/write	Add or modify shared galleries.
Microsoft.DevTestLab/labs/sharedGalleries/sharedImages/delete	Delete shared images.
Microsoft.DevTestLab/labs/sharedGalleries/sharedImages/read	Read shared images.
Microsoft.DevTestLab/labs/sharedGalleries/sharedImages/write	Add or modify shared images.

ACTION	DESCRIPTION
Microsoft.DevTestLab/labs/users/delete	Delete user profiles.
Microsoft.DevTestLab/labs/users/read	Read user profiles.
Microsoft.DevTestLab/labs/users/write	Add or modify user profiles.
Microsoft.DevTestLab/labs/users/disks/delete	Delete disks.
Microsoft.DevTestLab/labs/users/disks/read	Read disks.
Microsoft.DevTestLab/labs/users/disks/write	Add or modify disks.
Microsoft.DevTestLab/labs/users/disks/Attach/action	Attach and create the lease of the disk to the virtual machine.
Microsoft.DevTestLab/labs/users/disks/Detach/action	Detach and break the lease of the disk attached to the virtual machine.
Microsoft.DevTestLab/labs/users/environments/delete	Delete environments.
Microsoft.DevTestLab/labs/users/environments/read	Read environments.
Microsoft.DevTestLab/labs/users/environments/write	Add or modify environments.
Microsoft.DevTestLab/labs/users/secrets/delete	Delete secrets.
Microsoft.DevTestLab/labs/users/secrets/read	Read secrets.
Microsoft.DevTestLab/labs/users/secrets/write	Add or modify secrets.
Microsoft.DevTestLab/labs/users/serviceFabrics/delete	Delete service fabrics.
Microsoft.DevTestLab/labs/users/serviceFabrics/read	Read service fabrics.
Microsoft.DevTestLab/labs/users/serviceFabrics/write	Add or modify service fabrics.
Microsoft.DevTestLab/labs/users/serviceFabrics/Start/action	Start a service fabric.
Microsoft.DevTestLab/labs/users/serviceFabrics/Stop/action	Stop a service fabric
Microsoft.DevTestLab/labs/users/serviceFabrics/ListApplicableSchedules/action	Lists the applicable start/stop schedules, if any.
Microsoft.DevTestLab/labs/users/serviceFabrics/schedules/delete	Delete schedules.
Microsoft.DevTestLab/labs/users/serviceFabrics/schedules/read	Read schedules.
Microsoft.DevTestLab/labs/users/serviceFabrics/schedules/write	Add or modify schedules.

ACTION	DESCRIPTION
Microsoft.DevTestLab/labs/users/serviceFabrics/schedules/Execute/action	Execute a schedule.
Microsoft.DevTestLab/labs/virtualMachines/delete	Delete virtual machines.
Microsoft.DevTestLab/labs/virtualMachines/read	Read virtual machines.
Microsoft.DevTestLab/labs/virtualMachines/write	Add or modify virtual machines.
Microsoft.DevTestLab/labs/virtualMachines/AddDataDisk/action	Attach a new or existing data disk to virtual machine.
Microsoft.DevTestLab/labs/virtualMachines/ApplyArtifacts/action	Apply artifacts to virtual machine.
Microsoft.DevTestLab/labs/virtualMachines/Claim/action	Take ownership of an existing virtual machine
Microsoft.DevTestLab/labs/virtualMachines/ClearArtifactResults/action	Clears the artifact results of the virtual machine.
Microsoft.DevTestLab/labs/virtualMachines/DetachDataDisk/action	Detach the specified disk from the virtual machine.
Microsoft.DevTestLab/labs/virtualMachines/GetRdpFileContents/action	Gets a string that represents the contents of the RDP file for the virtual machine
Microsoft.DevTestLab/labs/virtualMachines/ListApplicableSchedules/action	Lists the applicable start/stop schedules, if any.
Microsoft.DevTestLab/labs/virtualMachines/Redeploy/action	Redeploy a virtual machine
Microsoft.DevTestLab/labs/virtualMachines/Resize/action	Resize Virtual Machine.
Microsoft.DevTestLab/labs/virtualMachines/Restart/action	Restart a virtual machine.
Microsoft.DevTestLab/labs/virtualMachines/Start/action	Start a virtual machine.
Microsoft.DevTestLab/labs/virtualMachines/Stop/action	Stop a virtual machine
Microsoft.DevTestLab/labs/virtualMachines/TransferDisks/action	Transfers all data disks attached to the virtual machine to be owned by the current user.
Microsoft.DevTestLab/labs/virtualMachines/UnClaim/action	Release ownership of an existing virtual machine
Microsoft.DevTestLab/labs/virtualMachines/schedules/delete	Delete schedules.
Microsoft.DevTestLab/labs/virtualMachines/schedules/read	Read schedules.
Microsoft.DevTestLab/labs/virtualMachines/schedules/write	Add or modify schedules.
Microsoft.DevTestLab/labs/virtualMachines/schedules/Execute/action	Execute a schedule.

ACTION	DESCRIPTION
Microsoft.DevTestLab/labs/virtualNetworks/delete	Delete virtual networks.
Microsoft.DevTestLab/labs/virtualNetworks/read	Read virtual networks.
Microsoft.DevTestLab/labs/virtualNetworks/write	Add or modify virtual networks.
Microsoft.DevTestLab/labs/virtualNetworks/bastionHosts/delete	Delete bastionhosts.
Microsoft.DevTestLab/labs/virtualNetworks/bastionHosts/read	Read bastionhosts.
Microsoft.DevTestLab/labs/virtualNetworks/bastionHosts/write	Add or modify bastionhosts.
Microsoft.DevTestLab/labs/vmPools/delete	Delete virtual machine pools.
Microsoft.DevTestLab/labs/vmPools/read	Read virtual machine pools.
Microsoft.DevTestLab/labs/vmPools/write	Add or modify virtual machine pools.
Microsoft.DevTestLab/locations/operations/read	Read operations.
Microsoft.DevTestLab/schedules/delete	Delete schedules.
Microsoft.DevTestLab/schedules/read	Read schedules.
Microsoft.DevTestLab/schedules/write	Add or modify schedules.
Microsoft.DevTestLab/schedules/Execute/action	Execute a schedule.
Microsoft.DevTestLab/schedules/Retarget/action	Updates a schedule's target resource Id.

## Microsoft.LabServices

Azure service: [Azure Lab Services](#)

ACTION	DESCRIPTION
Microsoft.LabServices/register/action	Registers the subscription
Microsoft.LabServices/labAccounts/delete	Delete lab accounts.
Microsoft.LabServices/labAccounts/read	Read lab accounts.
Microsoft.LabServices/labAccounts/write	Add or modify lab accounts.
Microsoft.LabServices/labAccounts/CreateLab/action	Create a lab in a lab account.
Microsoft.LabServices/labAccounts/GetRegionalAvailability/action	Get regional availability information for each size category configured under a lab account

ACTION	DESCRIPTION
Microsoft.LabServices/labAccounts/GetPricingAndAvailability /action	Get the pricing and availability of combinations of sizes, geographies, and operating systems for the lab account.
Microsoft.LabServices/labAccounts/GetRestrictionsAndUsage /action	Get core restrictions and usage for this subscription
Microsoft.LabServices/labAccounts/galleryImages/delete	Delete gallery images.
Microsoft.LabServices/labAccounts/galleryImages/read	Read gallery images.
Microsoft.LabServices/labAccounts/galleryImages/write	Add or modify gallery images.
Microsoft.LabServices/labAccounts/labs/delete	Delete labs.
Microsoft.LabServices/labAccounts/labs/read	Read labs.
Microsoft.LabServices/labAccounts/labs/write	Add or modify labs.
Microsoft.LabServices/labAccounts/labs/AddUsers/action	Add users to a lab
Microsoft.LabServices/labAccounts/labs/SendEmail/action	Send email with registration link to the lab
Microsoft.LabServices/labAccounts/labs/GetLabPricingAndAvailability/action	Get the pricing per lab unit for this lab and the availability which indicates if this lab can scale up.
Microsoft.LabServices/labAccounts/labs/environmentSettings /delete	Delete environment setting.
Microsoft.LabServices/labAccounts/labs/environmentSettings /read	Read environment setting.
Microsoft.LabServices/labAccounts/labs/environmentSettings /write	Add or modify environment setting.
Microsoft.LabServices/labAccounts/labs/environmentSettings /Publish/action	Provisions/deprovisions required resources for an environment setting based on current state of the lab/environment setting.
Microsoft.LabServices/labAccounts/labs/environmentSettings /Start/action	Starts a template by starting all resources inside the template.
Microsoft.LabServices/labAccounts/labs/environmentSettings /Stop/action	Stops a template by stopping all resources inside the template.
Microsoft.LabServices/labAccounts/labs/environmentSettings /SaveImage/action	Saves current template image to the shared gallery in the lab account
Microsoft.LabServices/labAccounts/labs/environmentSettings /ResetPassword/action	Resets password on the template virtual machine.
Microsoft.LabServices/labAccounts/labs/environmentSettings /environments/delete	Delete environments.

ACTION	DESCRIPTION
Microsoft.LabServices/labAccounts/labs/environmentSettings /environments/read	Read environments.
Microsoft.LabServices/labAccounts/labs/environmentSettings /environments/Start/action	Starts an environment by starting all resources inside the environment.
Microsoft.LabServices/labAccounts/labs/environmentSettings /environments/Stop/action	Stops an environment by stopping all resources inside the environment
Microsoft.LabServices/labAccounts/labs/environmentSettings /environments/ResetPassword/action	Resets the user password on an environment
Microsoft.LabServices/labAccounts/labs/environmentSettings /schedules/delete	Delete schedules.
Microsoft.LabServices/labAccounts/labs/environmentSettings /schedules/read	Read schedules.
Microsoft.LabServices/labAccounts/labs/environmentSettings /schedules/write	Add or modify schedules.
Microsoft.LabServices/labAccounts/labs/users/delete	Delete users.
Microsoft.LabServices/labAccounts/labs/users/read	Read users.
Microsoft.LabServices/labAccounts/labs/users/write	Add or modify users.
Microsoft.LabServices/labAccounts/sharedGalleries/delete	Delete sharedgalleries.
Microsoft.LabServices/labAccounts/sharedGalleries/read	Read sharedgalleries.
Microsoft.LabServices/labAccounts/sharedGalleries/write	Add or modify sharedgalleries.
Microsoft.LabServices/labAccounts/sharedImages/delete	Delete sharedimages.
Microsoft.LabServices/labAccounts/sharedImages/read	Read sharedimages.
Microsoft.LabServices/labAccounts/sharedImages/write	Add or modify sharedimages.
Microsoft.LabServices/locations/operations/read	Read operations.
Microsoft.LabServices/users/Register/action	Register a user to a managed lab
Microsoft.LabServices/users/ListAllEnvironments/action	List all Environments for the user
Microsoft.LabServices/users/StartEnvironment/action	Starts an environment by starting all resources inside the environment.
Microsoft.LabServices/users/StopEnvironment/action	Stops an environment by stopping all resources inside the environment
Microsoft.LabServices/users/ResetPassword/action	Resets the user password on an environment

ACTION	DESCRIPTION
Microsoft.LabServices/users/UserSettings/action	Updates and returns personal user settings.

## Microsoft.VisualStudio

Azure service: [Azure DevOps](#)

ACTION	DESCRIPTION
Microsoft.VisualStudio/Register>Action	Register Azure Subscription with Microsoft.VisualStudio provider
Microsoft.VisualStudio/Account/Write	Set Account
Microsoft.VisualStudio/Account/Delete	Delete Account
Microsoft.VisualStudio/Account/Read	Read Account
Microsoft.VisualStudio/Account/Extension/Read	Read Account/Extension
Microsoft.VisualStudio/Account/Project/Read	Read Account/Project
Microsoft.VisualStudio/Account/Project/Write	Set Account/Project
Microsoft.VisualStudio/Extension/Write	Set Extension
Microsoft.VisualStudio/Extension/Delete	Delete Extension
Microsoft.VisualStudio/Extension/Read	Read Extension
Microsoft.VisualStudio/Project/Write	Set Project
Microsoft.VisualStudio/Project/Delete	Delete Project
Microsoft.VisualStudio/Project/Read	Read Project

## Migrate

### Microsoft.Migrate

Azure service: [Azure Migrate](#)

ACTION	DESCRIPTION
Microsoft.Migrate/register/action	Registers Subscription with Microsoft.Migrate resource provider
Microsoft.Migrate/assessmentprojects/read	Gets the properties of assessment project
Microsoft.Migrate/assessmentprojects/write	Creates a new assessment project or updates an existing assessment project
Microsoft.Migrate/assessmentprojects/delete	Deletes the assessment project

ACTION	DESCRIPTION
Microsoft.Migrate/assessmentprojects/assessmentOptions/read	Gets the assessment options which are available in the given location
Microsoft.Migrate/assessmentprojects/assessments/read	Lists assessments within a project
Microsoft.Migrate/assessmentprojects/groups/read	Get the properties of a group
Microsoft.Migrate/assessmentprojects/groups/write	Creates a new group or updates an existing group
Microsoft.Migrate/assessmentprojects/groups/delete	Deletes a group
Microsoft.Migrate/assessmentprojects/groups/updateMachines/action	Update group by adding or removing machines
Microsoft.Migrate/assessmentprojects/groups/assessments/read	Gets the properties of an assessment
Microsoft.Migrate/assessmentprojects/groups/assessments/write	Creates a new assessment or updates an existing assessment
Microsoft.Migrate/assessmentprojects/groups/assessments/delete	Deletes an assessment
Microsoft.Migrate/assessmentprojects/groups/assessments/downloadurl/action	Downloads an assessment report's URL
Microsoft.Migrate/assessmentprojects/groups/assessments/assessedmachines/read	Get the properties of an assessed machine
Microsoft.Migrate/assessmentprojects/hypervcollectors/read	Gets the properties of HyperV collector
Microsoft.Migrate/assessmentprojects/hypervcollectors/write	Creates a new HyperV collector or updates an existing HyperV collector
Microsoft.Migrate/assessmentprojects/hypervcollectors/delete	Deletes the HyperV collector
Microsoft.Migrate/assessmentprojects/importcollectors/read	Gets the properties of Import collector
Microsoft.Migrate/assessmentprojects/importcollectors/write	Creates a new Import collector or updates an existing Import collector
Microsoft.Migrate/assessmentprojects/importcollectors/delete	Deletes the Import collector
Microsoft.Migrate/assessmentprojects/machines/read	Gets the properties of a machine
Microsoft.Migrate/assessmentprojects/servercollectors/read	Gets the properties of Server collector
Microsoft.Migrate/assessmentprojects/servercollectors/write	Creates a new Server collector or updates an existing Server collector

ACTION	DESCRIPTION
Microsoft.Migrate/assessmentprojects/vmwarecollectors/read	Gets the properties of VMware collector
Microsoft.Migrate/assessmentprojects/vmwarecollectors/write	Creates a new VMware collector or updates an existing VMware collector
Microsoft.Migrate/assessmentprojects/vmwarecollectors/delete	Deletes the VMware collector
Microsoft.Migrate/locations/checknameavailability/action	Checks availability of the resource name for the given subscription in the given location
Microsoft.Migrate/locations/assessmentOptions/read	Gets the assessment options which are available in the given location
Microsoft.Migrate/migrateprojects/read	Gets the properties of migrate project
Microsoft.Migrate/migrateprojects/write	Creates a new migrate project or updates an existing migrate project
Microsoft.Migrate/migrateprojects/delete	Deletes a migrate project
Microsoft.Migrate/migrateprojects/registerTool/action	Registers tool to a migrate project
Microsoft.Migrate/migrateprojects/RefreshSummary/action	Refreshes the migrate project summary
Microsoft.Migrate/migrateprojects/DatabaseInstances/read	Gets the properties of a database instance
Microsoft.Migrate/migrateprojects/Databases/read	Gets the properties of a database
Microsoft.Migrate/migrateprojects/machines/read	Gets the properties of a machine
Microsoft.Migrate/migrateprojects/MigrateEvents/read	Gets the properties of a migrate events.
Microsoft.Migrate/migrateprojects/MigrateEvents/Delete	Deletes a migrate event
Microsoft.Migrate/migrateprojects/solutions/read	Gets the properties of migrate project solution
Microsoft.Migrate/migrateprojects/solutions/write	Creates a new migrate project solution or updates an existing migrate project solution
Microsoft.Migrate/migrateprojects/solutions/Delete	Deletes a migrate project solution
Microsoft.Migrate/migrateprojects/solutions/getconfig/action	Gets the migrate project solution configuration
Microsoft.Migrate/migrateprojects/solutions/cleanupData/action	Clean up the migrate project solution data
Microsoft.Migrate/Operations/read	Lists operations available on Microsoft.Migrate resource provider

ACTION	DESCRIPTION
Microsoft.Migrate/projects/read	Gets the properties of a project
Microsoft.Migrate/projects/write	Creates a new project or updates an existing project
Microsoft.Migrate/projects/delete	Deletes the project
Microsoft.Migrate/projects/keys/action	Gets shared keys for the project
Microsoft.Migrate/projects/assessments/read	Lists assessments within a project
Microsoft.Migrate/projects/groups/read	Get the properties of a group
Microsoft.Migrate/projects/groups/write	Creates a new group or updates an existing group
Microsoft.Migrate/projects/groups/delete	Deletes a group
Microsoft.Migrate/projects/groups/assessments/read	Gets the properties of an assessment
Microsoft.Migrate/projects/groups/assessments/write	Creates a new assessment or updates an existing assessment
Microsoft.Migrate/projects/groups/assessments/delete	Deletes an assessment
Microsoft.Migrate/projects/groups/assessments/downloadurl /action	Downloads an assessment report's URL
Microsoft.Migrate/projects/groups/assessments/assessedma chines/read	Get the properties of an assessed machine
Microsoft.Migrate/projects/machines/read	Gets the properties of a machine

## Microsoft.OffAzure

Azure service: [Azure Migrate](#)

ACTION	DESCRIPTION
Microsoft.OffAzure/register/action	Registers Subscription with Microsoft.OffAzure resource provider
Microsoft.OffAzure/register/action	Registers Subscription with Microsoft.OffAzure resource provider
Microsoft.OffAzure/register/action	Registers Subscription with Microsoft.OffAzure resource provider
Microsoft.OffAzure/register/action	Registers Subscription with Microsoft.OffAzure resource provider
Microsoft.OffAzure/HyperVSites/read	Gets the properties of a Hyper-V site
Microsoft.OffAzure/HyperVSites/write	Creates or updates the Hyper-V site

ACTION	DESCRIPTION
Microsoft.OffAzure/HyperVSites/delete	Deletes the Hyper-V site
Microsoft.OffAzure/HyperVSites/refresh/action	Refreshes the objects within a Hyper-V site
Microsoft.OffAzure/HyperVSites/updateProperties/action	Updates the properties for machines in a site
Microsoft.OffAzure/HyperVSites/read	Gets the properties of a Hyper-V site
Microsoft.OffAzure/HyperVSites/write	Creates or updates the Hyper-V site
Microsoft.OffAzure/HyperVSites/delete	Deletes the Hyper-V site
Microsoft.OffAzure/HyperVSites/refresh/action	Refreshes the objects within a Hyper-V site
Microsoft.OffAzure/HyperVSites/updateProperties/action	Updates the properties for machines in a site
Microsoft.OffAzure/HyperVSites/read	Gets the properties of a Hyper-V site
Microsoft.OffAzure/HyperVSites/write	Creates or updates the Hyper-V site
Microsoft.OffAzure/HyperVSites/delete	Deletes the Hyper-V site
Microsoft.OffAzure/HyperVSites/refresh/action	Refreshes the objects within a Hyper-V site
Microsoft.OffAzure/HyperVSites/updateProperties/action	Updates the properties for machines in a site
Microsoft.OffAzure/HyperVSites/read	Gets the properties of a Hyper-V site
Microsoft.OffAzure/HyperVSites/write	Creates or updates the Hyper-V site
Microsoft.OffAzure/HyperVSites/delete	Deletes the Hyper-V site
Microsoft.OffAzure/HyperVSites/refresh/action	Refreshes the objects within a Hyper-V site
Microsoft.OffAzure/HyperVSites/updateProperties/action	Updates the properties for machines in a site
Microsoft.OffAzure/HyperVSites/clusters/read	Gets the properties of a Hyper-V cluster
Microsoft.OffAzure/HyperVSites/clusters/write	Creates or updates the Hyper-V cluster
Microsoft.OffAzure/HyperVSites/clusters/read	Gets the properties of a Hyper-V cluster
Microsoft.OffAzure/HyperVSites/clusters/write	Creates or updates the Hyper-V cluster
Microsoft.OffAzure/HyperVSites/clusters/read	Gets the properties of a Hyper-V cluster
Microsoft.OffAzure/HyperVSites/clusters/write	Creates or updates the Hyper-V cluster
Microsoft.OffAzure/HyperVSites/clusters/read	Gets the properties of a Hyper-V cluster

ACTION	DESCRIPTION
Microsoft.OffAzure/HyperVSites/clusters/write	Creates or updates the Hyper-V cluster
Microsoft.OffAzure/HyperVSites/healthsummary/read	Gets the health summary for Hyper-V resource
Microsoft.OffAzure/HyperVSites/healthsummary/read	Gets the health summary for Hyper-V resource
Microsoft.OffAzure/HyperVSites/healthsummary/read	Gets the health summary for Hyper-V resource
Microsoft.OffAzure/HyperVSites/healthsummary/read	Gets the health summary for Hyper-V resource
Microsoft.OffAzure/HyperVSites/hosts/read	Gets the properties of a Hyper-V host
Microsoft.OffAzure/HyperVSites/hosts/write	Creates or updates the Hyper-V host
Microsoft.OffAzure/HyperVSites/hosts/read	Gets the properties of a Hyper-V host
Microsoft.OffAzure/HyperVSites/hosts/write	Creates or updates the Hyper-V host
Microsoft.OffAzure/HyperVSites/hosts/read	Gets the properties of a Hyper-V host
Microsoft.OffAzure/HyperVSites/hosts/write	Creates or updates the Hyper-V host
Microsoft.OffAzure/HyperVSites/hosts/read	Gets the properties of a Hyper-V host
Microsoft.OffAzure/HyperVSites/hosts/write	Creates or updates the Hyper-V host
Microsoft.OffAzure/HyperVSites/jobs/read	Gets the properties of a Hyper-V jobs
Microsoft.OffAzure/HyperVSites/jobs/read	Gets the properties of a Hyper-V jobs
Microsoft.OffAzure/HyperVSites/jobs/read	Gets the properties of a Hyper-V jobs
Microsoft.OffAzure/HyperVSites/machines/read	Gets the properties of a Hyper-V machines
Microsoft.OffAzure/HyperVSites/machines/read	Gets the properties of a Hyper-V machines
Microsoft.OffAzure/HyperVSites/machines/read	Gets the properties of a Hyper-V machines
Microsoft.OffAzure/HyperVSites/machines/read	Gets the properties of a Hyper-V machines
Microsoft.OffAzure/HyperVSites/operationsstatus/read	Gets the properties of a Hyper-V operation status
Microsoft.OffAzure/HyperVSites/operationsstatus/read	Gets the properties of a Hyper-V operation status
Microsoft.OffAzure/HyperVSites/operationsstatus/read	Gets the properties of a Hyper-V operation status
Microsoft.OffAzure/HyperVSites/operationsstatus/read	Gets the properties of a Hyper-V operation status

ACTION	DESCRIPTION
Microsoft.OffAzure/HyperVSites/runasaccounts/read	Gets the properties of a Hyper-V run as accounts
Microsoft.OffAzure/HyperVSites/runasaccounts/read	Gets the properties of a Hyper-V run as accounts
Microsoft.OffAzure/HyperVSites/runasaccounts/read	Gets the properties of a Hyper-V run as accounts
Microsoft.OffAzure/HyperVSites/runasaccounts/read	Gets the properties of a Hyper-V run as accounts
Microsoft.OffAzure/HyperVSites/summary/read	Gets the summary of a Hyper-V site
Microsoft.OffAzure/HyperVSites/summary/read	Gets the summary of a Hyper-V site
Microsoft.OffAzure/HyperVSites/summary/read	Gets the summary of a Hyper-V site
Microsoft.OffAzure/HyperVSites/summary/read	Gets the summary of a Hyper-V site
Microsoft.OffAzure/HyperVSites/usage/read	Gets the usages of a Hyper-V site
Microsoft.OffAzure/HyperVSites/usage/read	Gets the usages of a Hyper-V site
Microsoft.OffAzure/HyperVSites/usage/read	Gets the usages of a Hyper-V site
Microsoft.OffAzure/HyperVSites/usage/read	Gets the usages of a Hyper-V site
Microsoft.OffAzure/ImportSites/read	Gets the properties of a Import site
Microsoft.OffAzure/ImportSites/write	Creates or updates the Import site
Microsoft.OffAzure/ImportSites/delete	Deletes the Import site
Microsoft.OffAzure/ImportSites/importuri/action	Gets the SAS uri for importing the machines CSV file.
Microsoft.OffAzure/ImportSites/exporturi/action	Gets the SAS uri for exporting the machines CSV file.
Microsoft.OffAzure/ImportSites/read	Gets the properties of a Import site
Microsoft.OffAzure/ImportSites/write	Creates or updates the Import site
Microsoft.OffAzure/ImportSites/delete	Deletes the Import site
Microsoft.OffAzure/ImportSites/importuri/action	Gets the SAS uri for importing the machines CSV file.
Microsoft.OffAzure/ImportSites/exporturi/action	Gets the SAS uri for exporting the machines CSV file.
Microsoft.OffAzure/ImportSites/read	Gets the properties of a Import site
Microsoft.OffAzure/ImportSites/write	Creates or updates the Import site
Microsoft.OffAzure/ImportSites/delete	Deletes the Import site

ACTION	DESCRIPTION
Microsoft.OffAzure/ImportSites/importuri/action	Gets the SAS uri for importing the machines CSV file.
Microsoft.OffAzure/ImportSites/exporturi/action	Gets the SAS uri for exporting the machines CSV file.
Microsoft.OffAzure/ImportSites/read	Gets the properties of a Import site
Microsoft.OffAzure/ImportSites/write	Creates or updates the Import site
Microsoft.OffAzure/ImportSites/delete	Deletes the Import site
Microsoft.OffAzure/ImportSites/importuri/action	Gets the SAS uri for importing the machines CSV file.
Microsoft.OffAzure/ImportSites/exporturi/action	Gets the SAS uri for exporting the machines CSV file.
Microsoft.OffAzure/ImportSites/jobs/read	Gets the properties of a Import jobs
Microsoft.OffAzure/ImportSites/jobs/read	Gets the properties of a Import jobs
Microsoft.OffAzure/ImportSites/jobs/read	Gets the properties of a Import jobs
Microsoft.OffAzure/ImportSites/jobs/read	Gets the properties of a Import jobs
Microsoft.OffAzure/ImportSites/machines/read	Gets the properties of a Import machines
Microsoft.OffAzure/ImportSites/machines/delete	Deletes the Import machine
Microsoft.OffAzure/ImportSites/machines/read	Gets the properties of a Import machines
Microsoft.OffAzure/ImportSites/machines/delete	Deletes the Import machine
Microsoft.OffAzure/ImportSites/machines/read	Gets the properties of a Import machines
Microsoft.OffAzure/ImportSites/machines/delete	Deletes the Import machine
Microsoft.OffAzure/Operations/read	Reads the exposed operations
Microsoft.OffAzure/ServerSites/read	Gets the properties of a Server site
Microsoft.OffAzure/ServerSites/write	Creates or updates the Server site
Microsoft.OffAzure/ServerSites/delete	Deletes the Server site
Microsoft.OffAzure/ServerSites/refresh/action	Refreshes the objects within a Server site
Microsoft.OffAzure/ServerSites/updateProperties/action	Updates the properties for machines in a site

ACTION	DESCRIPTION
Microsoft.OffAzure/ServerSites/read	Gets the properties of a Server site
Microsoft.OffAzure/ServerSites/write	Creates or updates the Server site
Microsoft.OffAzure/ServerSites/delete	Deletes the Server site
Microsoft.OffAzure/ServerSites/refresh/action	Refreshes the objects within a Server site
Microsoft.OffAzure/ServerSites/updateProperties/action	Updates the properties for machines in a site
Microsoft.OffAzure/ServerSites/read	Gets the properties of a Server site
Microsoft.OffAzure/ServerSites/write	Creates or updates the Server site
Microsoft.OffAzure/ServerSites/delete	Deletes the Server site
Microsoft.OffAzure/ServerSites/refresh/action	Refreshes the objects within a Server site
Microsoft.OffAzure/ServerSites/updateProperties/action	Updates the properties for machines in a site
Microsoft.OffAzure/ServerSites/read	Gets the properties of a Server site
Microsoft.OffAzure/ServerSites/write	Creates or updates the Server site
Microsoft.OffAzure/ServerSites/delete	Deletes the Server site
Microsoft.OffAzure/ServerSites/refresh/action	Refreshes the objects within a Server site
Microsoft.OffAzure/ServerSites/updateProperties/action	Updates the properties for machines in a site
Microsoft.OffAzure/ServerSites/jobs/read	Gets the properties of a Server jobs
Microsoft.OffAzure/ServerSites/jobs/read	Gets the properties of a Server jobs
Microsoft.OffAzure/ServerSites/jobs/read	Gets the properties of a Server jobs
Microsoft.OffAzure/ServerSites/jobs/read	Gets the properties of a Server jobs
Microsoft.OffAzure/ServerSites/machines/read	Gets the properties of a Server machines
Microsoft.OffAzure/ServerSites/machines/write	Write the properties of a Server machines
Microsoft.OffAzure/ServerSites/machines/read	Gets the properties of a Server machines
Microsoft.OffAzure/ServerSites/machines/write	Write the properties of a Server machines
Microsoft.OffAzure/ServerSites/machines/read	Gets the properties of a Server machines
Microsoft.OffAzure/ServerSites/machines/write	Write the properties of a Server machines

ACTION	DESCRIPTION
Microsoft.OffAzure/ServerSites/machines/read	Gets the properties of a Server machines
Microsoft.OffAzure/ServerSites/machines/write	Write the properties of a Server machines
Microsoft.OffAzure/ServerSites/operationsstatus/read	Gets the properties of a Server operation status
Microsoft.OffAzure/ServerSites/operationsstatus/read	Gets the properties of a Server operation status
Microsoft.OffAzure/ServerSites/operationsstatus/read	Gets the properties of a Server operation status
Microsoft.OffAzure/ServerSites/operationsstatus/read	Gets the properties of a Server operation status
Microsoft.OffAzure/ServerSites/runasaccounts/read	Gets the properties of a Server run as accounts
Microsoft.OffAzure/ServerSites/runasaccounts/read	Gets the properties of a Server run as accounts
Microsoft.OffAzure/ServerSites/runasaccounts/read	Gets the properties of a Server run as accounts
Microsoft.OffAzure/ServerSites/runasaccounts/read	Gets the properties of a Server run as accounts
Microsoft.OffAzure/ServerSites/summary/read	Gets the summary of a Server site
Microsoft.OffAzure/ServerSites/summary/read	Gets the summary of a Server site
Microsoft.OffAzure/ServerSites/summary/read	Gets the summary of a Server site
Microsoft.OffAzure/ServerSites/summary/read	Gets the summary of a Server site
Microsoft.OffAzure/ServerSites/usage/read	Gets the usages of a Server site
Microsoft.OffAzure/ServerSites/usage/read	Gets the usages of a Server site
Microsoft.OffAzure/ServerSites/usage/read	Gets the usages of a Server site
Microsoft.OffAzure/ServerSites/usage/read	Gets the usages of a Server site
Microsoft.OffAzure/VMwareSites/read	Gets the properties of a VMware site
Microsoft.OffAzure/VMwareSites/write	Creates or updates the VMware site
Microsoft.OffAzure/VMwareSites/delete	Deletes the VMware site
Microsoft.OffAzure/VMwareSites/refresh/action	Refreshes the objects within a VMware site
Microsoft.OffAzure/VMwareSites/exportapplications/action	Exports the VMware applications and roles data into xls
Microsoft.OffAzure/VMwareSites/updateProperties/action	Updates the properties for machines in a site
Microsoft.OffAzure/VMwareSites/generateCoarseMap/action	Generates the coarse map for the list of machines

ACTION	DESCRIPTION
Microsoft.OffAzure/VMwareSites/generateDetailedMap/action	Generates the Detailed VMware Coarse Map
Microsoft.OffAzure/VMwareSites/clientGroupMembers/action	Lists the client group members for the selected client group.
Microsoft.OffAzure/VMwareSites/serverGroupMembers/action	Lists the server group members for the selected server group.
Microsoft.OffAzure/VMwareSites/getApplications/action	Gets the list application information for the selected machines
Microsoft.OffAzure/VMwareSites/exportDependencies/action	Exports the dependencies information for the selected machines
Microsoft.OffAzure/VMwareSites/read	Gets the properties of a VMware site
Microsoft.OffAzure/VMwareSites/write	Creates or updates the VMware site
Microsoft.OffAzure/VMwareSites/delete	Deletes the VMware site
Microsoft.OffAzure/VMwareSites/refresh/action	Refreshes the objects within a VMware site
Microsoft.OffAzure/VMwareSites/exportApplications/action	Exports the VMware applications and roles data into xls
Microsoft.OffAzure/VMwareSites/updateProperties/action	Updates the properties for machines in a site
Microsoft.OffAzure/VMwareSites/generateCoarseMap/action	Generates the coarse map for the list of machines
Microsoft.OffAzure/VMwareSites/generateDetailedMap/action	Generates the Detailed VMware Coarse Map
Microsoft.OffAzure/VMwareSites/clientGroupMembers/action	Lists the client group members for the selected client group.
Microsoft.OffAzure/VMwareSites/serverGroupMembers/action	Lists the server group members for the selected server group.
Microsoft.OffAzure/VMwareSites/getApplications/action	Gets the list application information for the selected machines
Microsoft.OffAzure/VMwareSites/exportDependencies/action	Exports the dependencies information for the selected machines
Microsoft.OffAzure/VMwareSites/read	Gets the properties of a VMware site
Microsoft.OffAzure/VMwareSites/write	Creates or updates the VMware site
Microsoft.OffAzure/VMwareSites/delete	Deletes the VMware site
Microsoft.OffAzure/VMwareSites/refresh/action	Refreshes the objects within a VMware site

ACTION	DESCRIPTION
Microsoft.OffAzure/VMwareSites/exportapplications/action	Exports the VMware applications and roles data into xls
Microsoft.OffAzure/VMwareSites/updateProperties/action	Updates the properties for machines in a site
Microsoft.OffAzure/VMwareSites/generateCoarseMap/action	Generates the coarse map for the list of machines
Microsoft.OffAzure/VMwareSites/generateDetailedMap/action	Generates the Detailed VMware Coarse Map
Microsoft.OffAzure/VMwareSites/clientGroupMembers/action	Lists the client group members for the selected client group.
Microsoft.OffAzure/VMwareSites/serverGroupMembers/action	Lists the server group members for the selected server group.
Microsoft.OffAzure/VMwareSites/getApplications/action	Gets the list application information for the selected machines
Microsoft.OffAzure/VMwareSites/exportDependencies/action	Exports the dependencies information for the selected machines
Microsoft.OffAzure/VMwareSites/read	Gets the properties of a VMware site
Microsoft.OffAzure/VMwareSites/write	Creates or updates the VMware site
Microsoft.OffAzure/VMwareSites/delete	Deletes the VMware site
Microsoft.OffAzure/VMwareSites/refresh/action	Refreshes the objects within a VMware site
Microsoft.OffAzure/VMwareSites/exportapplications/action	Exports the VMware applications and roles data into xls
Microsoft.OffAzure/VMwareSites/updateProperties/action	Updates the properties for machines in a site
Microsoft.OffAzure/VMwareSites/generateCoarseMap/action	Generates the coarse map for the list of machines
Microsoft.OffAzure/VMwareSites/generateDetailedMap/action	Generates the Detailed VMware Coarse Map
Microsoft.OffAzure/VMwareSites/clientGroupMembers/action	Lists the client group members for the selected client group.
Microsoft.OffAzure/VMwareSites/serverGroupMembers/action	Lists the server group members for the selected server group.
Microsoft.OffAzure/VMwareSites/getApplications/action	Gets the list application information for the selected machines
Microsoft.OffAzure/VMwareSites/exportDependencies/action	Exports the dependencies information for the selected machines
Microsoft.OffAzure/VMwareSites/healthsummary/read	Gets the health summary for VMware resource

ACTION	DESCRIPTION
Microsoft.OffAzure/VMwareSites/healthsummary/read	Gets the health summary for VMware resource
Microsoft.OffAzure/VMwareSites/healthsummary/read	Gets the health summary for VMware resource
Microsoft.OffAzure/VMwareSites/healthsummary/read	Gets the health summary for VMware resource
Microsoft.OffAzure/VMwareSites/jobs/read	Gets the properties of a VMware jobs
Microsoft.OffAzure/VMwareSites/jobs/read	Gets the properties of a VMware jobs
Microsoft.OffAzure/VMwareSites/jobs/read	Gets the properties of a VMware jobs
Microsoft.OffAzure/VMwareSites/jobs/read	Gets the properties of a VMware jobs
Microsoft.OffAzure/VMwareSites/machines/read	Gets the properties of a VMware machines
Microsoft.OffAzure/VMwareSites/machines/stop/action	Stops the VMware machines
Microsoft.OffAzure/VMwareSites/machines/start/action	Start VMware machines
Microsoft.OffAzure/VMwareSites/machines/read	Gets the properties of a VMware machines
Microsoft.OffAzure/VMwareSites/machines/stop/action	Stops the VMware machines
Microsoft.OffAzure/VMwareSites/machines/start/action	Start VMware machines
Microsoft.OffAzure/VMwareSites/machines/read	Gets the properties of a VMware machines
Microsoft.OffAzure/VMwareSites/machines/stop/action	Stops the VMware machines
Microsoft.OffAzure/VMwareSites/machines/start/action	Start VMware machines
Microsoft.OffAzure/VMwareSites/machines/read	Gets the properties of a VMware machines
Microsoft.OffAzure/VMwareSites/machines/stop/action	Stops the VMware machines
Microsoft.OffAzure/VMwareSites/machines/start/action	Start VMware machines
Microsoft.OffAzure/VMwareSites/machines/applications/read	Gets the properties of a VMware machines applications
Microsoft.OffAzure/VMwareSites/machines/applications/read	Gets the properties of a VMware machines applications
Microsoft.OffAzure/VMwareSites/machines/applications/read	Gets the properties of a VMware machines applications
Microsoft.OffAzure/VMwareSites/machines/applications/read	Gets the properties of a VMware machines applications
Microsoft.OffAzure/VMwareSites/operationsstatus/read	Gets the properties of a VMware operation status
Microsoft.OffAzure/VMwareSites/operationsstatus/read	Gets the properties of a VMware operation status

ACTION	DESCRIPTION
Microsoft.OffAzure/VMwareSites/operationsstatus/read	Gets the properties of a VMware operation status
Microsoft.OffAzure/VMwareSites/operationsstatus/read	Gets the properties of a VMware operation status
Microsoft.OffAzure/VMwareSites/runasaccounts/read	Gets the properties of a VMware run as accounts
Microsoft.OffAzure/VMwareSites/runasaccounts/read	Gets the properties of a VMware run as accounts
Microsoft.OffAzure/VMwareSites/runasaccounts/read	Gets the properties of a VMware run as accounts
Microsoft.OffAzure/VMwareSites/runasaccounts/read	Gets the properties of a VMware run as accounts
Microsoft.OffAzure/VMwareSites/summary/read	Gets the summary of a VMware site
Microsoft.OffAzure/VMwareSites/summary/read	Gets the summary of a VMware site
Microsoft.OffAzure/VMwareSites/summary/read	Gets the summary of a VMware site
Microsoft.OffAzure/VMwareSites/summary/read	Gets the summary of a VMware site
Microsoft.OffAzure/VMwareSites/usage/read	Gets the usages of a VMware site
Microsoft.OffAzure/VMwareSites/usage/read	Gets the usages of a VMware site
Microsoft.OffAzure/VMwareSites/usage/read	Gets the usages of a VMware site
Microsoft.OffAzure/VMwareSites/usage/read	Gets the usages of a VMware site
Microsoft.OffAzure/VMwareSites/vcenters/read	Gets the properties of a VMware vCenter
Microsoft.OffAzure/VMwareSites/vcenters/write	Creates or updates the VMware vCenter
Microsoft.OffAzure/VMwareSites/vcenters/read	Gets the properties of a VMware vCenter
Microsoft.OffAzure/VMwareSites/vcenters/write	Creates or updates the VMware vCenter
Microsoft.OffAzure/VMwareSites/vcenters/read	Gets the properties of a VMware vCenter
Microsoft.OffAzure/VMwareSites/vcenters/write	Creates or updates the VMware vCenter
Microsoft.OffAzure/VMwareSites/vcenters/read	Gets the properties of a VMware vCenter
Microsoft.OffAzure/VMwareSites/vcenters/write	Creates or updates the VMware vCenter

## Monitor

### Microsoft.AlertsManagement

Azure service: [Azure Monitor](#)

ACTION	DESCRIPTION
Microsoft.AlertsManagement/register/action	Subscription Registration Action
Microsoft.AlertsManagement/register/action	Registers the subscription for the Microsoft Alerts Management
Microsoft.AlertsManagement/actionRules/read	Get all the action rules for the input filters.
Microsoft.AlertsManagement/actionRules/write	Create or update action rule in a given subscription
Microsoft.AlertsManagement/actionRules/delete	Delete action rule in a given subscription.
Microsoft.AlertsManagement/alerts/read	Get all the alerts for the input filters.
Microsoft.AlertsManagement/alerts/changestate/action	Change the state of the alert.
Microsoft.AlertsManagement/alerts/diagnostics/read	Get all diagnostics for the alert
Microsoft.AlertsManagement/alerts/history/read	Get history of the alert
Microsoft.AlertsManagement/alertsList/read	Get all the alerts for the input filters across subscriptions
Microsoft.AlertsManagement/alertsMetaData/read	Get alerts meta data for the input parameter.
Microsoft.AlertsManagement/alertsSummary/read	Get the summary of alerts
Microsoft.AlertsManagement/alertsSummaryList/read	Get the summary of alerts across subscriptions
Microsoft.AlertsManagement/Operations/read	Reads the operations provided
Microsoft.AlertsManagement/smartDetectorAlertRules/write	Create or update Smart Detector alert rule in a given subscription
Microsoft.AlertsManagement/smartDetectorAlertRules/read	Get all the Smart Detector alert rules for the input filters
Microsoft.AlertsManagement/smartDetectorAlertRules/delete	Delete Smart Detector alert rule in a given subscription
Microsoft.AlertsManagement/smartGroups/read	Get all the smart groups for the input filters
Microsoft.AlertsManagement/smartGroups/changestate/act on	Change the state of the smart group
Microsoft.AlertsManagement/smartGroups/history/read	Get history of the smart group

## Microsoft.Insights

Azure service: [Azure Monitor](#)

ACTION	DESCRIPTION
Microsoft.Insights/Metrics/Action	Metric Action

ACTION	DESCRIPTION
Microsoft.Insights/Register/Action	Register the Microsoft Insights provider
Microsoft.Insights/Unregister/Action	Register the Microsoft Insights provider
Microsoft.Insights/ListMigrationDate/Action	Get back Subscription migration date
Microsoft.Insights/MigrateToNewpricingModel/Action	Migrate subscription to new pricing model
Microsoft.Insights/RollbackToLegacyPricingModel/Action	Rollback subscription to legacy pricing model
Microsoft.Insights/ActionGroups/Write	Create or update an action group
Microsoft.Insights/ActionGroups/Delete	Delete an action group
Microsoft.Insights/ActionGroups/Read	Read an action group
Microsoft.Insights/ActivityLogAlerts/Write	Create or update an activity log alert
Microsoft.Insights/ActivityLogAlerts/Delete	Delete an activity log alert
Microsoft.Insights/ActivityLogAlerts/Read	Read an activity log alert
Microsoft.Insights/ActivityLogAlerts/Activated/Action	Activity Log Alert activated
Microsoft.Insights/AlertRules/Write	Create or update a classic metric alert
Microsoft.Insights/AlertRules/Delete	Delete a classic metric alert
Microsoft.Insights/AlertRules/Read	Read a classic metric alert
Microsoft.Insights/AlertRules/Activated/Action	Classic metric alert activated
Microsoft.Insights/AlertRules/Resolved/Action	Classic metric alert resolved
Microsoft.Insights/AlertRules/Throttled/Action	Classic metric alert rule throttled
Microsoft.Insights/AlertRules/Incidents/Read	Read a classic metric alert incident
Microsoft.Insights/AutoscaleSettings/Write	Create or update an autoscale setting
Microsoft.Insights/AutoscaleSettings/Delete	Delete an autoscale setting
Microsoft.Insights/AutoscaleSettings/Read	Read an autoscale setting
Microsoft.Insights/AutoscaleSettings/Scaleup/Action	Autoscale scale up initiated
Microsoft.Insights/AutoscaleSettings/Scaledown/Action	Autoscale scale down initiated
Microsoft.Insights/AutoscaleSettings/ScaleupResult/Action	Autoscale scale up completed

ACTION	DESCRIPTION
Microsoft.Insights/AutoscaleSettings/ScaledownResult/Action	Autoscale scale down completed
Microsoft.Insights/AutoscaleSettings/providers/Microsoft.Insights/diagnosticSettings/Read	Read a resource diagnostic setting
Microsoft.Insights/AutoscaleSettings/providers/Microsoft.Insights/diagnosticSettings/Write	Create or update a resource diagnostic setting
Microsoft.Insights/AutoscaleSettings/providers/Microsoft.Insights/logDefinitions/Read	Read log definitions
Microsoft.Insights/AutoscaleSettings/providers/Microsoft.Insights/MetricDefinitions/Read	Read metric definitions
Microsoft.Insights/Baseline/Read	Read a metric baseline (preview)
Microsoft.Insights/CalculateBaseline/Read	Calculate baseline for metric values (preview)
Microsoft.Insights/Components/AnalyticsTables/Action	Application Insights analytics table action
Microsoft.Insights/Components/ApiKeys/Action	Generating an Application Insights API key
Microsoft.Insights/Components/Purge/Action	Purging data from Application Insights
Microsoft.Insights/Components/DailyCapReached/Action	Reached the daily cap for Application Insights component
Microsoft.Insights/Components/DailyCapWarningThresholdReached/Action	Reached the daily cap warning threshold for Application Insights component
Microsoft.Insights/Components/Write	Writing to an application insights component configuration
Microsoft.Insights/Components/Delete	Deleting an application insights component configuration
Microsoft.Insights/Components/Read	Reading an application insights component configuration
Microsoft.Insights/Components/ExportConfiguration/Action	Application Insights export settings action
Microsoft.Insights/Components/Move/Action	Move an Application Insights Component to another resource group or subscription
Microsoft.Insights/Components/AnalyticsItems/Delete	Deleting an Application Insights analytics item
Microsoft.Insights/Components/AnalyticsItems/Read	Reading an Application Insights analytics item
Microsoft.Insights/Components/AnalyticsItems/Write	Writing an Application Insights analytics item
Microsoft.Insights/Components/AnalyticsTables/Delete	Deleting an Application Insights analytics table schema
Microsoft.Insights/Components/AnalyticsTables/Read	Reading an Application Insights analytics table schema
Microsoft.Insights/Components/AnalyticsTables/Write	Writing an Application Insights analytics table schema

ACTION	DESCRIPTION
Microsoft.Insights/Components/Annotations/Delete	Deleting an Application Insights annotation
Microsoft.Insights/Components/Annotations/Read	Reading an Application Insights annotation
Microsoft.Insights/Components/Annotations/Write	Writing an Application Insights annotation
Microsoft.Insights/Components/Api/Read	Reading Application Insights component data API
Microsoft.Insights/Components/ApiKeys/Delete	Deleting an Application Insights API key
Microsoft.Insights/Components/ApiKeys/Read	Reading an Application Insights API key
Microsoft.Insights/Components/BillingPlanForComponent/Read	Reading a billing plan for Application Insights component
Microsoft.Insights/Components/CurrentBillingFeatures/Read	Reading current billing features for Application Insights component
Microsoft.Insights/Components/CurrentBillingFeatures/Write	Writing current billing features for Application Insights component
Microsoft.Insights/Components/DefaultWorkItemConfig/Read	Reading an Application Insights default ALM integration configuration
Microsoft.Insights/Components/Events/Read	Get logs from Application Insights using OData query format
Microsoft.Insights/Components/ExportConfiguration/Delete	Deleting Application Insights export settings
Microsoft.Insights/Components/ExportConfiguration/Read	Reading Application Insights export settings
Microsoft.Insights/Components/ExportConfiguration/Write	Writing Application Insights export settings
Microsoft.Insights/Components/ExtendQueries/Read	Reading Application Insights component extended query results
Microsoft.Insights/Components/Favorites/Delete	Deleting an Application Insights favorite
Microsoft.Insights/Components/Favorites/Read	Reading an Application Insights favorite
Microsoft.Insights/Components/Favorites/Write	Writing an Application Insights favorite
Microsoft.Insights/Components/FeatureCapabilities/Read	Reading Application Insights component feature capabilities
Microsoft.Insights/Components/GetAvailableBillingFeatures/Read	Reading Application Insights component available billing features
Microsoft.Insights/Components/GetToken/Read	Reading an Application Insights component token
Microsoft.Insights/Components/MetricDefinitions/Read	Reading Application Insights component metric definitions

ACTION	DESCRIPTION
Microsoft.Insights/Components/Metrics/Read	Reading Application Insights component metrics
Microsoft.Insights/Components/MyAnalyticsItems/Delete	Deleting an Application Insights personal analytics item
Microsoft.Insights/Components/MyAnalyticsItems/Write	Writing an Application Insights personal analytics item
Microsoft.Insights/Components/MyAnalyticsItems/Read	Reading an Application Insights personal analytics item
Microsoft.Insights/Components/MyFavorites/Read	Reading an Application Insights personal favorite
Microsoft.Insights/Components/Operations/Read	Get status of long-running operations in Application Insights
Microsoft.Insights/Components/PricingPlans/Read	Reading an Application Insights component pricing plan
Microsoft.Insights/Components/PricingPlans/Write	Writing an Application Insights component pricing plan
Microsoft.Insights/Components/ProactiveDetectionConfigs/Read	Reading Application Insights proactive detection configuration
Microsoft.Insights/Components/ProactiveDetectionConfigs/Write	Writing Application Insights proactive detection configuration
Microsoft.Insights/Components/providers/Microsoft.Insights/diagnosticSettings/Read	Read a resource diagnostic setting
Microsoft.Insights/Components/providers/Microsoft.Insights/diagnosticSettings/Write	Create or update a resource diagnostic setting
Microsoft.Insights/Components/providers/Microsoft.Insights/logDefinitions/Read	Read log definitions
Microsoft.Insights/Components/providers/Microsoft.Insights/MetricDefinitions/Read	Read metric definitions
Microsoft.Insights/Components/Query/Read	Run queries against Application Insights logs
Microsoft.Insights/Components/QuotaStatus/Read	Reading Application Insights component quota status
Microsoft.Insights/Components/SyntheticMonitorLocations/Read	Reading Application Insights webtest locations
Microsoft.Insights/Components/Webtests/Read	Reading a webtest configuration
Microsoft.Insights/Components/WorkItemConfigs/Delete	Deleting an Application Insights ALM integration configuration
Microsoft.Insights/Components/WorkItemConfigs/Read	Reading an Application Insights ALM integration configuration
Microsoft.Insights/Components/WorkItemConfigs/Write	Writing an Application Insights ALM integration configuration

ACTION	DESCRIPTION
Microsoft.Insights/DataCollectionRuleAssociations/Read	Read a resource's association with a data collection rule
Microsoft.Insights/DataCollectionRuleAssociations/Write	Create or update a resource's association with a data collection rule
Microsoft.Insights/DataCollectionRuleAssociations/Delete	Delete a resource's association with a data collection rule
Microsoft.Insights/DataCollectionRules/Read	Read a data collection rule
Microsoft.Insights/DataCollectionRules/Write	Create or update a data collection rule
Microsoft.Insights/DataCollectionRules/Delete	Delete a data collection rule
Microsoft.Insights/DiagnosticSettings/Write	Create or update a resource diagnostic setting
Microsoft.Insights/DiagnosticSettings/Delete	Delete a resource diagnostic setting
Microsoft.Insights/DiagnosticSettings/Read	Read a resource diagnostic setting
Microsoft.Insights/DiagnosticSettingsCategories/Read	Read diagnostic settings categories
Microsoft.Insights/EventCategories/Read	Read available Activity Log event categories
Microsoft.Insights/eventtypes/digestevents/Read	Read management event type digest
Microsoft.Insights/eventtypes/values/Read	Read Activity Log events
Microsoft.Insights/ExtendedDiagnosticSettings/Write	Create or update a network flow log diagnostic setting
Microsoft.Insights/ExtendedDiagnosticSettings/Delete	Delete a network flow log diagnostic setting
Microsoft.Insights/ExtendedDiagnosticSettings/Read	Read a network flow log diagnostic setting
Microsoft.Insights/ListMigrationDate/Read	Get back subscription migration date
Microsoft.Insights/LogDefinitions/Read	Read log definitions
Microsoft.Insights/LogProfiles/Write	Create or update an Activity Log log profile
Microsoft.Insights/LogProfiles/Delete	Delete an Activity Log log profile
Microsoft.Insights/LogProfiles/Read	Read an Activity Log log profile
Microsoft.Insights/Logs/Read	Reading data from all your logs
Microsoft.Insights/Logs/ADAssessmentRecommendation/Read	Read data from the ADAssessmentRecommendation table
Microsoft.Insights/Logs/ADReplicationResult/Read	Read data from the ADReplicationResult table

ACTION	DESCRIPTION
Microsoft.Insights/Logs/ADSecurityAssessmentRecommendation/Read	Read data from the ADSecurityAssessmentRecommendation table
Microsoft.Insights/Logs/Alert/Read	Read data from the Alert table
Microsoft.Insights/Logs/AlertHistory/Read	Read data from the AlertHistory table
Microsoft.Insights/Logs/ApplicationInsights/Read	Read data from the ApplicationInsights table
Microsoft.Insights/Logs/AzureActivity/Read	Read data from the AzureActivity table
Microsoft.Insights/Logs/AzureMetrics/Read	Read data from the AzureMetrics table
Microsoft.Insights/Logs/BoundPort/Read	Read data from the BoundPort table
Microsoft.Insights/Logs/CommonSecurityLog/Read	Read data from the CommonSecurityLog table
Microsoft.Insights/Logs/ComputerGroup/Read	Read data from the ComputerGroup table
Microsoft.Insights/Logs/ConfigurationChange/Read	Read data from the ConfigurationChange table
Microsoft.Insights/Logs/ConfigurationData/Read	Read data from the ConfigurationData table
Microsoft.Insights/Logs/ContainerImageInventory/Read	Read data from the ContainerImageInventory table
Microsoft.Insights/Logs/ContainerInventory/Read	Read data from the ContainerInventory table
Microsoft.Insights/Logs/ContainerLog/Read	Read data from the ContainerLog table
Microsoft.Insights/Logs/ContainerServiceLog/Read	Read data from the ContainerServiceLog table
Microsoft.Insights/Logs/DeviceAppCrash/Read	Read data from the DeviceAppCrash table
Microsoft.Insights/Logs/DeviceAppLaunch/Read	Read data from the DeviceAppLaunch table
Microsoft.Insights/Logs/DeviceCalendar/Read	Read data from the DeviceCalendar table
Microsoft.Insights/Logs/DeviceCleanup/Read	Read data from the DeviceCleanup table
Microsoft.Insights/Logs/DeviceConnectSession/Read	Read data from the DeviceConnectSession table
Microsoft.Insights/Logs/DeviceEtw/Read	Read data from the DeviceEtw table
Microsoft.Insights/Logs/DeviceHardwareHealth/Read	Read data from the DeviceHardwareHealth table
Microsoft.Insights/Logs/DeviceHealth/Read	Read data from the DeviceHealth table
Microsoft.Insights/Logs/DeviceHeartbeat/Read	Read data from the DeviceHeartbeat table
Microsoft.Insights/Logs/DeviceSkypeHeartbeat/Read	Read data from the DeviceSkypeHeartbeat table

ACTION	DESCRIPTION
Microsoft.Insights/Logs/DeviceSignIn/Read	Read data from the DeviceSignIn table
Microsoft.Insights/Logs/DeviceSleepState/Read	Read data from the DeviceSleepState table
Microsoft.Insights/Logs/DHAppFailure/Read	Read data from the DHAppFailure table
Microsoft.Insights/Logs/DHAppReliability/Read	Read data from the DHAppReliability table
Microsoft.Insights/Logs/DHDriverReliability/Read	Read data from the DHDriverReliability table
Microsoft.Insights/Logs/DHLogonFailures/Read	Read data from the DHLogonFailures table
Microsoft.Insights/Logs/DHLogonMetrics/Read	Read data from the DHLogonMetrics table
Microsoft.Insights/Logs/DHOSCrashData/Read	Read data from the DHOSCrashData table
Microsoft.Insights/Logs/DHOSReliability/Read	Read data from the DHOSReliability table
Microsoft.Insights/Logs/DHWipAppLearning/Read	Read data from the DHWipAppLearning table
Microsoft.Insights/Logs/DnsEvents/Read	Read data from the DnsEvents table
Microsoft.Insights/Logs/DnsInventory/Read	Read data from the DnsInventory table
Microsoft.Insights/Logs/ETWEvent/Read	Read data from the ETWEvent table
Microsoft.Insights/Logs/Event/Read	Read data from the Event table
Microsoft.Insights/Logs/ExchangeAssessmentRecommendation/Read	Read data from the ExchangeAssessmentRecommendation table
Microsoft.Insights/Logs/ExchangeOnlineAssessmentRecommendation/Read	Read data from the ExchangeOnlineAssessmentRecommendation table
Microsoft.Insights/Logs/Heartbeat/Read	Read data from the Heartbeat table
Microsoft.Insights/Logs/IISAssessmentRecommendation/Read	Read data from the IISAssessmentRecommendation table
Microsoft.Insights/Logs/InboundConnection/Read	Read data from the InboundConnection table
Microsoft.Insights/Logs/KubeNodeInventory/Read	Read data from the KubeNodeInventory table
Microsoft.Insights/Logs/KubePodInventory/Read	Read data from the KubePodInventory table
Microsoft.Insights/Logs/LinuxAuditLog/Read	Read data from the LinuxAuditLog table
Microsoft.Insights/Logs/MAApplication/Read	Read data from the MAApplication table
Microsoft.Insights/Logs/MAApplicationHealth/Read	Read data from the MAApplicationHealth table

ACTION	DESCRIPTION
Microsoft.Insights/Logs/MAApplicationHealthAlternativeVersions/Read	Read data from the MAApplicationHealthAlternativeVersions table
Microsoft.Insights/Logs/MAApplicationHealthIssues/Read	Read data from the MAApplicationHealthIssues table
Microsoft.Insights/Logs/MAApplicationInstance/Read	Read data from the MAApplicationInstance table
Microsoft.Insights/Logs/MAApplicationInstanceReadiness/Read	Read data from the MAApplicationInstanceReadiness table
Microsoft.Insights/Logs/MAApplicationReadiness/Read	Read data from the MAApplicationReadiness table
Microsoft.Insights/Logs/MADeploymentPlan/Read	Read data from the MADeploymentPlan table
Microsoft.Insights/Logs/MADevice/Read	Read data from the MADevice table
Microsoft.Insights/Logs/MADevicePnPHealth/Read	Read data from the MADevicePnPHealth table
Microsoft.Insights/Logs/MADevicePnPHealthAlternativeVersions/Read	Read data from the MADevicePnPHealthAlternativeVersions table
Microsoft.Insights/Logs/MADevicePnPHealthIssues/Read	Read data from the MADevicePnPHealthIssues table
Microsoft.Insights/Logs/MADeviceReadiness/Read	Read data from the MADeviceReadiness table
Microsoft.Insights/Logs/MADriverInstanceReadiness/Read	Read data from the MADriverInstanceReadiness table
Microsoft.Insights/Logs/MADriverReadiness/Read	Read data from the MADriverReadiness table
Microsoft.Insights/Logs/MAOfficeAddin/Read	Read data from the MAOfficeAddin table
Microsoft.Insights/Logs/MAOfficeAddinHealth/Read	Read data from the MAOfficeAddinHealth table
Microsoft.Insights/Logs/MAOfficeAddinHealthIssues/Read	Read data from the MAOfficeAddinHealthIssues table
Microsoft.Insights/Logs/MAOfficeAddinInstance/Read	Read data from the MAOfficeAddinInstance table
Microsoft.Insights/Logs/MAOfficeAddinInstanceReadiness/Read	Read data from the MAOfficeAddinInstanceReadiness table
Microsoft.Insights/Logs/MAOfficeAddinReadiness/Read	Read data from the MAOfficeAddinReadiness table
Microsoft.Insights/Logs/MAOfficeApp/Read	Read data from the MAOfficeApp table
Microsoft.Insights/Logs/MAOfficeAppHealth/Read	Read data from the MAOfficeAppHealth table
Microsoft.Insights/Logs/MAOfficeAppInstance/Read	Read data from the MAOfficeAppInstance table
Microsoft.Insights/Logs/MAOfficeAppReadiness/Read	Read data from the MAOfficeAppReadiness table
Microsoft.Insights/Logs/MAOfficeBuildInfo/Read	Read data from the MAOfficeBuildInfo table

ACTION	DESCRIPTION
Microsoft.Insights/Logs/MAOfficeCurrencyAssessment/Read	Read data from the MAOfficeCurrencyAssessment table
Microsoft.Insights/Logs/MAOfficeCurrencyAssessmentDailyCounts/Read	Read data from the MAOfficeCurrencyAssessmentDailyCounts table
Microsoft.Insights/Logs/MAOfficeDeploymentStatus/Read	Read data from the MAOfficeDeploymentStatus table
Microsoft.Insights/Logs/MAOfficeMacroHealth/Read	Read data from the MAOfficeMacroHealth table
Microsoft.Insights/Logs/MAOfficeMacroHealthIssues/Read	Read data from the MAOfficeMacroHealthIssues table
Microsoft.Insights/Logs/MAOfficeMacroIssueInstanceReadiness/Read	Read data from the MAOfficeMacroIssueInstanceReadiness table
Microsoft.Insights/Logs/MAOfficeMacroIssueReadiness/Read	Read data from the MAOfficeMacroIssueReadiness table
Microsoft.Insights/Logs/MAOfficeMacroSummary/Read	Read data from the MAOfficeMacroSummary table
Microsoft.Insights/Logs/MAOfficeSuite/Read	Read data from the MAOfficeSuite table
Microsoft.Insights/Logs/MAOfficeSuiteInstance/Read	Read data from the MAOfficeSuiteInstance table
Microsoft.Insights/Logs/MAProposedPilotDevices/Read	Read data from the MAProposedPilotDevices table
Microsoft.Insights/Logs/MAWindowsBuildInfo/Read	Read data from the MAWindowsBuildInfo table
Microsoft.Insights/Logs/MAWindowsCurrencyAssessment/Read	Read data from the MAWindowsCurrencyAssessment table
Microsoft.Insights/Logs/MAWindowsCurrencyAssessmentDailyCounts/Read	Read data from the MAWindowsCurrencyAssessmentDailyCounts table
Microsoft.Insights/Logs/MAWindowsDeploymentStatus/Read	Read data from the MAWindowsDeploymentStatus table
Microsoft.Insights/Logs/MAWindowsSysReqInstanceReadiness/Read	Read data from the MAWindowsSysReqInstanceReadiness table
Microsoft.Insights/Logs/NetworkMonitoring/Read	Read data from the NetworkMonitoring table
Microsoft.Insights/Logs/OfficeActivity/Read	Read data from the OfficeActivity table
Microsoft.Insights/Logs/Operation/Read	Read data from the Operation table
Microsoft.Insights/Logs/OutboundConnection/Read	Read data from the OutboundConnection table
Microsoft.Insights/Logs/Perf/Read	Read data from the Perf table
Microsoft.Insights/Logs/ProtectionStatus/Read	Read data from the ProtectionStatus table
Microsoft.Insights/Logs/ReservedAzureCommonFields/Read	Read data from the ReservedAzureCommonFields table

ACTION	DESCRIPTION
Microsoft.Insights/Logs/ReservedCommonFields/Read	Read data from the ReservedCommonFields table
Microsoft.Insights/Logs/SCCMAssessmentRecommendation/Read	Read data from the SCCMAssessmentRecommendation table
Microsoft.Insights/Logs/SCOMAssessmentRecommendation/Read	Read data from the SCOMAssessmentRecommendation table
Microsoft.Insights/Logs/SecurityAlert/Read	Read data from the SecurityAlert table
Microsoft.Insights/Logs/SecurityBaseline/Read	Read data from the SecurityBaseline table
Microsoft.Insights/Logs/SecurityBaselineSummary/Read	Read data from the SecurityBaselineSummary table
Microsoft.Insights/Logs/SecurityDetection/Read	Read data from the SecurityDetection table
Microsoft.Insights/Logs/SecurityEvent/Read	Read data from the SecurityEvent table
Microsoft.Insights/Logs/ServiceFabricOperationalEvent/Read	Read data from the ServiceFabricOperationalEvent table
Microsoft.Insights/Logs/ServiceFabricReliableActorEvent/Read	Read data from the ServiceFabricReliableActorEvent table
Microsoft.Insights/Logs/ServiceFabricReliableServiceEvent/Read	Read data from the ServiceFabricReliableServiceEvent table
Microsoft.Insights/Logs/SfBAssessmentRecommendation/Read	Read data from the SfBAssessmentRecommendation table
Microsoft.Insights/Logs/SfBOnlineAssessmentRecommendation/Read	Read data from the SfBOnlineAssessmentRecommendation table
Microsoft.Insights/Logs/SharePointOnlineAssessmentRecommendation/Read	Read data from the SharePointOnlineAssessmentRecommendation table
Microsoft.Insights/Logs/SPAssessmentRecommendation/Read	Read data from the SPAssessmentRecommendation table
Microsoft.Insights/Logs/SQLAssessmentRecommendation/Read	Read data from the SQLAssessmentRecommendation table
Microsoft.Insights/Logs/SQLQueryPerformance/Read	Read data from the SQLQueryPerformance table
Microsoft.Insights/Logs/Syslog/Read	Read data from the Syslog table
Microsoft.Insights/Logs/SysmonEvent/Read	Read data from the SysmonEvent table
Microsoft.Insights/Logs/Tables.Custom/Read	Reading data from any custom log
Microsoft.Insights/Logs/UAApp/Read	Read data from the UAApp table
Microsoft.Insights/Logs/UAComputer/Read	Read data from the UAComputer table

ACTION	DESCRIPTION
Microsoft.Insights/Logs/UAComputerRank/Read	Read data from the UAComputerRank table
Microsoft.Insights/Logs/UADriver/Read	Read data from the UADriver table
Microsoft.Insights/Logs/UADriverProblemCodes/Read	Read data from the UADriverProblemCodes table
Microsoft.Insights/Logs/UAFeedback/Read	Read data from the UAFeedback table
Microsoft.Insights/Logs/UAHardwareSecurity/Read	Read data from the UAHardwareSecurity table
Microsoft.Insights/Logs/UAIESiteDiscovery/Read	Read data from the UAIESiteDiscovery table
Microsoft.Insights/Logs/UAOfficeAddIn/Read	Read data from the UAOfficeAddIn table
Microsoft.Insights/Logs/UAProposedActionPlan/Read	Read data from the UAProposedActionPlan table
Microsoft.Insights/Logs/UASysReqIssue/Read	Read data from the UASysReqIssue table
Microsoft.Insights/Logs/UAUpgradedComputer/Read	Read data from the UAUpgradedComputer table
Microsoft.Insights/Logs/Update/Read	Read data from the Update table
Microsoft.Insights/Logs/UpdateRunProgress/Read	Read data from the UpdateRunProgress table
Microsoft.Insights/Logs/UpdateSummary/Read	Read data from the UpdateSummary table
Microsoft.Insights/Logs/Usage/Read	Read data from the Usage table
Microsoft.Insights/Logs/W3CIIISLog/Read	Read data from the W3CIIISLog table
Microsoft.Insights/Logs/WaaSDeploymentStatus/Read	Read data from the WaaSDeploymentStatus table
Microsoft.Insights/Logs/WaaSInsiderStatus/Read	Read data from the WaaSInsiderStatus table
Microsoft.Insights/Logs/WaaSUpdateStatus/Read	Read data from the WaaSUpdateStatus table
Microsoft.Insights/Logs/WDAVStatus/Read	Read data from the WDAVStatus table
Microsoft.Insights/Logs/WDAVThreat/Read	Read data from the WDAVThreat table
Microsoft.Insights/Logs/WindowsClientAssessmentRecommendation/Read	Read data from the WindowsClientAssessmentRecommendation table
Microsoft.Insights/Logs/WindowsFirewall/Read	Read data from the WindowsFirewall table
Microsoft.Insights/Logs/WindowsServerAssessmentRecommendation/Read	Read data from the WindowsServerAssessmentRecommendation table
Microsoft.Insights/Logs/WireData/Read	Read data from the WireData table

ACTION	DESCRIPTION
Microsoft.Insights/Logs/WUDOAggregatedStatus/Read	Read data from the WUDOAggregatedStatus table
Microsoft.Insights/Logs/WUDOStatus/Read	Read data from the WUDOStatus table
Microsoft.Insights/MetricAlerts/Write	Create or update a metric alert
Microsoft.Insights/MetricAlerts/Delete	Delete a metric alert
Microsoft.Insights/MetricAlerts/Read	Read a metric alert
Microsoft.Insights/MetricAlerts>Status/Read	Read metric alert status
Microsoft.Insights/MetricBaselines/Read	Read metric baselines
Microsoft.Insights/MetricDefinitions/Read	Read metric definitions
Microsoft.Insights/MetricDefinitions/Microsoft.Insights/Read	Read metric definitions
Microsoft.Insights/MetricDefinitions/providers/Microsoft.Insights/Read	Read metric definitions
Microsoft.Insights/Metricnamespaces/Read	Read metric namespaces
Microsoft.Insights/Metrics/Read	Read metrics
Microsoft.Insights/Metrics/Microsoft.Insights/Read	Read metrics
Microsoft.Insights/Metrics/providers/Metrics/Read	Read metrics
Microsoft.Insights/myWorkbooks/Write	Create or update a private Workbook
Microsoft.Insights/myWorkbooks/Read	Read a private Workbook
Microsoft.Insights/MyWorkbooks/Read	Read a private Workbook
Microsoft.Insights/MyWorkbooks/Write	Create or update a private workbook
Microsoft.Insights/MyWorkbooks/Delete	Delete a private workbook
Microsoft.Insights/Operations/Read	Read operations
Microsoft.Insights/PrivateLinkScopeOperationStatuses/Read	Read a private link scoped operation status
Microsoft.Insights/PrivateLinkScopes/Read	Read a private link scope
Microsoft.Insights/PrivateLinkScopes/Write	Create or update a private link scope
Microsoft.Insights/PrivateLinkScopes/Delete	Delete a private link scope

ACTION	DESCRIPTION
Microsoft.Insights/PrivateLinkScopes/PrivateEndpointConnectionProxies/Read	Read a private endpoint connection proxy
Microsoft.Insights/PrivateLinkScopes/PrivateEndpointConnectionProxies/Write	Create or update a private endpoint connection proxy
Microsoft.Insights/PrivateLinkScopes/PrivateEndpointConnectionProxies/Delete	Delete a private endpoint connection proxy
Microsoft.Insights/PrivateLinkScopes/PrivateEndpointConnectionProxies/Validate/Action	Validate a private endpoint connection proxy
Microsoft.Insights/PrivateLinkScopes/PrivateEndpointConnections/Read	Read a private endpoint connection
Microsoft.Insights/PrivateLinkScopes/PrivateEndpointConnections/Write	Create or update a private endpoint connection
Microsoft.Insights/PrivateLinkScopes/PrivateEndpointConnections/Delete	Delete a private endpoint connection
Microsoft.Insights/PrivateLinkScopes/PrivateLinkResources/Read	Read a private link resource
Microsoft.Insights/PrivateLinkScopes/ScopedResources/Read	Read a private link scoped resource
Microsoft.Insights/PrivateLinkScopes/ScopedResources/Write	Create or update a private link scoped resource
Microsoft.Insights/PrivateLinkScopes/ScopedResources/Delete	Delete a private link scoped resource
Microsoft.Insights/ScheduledQueryRules/Write	Writing a scheduled query rule
Microsoft.Insights/ScheduledQueryRules/Read	Reading a scheduled query rule
Microsoft.Insights/ScheduledQueryRules/Delete	Deleting a scheduled query rule
Microsoft.Insights/Tenants/Register/Action	Initializes the Microsoft Insights provider
Microsoft.Insights/Webtests/Write	Writing to a webtest configuration
Microsoft.Insights/Webtests/Delete	Deleting a webtest configuration
Microsoft.Insights/Webtests/Read	Reading a webtest configuration
Microsoft.Insights/Webtests/GetToken/Read	Reading a webtest token
Microsoft.Insights/Webtests/MetricDefinitions/Read	Reading a webtest metric definitions
Microsoft.Insights/Webtests/Metrics/Read	Reading a webtest metrics
Microsoft.Insights/Workbooks/Write	Create or update a workbook

ACTION	DESCRIPTION
Microsoft.Insights/Workbooks/Delete	Delete a workbook
Microsoft.Insights/Workbooks/Read	Read a workbook
DataAction	Description
Microsoft.Insights/DataCollectionRules/Data/Write	Send data to a data collection rule
Microsoft.Insights/Metrics/Write	Write metrics

## Microsoft.OperationalInsights

Azure service: [Azure Monitor](#)

ACTION	DESCRIPTION
Microsoft.OperationalInsights/register/action	Register a subscription to a resource provider.
microsoft.operationalinsights/register/action	Rergisters the subscription.
microsoft.operationalinsights/unregister/action	Unregisters the subscription.
microsoft.operationalinsights/availableservicetiers/read	Get the available service tiers.
Microsoft.OperationalInsights/clusters/read	Get Cluster
Microsoft.OperationalInsights/clusters/write	Create or updates a Cluster
Microsoft.OperationalInsights/clusters/delete	Delete Cluster
Microsoft.OperationalInsights/deletedWorkspaces/read	Lists workspaces in soft deleted period.
Microsoft.OperationalInsights/linkTargets/read	Lists workspaces in soft deleted period.
microsoft.operationalinsights/locations/operationStatuses/read	Get Log Analytics Azure Async Operation Status.
microsoft.operationalinsights/operations/read	Lists all of the available OperationalInsights Rest API operations.
Microsoft.OperationalInsights/workspaces/write	Creates a new workspace or links to an existing workspace by providing the customer id from the existing workspace.
Microsoft.OperationalInsights/workspaces/read	Gets an existing workspace
Microsoft.OperationalInsights/workspaces/delete	Deletes a workspace. If the workspace was linked to an existing workspace at creation time then the workspace it was linked to is not deleted.
Microsoft.OperationalInsights/workspaces/generateregistrationcertificate/action	Generates Registration Certificate for the workspace. This Certificate is used to connect Microsoft System Center Operation Manager to the workspace.

ACTION	DESCRIPTION
Microsoft.OperationalInsights/workspaces/sharedKeys/action	Retrieves the shared keys for the workspace. These keys are used to connect Microsoft Operational Insights agents to the workspace.
Microsoft.OperationalInsights/workspaces/listKeys/action	Retrieves the list keys for the workspace. These keys are used to connect Microsoft Operational Insights agents to the workspace.
Microsoft.OperationalInsights/workspaces/search/action	Executes a search query
Microsoft.OperationalInsights/workspaces/purge/action	Delete specified data from workspace
Microsoft.OperationalInsights/workspaces/regeneratesharedkey/action	Regenerates the specified workspace shared key
Microsoft.OperationalInsights/workspaces/analytics/query/action	Search using new engine.
Microsoft.OperationalInsights/workspaces/analytics/query/schema/read	Get search schema V2.
Microsoft.OperationalInsights/workspaces/api/query/action	Search using new engine.
Microsoft.OperationalInsights/workspaces/api/query/schema/read	Get search schema V2.
Microsoft.OperationalInsights/workspaces/availableservicetiers/read	List of all the available service tiers for workspace.
Microsoft.OperationalInsights/workspaces/configurationScopes/read	Get Configuration Scope
Microsoft.OperationalInsights/workspaces/configurationScopes/write	Set Configuration Scope
Microsoft.OperationalInsights/workspaces/configurationScopes/delete	Delete Configuration Scope
microsoft.operationalinsights/workspaces/dataExports/read	Get specific data export.
microsoft.operationalinsights/workspaces/dataExports/write	Create or update data export.
microsoft.operationalinsights/workspaces/dataExports/delete	Delete specific data export.
Microsoft.OperationalInsights/workspaces/datasources/read	Get datasources under a workspace.
Microsoft.OperationalInsights/workspaces/datasources/write	Create/Update datasources under a workspace.
Microsoft.OperationalInsights/workspaces/datasources/delete	Delete datasources under a workspace.
Microsoft.OperationalInsights/workspaces/gateways/delete	Removes a gateway configured for the workspace.

ACTION	DESCRIPTION
Microsoft.OperationalInsights/workspaces/intelligencepacks/read	Lists all intelligence packs that are visible for a given workspace and also lists whether the pack is enabled or disabled for that workspace.
Microsoft.OperationalInsights/workspaces/intelligencepacks/enable/action	Enables an intelligence pack for a given workspace.
Microsoft.OperationalInsights/workspaces/intelligencepacks/disable/action	Disables an intelligence pack for a given workspace.
Microsoft.OperationalInsights/workspaces/linkedServices/read	Get linked services under given workspace.
Microsoft.OperationalInsights/workspaces/linkedServices/write	Create/Update linked services under given workspace.
Microsoft.OperationalInsights/workspaces/linkedServices/delete	Delete linked services under given workspace.
Microsoft.OperationalInsights/workspaces/listKeys/read	Retrieves the list keys for the workspace. These keys are used to connect Microsoft Operational Insights agents to the workspace.
Microsoft.OperationalInsights/workspaces/managementGroups/read	Gets the names and metadata for System Center Operations Manager management groups connected to this workspace.
Microsoft.OperationalInsights/workspaces/metricDefinitions/read	Get Metric Definitions under workspace
Microsoft.OperationalInsights/workspaces/notificationSettings/read	Get the user's notification settings for the workspace.
Microsoft.OperationalInsights/workspaces/notificationSettings/write	Set the user's notification settings for the workspace.
Microsoft.OperationalInsights/workspaces/notificationSettings/delete	Delete the user's notification settings for the workspace.
microsoft.operationalinsights/workspaces/operations/read	Gets the status of an OperationalInsights workspace operation.
Microsoft.OperationalInsights/workspaces/query/read	Run queries over the data in the workspace
Microsoft.OperationalInsights/workspaces/query/AADDomai nServicesAccountLogon/read	Read data from the AADDomainServicesAccountLogon table
Microsoft.OperationalInsights/workspaces/query/AADDomai nServicesAccountManagement/read	Read data from the AADDomainServicesAccountManagement table
Microsoft.OperationalInsights/workspaces/query/AADDomai nServicesDirectoryServiceAccess/read	Read data from the AADDomainServicesDirectoryServiceAccess table
Microsoft.OperationalInsights/workspaces/query/AADDomai nServicesLogonLogoff/read	Read data from the AADDomainServicesLogonLogoff table

ACTION	DESCRIPTION
Microsoft.OperationalInsights/workspaces/query/AADDomainServicesPolicyChange/read	Read data from the AADDomainServicesPolicyChange table
Microsoft.OperationalInsights/workspaces/query/AADDomainServicesPrivilegeUse/read	Read data from the AADDomainServicesPrivilegeUse table
Microsoft.OperationalInsights/workspaces/query/AADDomainServicesSystemSecurity/read	Read data from the AADDomainServicesSystemSecurity table
Microsoft.OperationalInsights/workspaces/query/ADAssessmentRecommendation/read	Read data from the ADAssessmentRecommendation table
Microsoft.OperationalInsights/workspaces/query/AddonAzureBackupAlerts/read	Read data from the AddonAzureBackupAlerts table
Microsoft.OperationalInsights/workspaces/query/AddonAzureBackupJobs/read	Read data from the AddonAzureBackupJobs table
Microsoft.OperationalInsights/workspaces/query/AddonAzureBackupPolicy/read	Read data from the AddonAzureBackupPolicy table
Microsoft.OperationalInsights/workspaces/query/AddonAzureBackupProtectedInstance/read	Read data from the AddonAzureBackupProtectedInstance table
Microsoft.OperationalInsights/workspaces/query/AddonAzureBackupStorage/read	Read data from the AddonAzureBackupStorage table
Microsoft.OperationalInsights/workspaces/query/ADFActivityRun/read	Read data from the ADFActivityRun table
Microsoft.OperationalInsights/workspaces/query/ADFPipelineRun/read	Read data from the ADFPipelineRun table
Microsoft.OperationalInsights/workspaces/query/ADFSISIntegrationRuntimeLogs/read	Read data from the ADFSSISIntegrationRuntimeLogs table
Microsoft.OperationalInsights/workspaces/query/ADFSISPackageEventMessageContext/read	Read data from the ADFSSISPackageEventMessageContext table
Microsoft.OperationalInsights/workspaces/query/ADFSISPackageEventMessages/read	Read data from the ADFSSISPackageEventMessages table
Microsoft.OperationalInsights/workspaces/query/ADFSISPackageExecutableStatistics/read	Read data from the ADFSSISPackageExecutableStatistics table
Microsoft.OperationalInsights/workspaces/query/ADFSISPackageExecutionComponentPhases/read	Read data from the ADFSSISPackageExecutionComponentPhases table
Microsoft.OperationalInsights/workspaces/query/ADFSISPackageExecutionDataStatistics/read	Read data from the ADFSSISPackageExecutionDataStatistics table
Microsoft.OperationalInsights/workspaces/query/ADFTiggerRun/read	Read data from the ADFTiggerRun table

ACTION	DESCRIPTION
Microsoft.OperationalInsights/workspaces/query/ADReplicationResult/read	Read data from the ADReplicationResult table
Microsoft.OperationalInsights/workspaces/query/ADSecurityAssessmentRecommendation/read	Read data from the ADSecurityAssessmentRecommendation table
Microsoft.OperationalInsights/workspaces/query/ADTDigitalTwinsOperation/read	Read data from the ADTDigitalTwinsOperation table
Microsoft.OperationalInsights/workspaces/query/ADTEventRoutesOperation/read	Read data from the ADTEventRoutesOperation table
Microsoft.OperationalInsights/workspaces/query/ADTModelsOperation/read	Read data from the ADTModelsOperation table
Microsoft.OperationalInsights/workspaces/query/ADTQueryOperation/read	Read data from the ADTQueryOperation table
Microsoft.OperationalInsights/workspaces/query/AegDeliveryFailureLogs/read	Read data from the AegDeliveryFailureLogs table
Microsoft.OperationalInsights/workspaces/query/AegPublishFailureLogs/read	Read data from the AegPublishFailureLogs table
Microsoft.OperationalInsights/workspaces/query/Alert/read	Read data from the Alert table
Microsoft.OperationalInsights/workspaces/query/AlertHistory/read	Read data from the AlertHistory table
Microsoft.OperationalInsights/workspaces/query/AmlComputeClusterEvent/read	Read data from the AmlComputeClusterEvent table
Microsoft.OperationalInsights/workspaces/query/AmlComputeClusterNodeEvent/read	Read data from the AmlComputeClusterNodeEvent table
Microsoft.OperationalInsights/workspaces/query/AmlComputeCpuGpuUtilization/read	Read data from the AmlComputeCpuGpuUtilization table
Microsoft.OperationalInsights/workspaces/query/AmlComputeJobEvent/read	Read data from the AmlComputeJobEvent table
Microsoft.OperationalInsights/workspaces/query/AmlRunStatusChangedEvent/read	Read data from the AmlRunStatusChangedEvent table
Microsoft.OperationalInsights/workspaces/query/ApiManagementGatewayLogs/read	Read data from the ApiManagementGatewayLogs table
Microsoft.OperationalInsights/workspaces/query/AppAvailabilityResults/read	Read data from the AppAvailabilityResults table
Microsoft.OperationalInsights/workspaces/query/AppBrowserTimings/read	Read data from the AppBrowserTimings table

ACTION	DESCRIPTION
Microsoft.OperationalInsights/workspaces/query/AppCenterError/read	Read data from the AppCenterError table
Microsoft.OperationalInsights/workspaces/query/AppDependencies/read	Read data from the AppDependencies table
Microsoft.OperationalInsights/workspaces/query/AppEvents/read	Read data from the AppEvents table
Microsoft.OperationalInsights/workspaces/query/AppExceptions/read	Read data from the AppExceptions table
Microsoft.OperationalInsights/workspaces/query/ApplicationInsights/read	Read data from the ApplicationInsights table
Microsoft.OperationalInsights/workspaces/query/AppMetrics/read	Read data from the AppMetrics table
Microsoft.OperationalInsights/workspaces/query/AppPageViews/read	Read data from the AppPageViews table
Microsoft.OperationalInsights/workspaces/query/AppPerformanceCounters/read	Read data from the AppPerformanceCounters table
Microsoft.OperationalInsights/workspaces/query/AppPlatformLogsforSpring/read	Read data from the AppPlatformLogsforSpring table
Microsoft.OperationalInsights/workspaces/query/AppPlatformSystemLogs/read	Read data from the AppPlatformSystemLogs table
Microsoft.OperationalInsights/workspaces/query/AppRequests/read	Read data from the AppRequests table
Microsoft.OperationalInsights/workspaces/query/AppServiceAppLogs/read	Read data from the AppServiceAppLogs table
Microsoft.OperationalInsights/workspaces/query/AppServiceAuditLogs/read	Read data from the AppServiceAuditLogs table
Microsoft.OperationalInsights/workspaces/query/AppServiceConsoleLogs/read	Read data from the AppServiceConsoleLogs table
Microsoft.OperationalInsights/workspaces/query/AppServiceEnvironmentPlatformLogs/read	Read data from the AppServiceEnvironmentPlatformLogs table
Microsoft.OperationalInsights/workspaces/query/AppServiceFileAuditLogs/read	Read data from the AppServiceFileAuditLogs table
Microsoft.OperationalInsights/workspaces/query/AppServiceHTTPLogs/read	Read data from the AppServiceHTTPLogs table
Microsoft.OperationalInsights/workspaces/query/AppServicePlatformLogs/read	Read data from the AppServicePlatformLogs table

ACTION	DESCRIPTION
Microsoft.OperationalInsights/workspaces/query/AppSystemEvents/read	Read data from the AppSystemEvents table
Microsoft.OperationalInsights/workspaces/query/AppTraces/read	Read data from the AppTraces table
Microsoft.OperationalInsights/workspaces/query/AuditLogs/read	Read data from the AuditLogs table
Microsoft.OperationalInsights/workspaces/query/AutoscaleEvaluationsLog/read	Read data from the AutoscaleEvaluationsLog table
Microsoft.OperationalInsights/workspaces/query/AutoscaleScaleActionsLog/read	Read data from the AutoscaleScaleActionsLog table
Microsoft.OperationalInsights/workspaces/query/AWSCloudTrail/read	Read data from the AWSCloudTrail table
Microsoft.OperationalInsights/workspaces/query/AzureActivity/read	Read data from the AzureActivity table
Microsoft.OperationalInsights/workspaces/query/AzureAssessmentRecommendation/read	Read data from the AzureAssessmentRecommendation table
Microsoft.OperationalInsights/workspaces/query/AzureDevOpsAuditing/read	Read data from the AzureDevOpsAuditing table
Microsoft.OperationalInsights/workspaces/query/AzureDiagnostics/read	Read data from the AzureDiagnostics table
Microsoft.OperationalInsights/workspaces/query/AzureDiagnostics/read	Read data from the AzureDiagnostics table
Microsoft.OperationalInsights/workspaces/query/AzureMetrics/read	Read data from the AzureMetrics table
Microsoft.OperationalInsights/workspaces/query/BaiClusterEvent/read	Read data from the BaiClusterEvent table
Microsoft.OperationalInsights/workspaces/query/BaiClusterNodeEvent/read	Read data from the BaiClusterNodeEvent table
Microsoft.OperationalInsights/workspaces/query/BaiJobEvent/read	Read data from the BaiJobEvent table
Microsoft.OperationalInsights/workspaces/query/BehaviorAnalytics/read	Read data from the BehaviorAnalytics table
Microsoft.OperationalInsights/workspaces/query/BlockchainApplicationLog/read	Read data from the BlockchainApplicationLog table
Microsoft.OperationalInsights/workspaces/query/BlockchainProxyLog/read	Read data from the BlockchainProxyLog table

ACTION	DESCRIPTION
Microsoft.OperationalInsights/workspaces/query/BoundPort/read	Read data from the BoundPort table
Microsoft.OperationalInsights/workspaces/query/CommonSecurityLog/read	Read data from the CommonSecurityLog table
Microsoft.OperationalInsights/workspaces/query/ComputerGroup/read	Read data from the ComputerGroup table
Microsoft.OperationalInsights/workspaces/query/ConfigurationChange/read	Read data from the ConfigurationChange table
Microsoft.OperationalInsights/workspaces/query/ConfigurationData/read	Read data from the ConfigurationData table
Microsoft.OperationalInsights/workspaces/query/ContainerImageInventory/read	Read data from the ContainerImageInventory table
Microsoft.OperationalInsights/workspaces/query/ContainerInventory/read	Read data from the ContainerInventory table
Microsoft.OperationalInsights/workspaces/query/ContainerLog/read	Read data from the ContainerLog table
Microsoft.OperationalInsights/workspaces/query/ContainerNodeInventory/read	Read data from the ContainerNodeInventory table
Microsoft.OperationalInsights/workspaces/query/ContainerRegistryLoginEvents/read	Read data from the ContainerRegistryLoginEvents table
Microsoft.OperationalInsights/workspaces/query/ContainerRegistryRepositoryEvents/read	Read data from the ContainerRegistryRepositoryEvents table
Microsoft.OperationalInsights/workspaces/query/ContainerServiceLog/read	Read data from the ContainerServiceLog table
Microsoft.OperationalInsights/workspaces/query/CoreAzureBackup/read	Read data from the CoreAzureBackup table
Microsoft.OperationalInsights/workspaces/query/DatabricksAccounts/read	Read data from the DatabricksAccounts table
Microsoft.OperationalInsights/workspaces/query/DatabricksClusters/read	Read data from the DatabricksClusters table
Microsoft.OperationalInsights/workspaces/query/DatabricksDBFS/read	Read data from the DatabricksDBFS table
Microsoft.OperationalInsights/workspaces/query/DatabricksInstancePools/read	Read data from the DatabricksInstancePools table
Microsoft.OperationalInsights/workspaces/query/DatabricksJobs/read	Read data from the DatabricksJobs table

ACTION	DESCRIPTION
Microsoft.OperationalInsights/workspaces/query/DatabricksNotebook/read	Read data from the DatabricksNotebook table
Microsoft.OperationalInsights/workspaces/query/DatabricksSecrets/read	Read data from the DatabricksSecrets table
Microsoft.OperationalInsights/workspaces/query/DatabricksSQLPermissions/read	Read data from the DatabricksSQLPermissions table
Microsoft.OperationalInsights/workspaces/query/DatabricksSSH/read	Read data from the DatabricksSSH table
Microsoft.OperationalInsights/workspaces/query/DatabricksTables/read	Read data from the DatabricksTables table
Microsoft.OperationalInsights/workspaces/query/DatabricksWorkspace/read	Read data from the DatabricksWorkspace table
Microsoft.OperationalInsights/workspaces/query/dependencies/read	Read data from the dependencies table
Microsoft.OperationalInsights/workspaces/query/DeviceAppCrash/read	Read data from the DeviceAppCrash table
Microsoft.OperationalInsights/workspaces/query/DeviceAppLaunch/read	Read data from the DeviceAppLaunch table
Microsoft.OperationalInsights/workspaces/query/DeviceCalendar/read	Read data from the DeviceCalendar table
Microsoft.OperationalInsights/workspaces/query/DeviceCleanup/read	Read data from the DeviceCleanup table
Microsoft.OperationalInsights/workspaces/query/DeviceConnectSession/read	Read data from the DeviceConnectSession table
Microsoft.OperationalInsights/workspaces/query/DeviceEtw/read	Read data from the DeviceEtw table
Microsoft.OperationalInsights/workspaces/query/DeviceHardwareHealth/read	Read data from the DeviceHardwareHealth table
Microsoft.OperationalInsights/workspaces/query/DeviceHealth/read	Read data from the DeviceHealth table
Microsoft.OperationalInsights/workspaces/query/DeviceHeartbeat/read	Read data from the DeviceHeartbeat table
Microsoft.OperationalInsights/workspaces/query/DeviceSkypeHeartbeat/read	Read data from the DeviceSkypeHeartbeat table
Microsoft.OperationalInsights/workspaces/query/DeviceSkypeSignIn/read	Read data from the DeviceSkypeSignIn table

ACTION	DESCRIPTION
Microsoft.OperationalInsights/workspaces/query/DeviceSleepState/read	Read data from the DeviceSleepState table
Microsoft.OperationalInsights/workspaces/query/DHAppFailure/read	Read data from the DHAppFailure table
Microsoft.OperationalInsights/workspaces/query/DHAppReliability/read	Read data from the DHAppReliability table
Microsoft.OperationalInsights/workspaces/query/DHCPActivity/read	Read data from the DHCPActivity table
Microsoft.OperationalInsights/workspaces/query/DHDriverReliability/read	Read data from the DHDriverReliability table
Microsoft.OperationalInsights/workspaces/query/DHLogonFailures/read	Read data from the DHLogonFailures table
Microsoft.OperationalInsights/workspaces/query/DHLogonMetrics/read	Read data from the DHLogonMetrics table
Microsoft.OperationalInsights/workspaces/query/DHOSCrashData/read	Read data from the DHOSCrashData table
Microsoft.OperationalInsights/workspaces/query/DHOSReliability/read	Read data from the DHOSReliability table
Microsoft.OperationalInsights/workspaces/query/DHWipAppLearning/read	Read data from the DHWipAppLearning table
Microsoft.OperationalInsights/workspaces/query/DnsEvents/read	Read data from the DnsEvents table
Microsoft.OperationalInsights/workspaces/query/DnsInventory/read	Read data from the DnsInventory table
Microsoft.OperationalInsights/workspaces/query/Dynamics365Activity/read	Read data from the Dynamics365Activity table
Microsoft.OperationalInsights/workspaces/query/ETWEvent/read	Read data from the ETWEvent table
Microsoft.OperationalInsights/workspaces/query/Event/read	Read data from the Event table
Microsoft.OperationalInsights/workspaces/query/ExchangeAssessmentRecommendation/read	Read data from the ExchangeAssessmentRecommendation table
Microsoft.OperationalInsights/workspaces/query/ExchangeOnlineAssessmentRecommendation/read	Read data from the ExchangeOnlineAssessmentRecommendation table
Microsoft.OperationalInsights/workspaces/query/FailedIngestion/read	Read data from the FailedIngestion table

ACTION	DESCRIPTION
Microsoft.OperationalInsights/workspaces/query/FunctionAppLogs/read	Read data from the FunctionAppLogs table
Microsoft.OperationalInsights/workspaces/query/Heartbeat/read	Read data from the Heartbeat table
Microsoft.OperationalInsights/workspaces/query/HuntingBookmark/read	Read data from the HuntingBookmark table
Microsoft.OperationalInsights/workspaces/query/IISAssessmentRecommendation/read	Read data from the IISAssessmentRecommendation table
Microsoft.OperationalInsights/workspaces/query/InboundConnection/read	Read data from the InboundConnection table
Microsoft.OperationalInsights/workspaces/query/InsightsMetrics/read	Read data from the InsightsMetrics table
Microsoft.OperationalInsights/workspaces/query/IntuneAuditLogs/read	Read data from the IntuneAuditLogs table
Microsoft.OperationalInsights/workspaces/query/IntuneDeviceComplianceOrg/read	Read data from the IntuneDeviceComplianceOrg table
Microsoft.OperationalInsights/workspaces/query/IntuneOperationalLogs/read	Read data from the IntuneOperationalLogs table
Microsoft.OperationalInsights/workspaces/query/IoTHubDistributedTracing/read	Read data from the IoTHubDistributedTracing table
Microsoft.OperationalInsights/workspaces/query/KubeEvents/read	Read data from the KubeEvents table
Microsoft.OperationalInsights/workspaces/query/KubeHealth/read	Read data from the KubeHealth table
Microsoft.OperationalInsights/workspaces/query/KubeMonAgentEvents/read	Read data from the KubeMonAgentEvents table
Microsoft.OperationalInsights/workspaces/query/KubeNodeInventory/read	Read data from the KubeNodeInventory table
Microsoft.OperationalInsights/workspaces/query/KubePodInventory/read	Read data from the KubePodInventory table
Microsoft.OperationalInsights/workspaces/query/KubeServices/read	Read data from the KubeServices table
Microsoft.OperationalInsights/workspaces/query/LinuxAuditLog/read	Read data from the LinuxAuditLog table
Microsoft.OperationalInsights/workspaces/query/MAApplication/read	Read data from the MAApplication table

ACTION	DESCRIPTION
Microsoft.OperationalInsights/workspaces/query/MAApplicationHealth/read	Read data from the MAApplicationHealth table
Microsoft.OperationalInsights/workspaces/query/MAApplicationHealthAlternativeVersions/read	Read data from the MAApplicationHealthAlternativeVersions table
Microsoft.OperationalInsights/workspaces/query/MAApplicationHealthIssues/read	Read data from the MAApplicationHealthIssues table
Microsoft.OperationalInsights/workspaces/query/MAApplicationInstance/read	Read data from the MAApplicationInstance table
Microsoft.OperationalInsights/workspaces/query/MAApplicationInstanceReadiness/read	Read data from the MAApplicationInstanceReadiness table
Microsoft.OperationalInsights/workspaces/query/MAApplicationReadiness/read	Read data from the MAApplicationReadiness table
Microsoft.OperationalInsights/workspaces/query/MADeploymentPlan/read	Read data from the MADeploymentPlan table
Microsoft.OperationalInsights/workspaces/query/MADevice/read	Read data from the MADevice table
Microsoft.OperationalInsights/workspaces/query/MADeviceNotEnrolled/read	Read data from the MADeviceNotEnrolled table
Microsoft.OperationalInsights/workspaces/query/MADeviceNRT/read	Read data from the MADeviceNRT table
Microsoft.OperationalInsights/workspaces/query/MADevicePnPHealth/read	Read data from the MADevicePnPHealth table
Microsoft.OperationalInsights/workspaces/query/MADevicePnPHealthAlternativeVersions/read	Read data from the MADevicePnPHealthAlternativeVersions table
Microsoft.OperationalInsights/workspaces/query/MADevicePnPHealthIssues/read	Read data from the MADevicePnPHealthIssues table
Microsoft.OperationalInsights/workspaces/query/MADeviceReadiness/read	Read data from the MADeviceReadiness table
Microsoft.OperationalInsights/workspaces/query/MADriverInstanceReadiness/read	Read data from the MADriverInstanceReadiness table
Microsoft.OperationalInsights/workspaces/query/MADriverReadiness/read	Read data from the MADriverReadiness table
Microsoft.OperationalInsights/workspaces/query/MAOfficeAddin/read	Read data from the MAOfficeAddin table
Microsoft.OperationalInsights/workspaces/query/MAOfficeAddinEntityHealth/read	Read data from the MAOfficeAddinEntityHealth table

ACTION	DESCRIPTION
Microsoft.OperationalInsights/workspaces/query/MAOfficeAddinHealth/read	Read data from the MAOfficeAddinHealth table
Microsoft.OperationalInsights/workspaces/query/MAOfficeAddinHealthEventNRT/read	Read data from the MAOfficeAddinHealthEventNRT table
Microsoft.OperationalInsights/workspaces/query/MAOfficeAddinHealthIssues/read	Read data from the MAOfficeAddinHealthIssues table
Microsoft.OperationalInsights/workspaces/query/MAOfficeAddinInstance/read	Read data from the MAOfficeAddinInstance table
Microsoft.OperationalInsights/workspaces/query/MAOfficeAddinInstanceReadiness/read	Read data from the MAOfficeAddinInstanceReadiness table
Microsoft.OperationalInsights/workspaces/query/MAOfficeAddinReadiness/read	Read data from the MAOfficeAddinReadiness table
Microsoft.OperationalInsights/workspaces/query/MAOfficeApp/read	Read data from the MAOfficeApp table
Microsoft.OperationalInsights/workspaces/query/MAOfficeAppCrashesNRT/read	Read data from the MAOfficeAppCrashesNRT table
Microsoft.OperationalInsights/workspaces/query/MAOfficeAppHealth/read	Read data from the MAOfficeAppHealth table
Microsoft.OperationalInsights/workspaces/query/MAOfficeAppInstance/read	Read data from the MAOfficeAppInstance table
Microsoft.OperationalInsights/workspaces/query/MAOfficeAppInstanceHealth/read	Read data from the MAOfficeAppInstanceHealth table
Microsoft.OperationalInsights/workspaces/query/MAOfficeAppReadiness/read	Read data from the MAOfficeAppReadiness table
Microsoft.OperationalInsights/workspaces/query/MAOfficeAppSessionsNRT/read	Read data from the MAOfficeAppSessionsNRT table
Microsoft.OperationalInsights/workspaces/query/MAOfficeBuildInfo/read	Read data from the MAOfficeBuildInfo table
Microsoft.OperationalInsights/workspaces/query/MAOfficeCurrencyAssessment/read	Read data from the MAOfficeCurrencyAssessment table
Microsoft.OperationalInsights/workspaces/query/MAOfficeCurrencyAssessmentDailyCounts/read	Read data from the MAOfficeCurrencyAssessmentDailyCounts table
Microsoft.OperationalInsights/workspaces/query/MAOfficeDeploymentStatus/read	Read data from the MAOfficeDeploymentStatus table
Microsoft.OperationalInsights/workspaces/query/MAOfficeDeploymentStatusNRT/read	Read data from the MAOfficeDeploymentStatusNRT table

ACTION	DESCRIPTION
Microsoft.OperationalInsights/workspaces/query/MAOfficeMacroErrorNRT/read	Read data from the MAOfficeMacroErrorNRT table
Microsoft.OperationalInsights/workspaces/query/MAOfficeMacroGlobalHealth/read	Read data from the MAOfficeMacroGlobalHealth table
Microsoft.OperationalInsights/workspaces/query/MAOfficeMacroHealth/read	Read data from the MAOfficeMacroHealth table
Microsoft.OperationalInsights/workspaces/query/MAOfficeMacroHealthIssues/read	Read data from the MAOfficeMacroHealthIssues table
Microsoft.OperationalInsights/workspaces/query/MAOfficeMacroIssueInstanceReadiness/read	Read data from the MAOfficeMacroIssueInstanceReadiness table
Microsoft.OperationalInsights/workspaces/query/MAOfficeMacroIssueReadiness/read	Read data from the MAOfficeMacroIssueReadiness table
Microsoft.OperationalInsights/workspaces/query/MAOfficeMacroSummary/read	Read data from the MAOfficeMacroSummary table
Microsoft.OperationalInsights/workspaces/query/MAOfficeSuite/read	Read data from the MAOfficeSuite table
Microsoft.OperationalInsights/workspaces/query/MAOfficeSuiteInstance/read	Read data from the MAOfficeSuiteInstance table
Microsoft.OperationalInsights/workspaces/query/MAProposedPilotDevices/read	Read data from the MAProposedPilotDevices table
Microsoft.OperationalInsights/workspaces/query/MAWindowsBuildInfo/read	Read data from the MAWindowsBuildInfo table
Microsoft.OperationalInsights/workspaces/query/MAWindowsCurrencyAssessment/read	Read data from the MAWindowsCurrencyAssessment table
Microsoft.OperationalInsights/workspaces/query/MAWindowsCurrencyAssessmentDailyCounts/read	Read data from the MAWindowsCurrencyAssessmentDailyCounts table
Microsoft.OperationalInsights/workspaces/query/MAWindowsDeploymentStatus/read	Read data from the MAWindowsDeploymentStatus table
Microsoft.OperationalInsights/workspaces/query/MAWindowsDeploymentStatusNRT/read	Read data from the MAWindowsDeploymentStatusNRT table
Microsoft.OperationalInsights/workspaces/query/MAWindowsSysReqInstanceReadiness/read	Read data from the MAWindowsSysReqInstanceReadiness table
Microsoft.OperationalInsights/workspaces/query/McasShadowWltReporting/read	Read data from the McasShadowWltReporting table
Microsoft.OperationalInsights/workspaces/query/MicrosoftAzureBastionAuditLogs/read	Read data from the MicrosoftAzureBastionAuditLogs table

ACTION	DESCRIPTION
Microsoft.OperationalInsights/workspaces/query/MicrosoftDataShareReceivedSnapshotLog/read	Read data from the MicrosoftDataShareReceivedSnapshotLog table
Microsoft.OperationalInsights/workspaces/query/MicrosoftDataShareSentSnapshotLog/read	Read data from the MicrosoftDataShareSentSnapshotLog table
Microsoft.OperationalInsights/workspaces/query/MicrosoftDataShareShareLog/read	Read data from the MicrosoftDataShareShareLog table
Microsoft.OperationalInsights/workspaces/query/MicrosoftDynamicsTelemetryPerformanceLogs/read	Read data from the MicrosoftDynamicsTelemetryPerformanceLogs table
Microsoft.OperationalInsights/workspaces/query/MicrosoftDynamicsTelemetrySystemMetricsLogs/read	Read data from the MicrosoftDynamicsTelemetrySystemMetricsLogs table
Microsoft.OperationalInsights/workspaces/query/MicrosoftHealthcareApisAuditLogs/read	Read data from the MicrosoftHealthcareApisAuditLogs table
Microsoft.OperationalInsights/workspaces/query/NetworkMonitoring/read	Read data from the NetworkMonitoring table
Microsoft.OperationalInsights/workspaces/query/OfficeActivity/read	Read data from the OfficeActivity table
Microsoft.OperationalInsights/workspaces/query/Operation/read	Read data from the Operation table
Microsoft.OperationalInsights/workspaces/query/OutboundConnection/read	Read data from the OutboundConnection table
Microsoft.OperationalInsights/workspaces/query/Perf/read	Read data from the Perf table
Microsoft.OperationalInsights/workspaces/query/ProtectionStatus/read	Read data from the ProtectionStatus table
Microsoft.OperationalInsights/workspaces/query/requests/read	Read data from the requests table
Microsoft.OperationalInsights/workspaces/query/SCCMAssessmentRecommendation/read	Read data from the SCCMAssessmentRecommendation table
Microsoft.OperationalInsights/workspaces/query/SCOMAssessmentRecommendation/read	Read data from the SCOMAssessmentRecommendation table
Microsoft.OperationalInsights/workspaces/query/SecurityAlert/read	Read data from the SecurityAlert table
Microsoft.OperationalInsights/workspaces/query/SecurityBaseline/read	Read data from the SecurityBaseline table
Microsoft.OperationalInsights/workspaces/query/SecurityBaselineSummary/read	Read data from the SecurityBaselineSummary table

ACTION	DESCRIPTION
Microsoft.OperationalInsights/workspaces/query/SecurityDetection/read	Read data from the SecurityDetection table
Microsoft.OperationalInsights/workspaces/query/SecurityEvent/read	Read data from the SecurityEvent table
Microsoft.OperationalInsights/workspaces/query/SecurityIncident/read	Read data from the SecurityIncident table
Microsoft.OperationalInsights/workspaces/query/SecurityIoTRawEvent/read	Read data from the SecurityIoTRawEvent table
Microsoft.OperationalInsights/workspaces/query/SecurityNestedRecommendation/read	Read data from the SecurityNestedRecommendation table
Microsoft.OperationalInsights/workspaces/query/SecurityRecommendation/read	Read data from the SecurityRecommendation table
Microsoft.OperationalInsights/workspaces/query/ServiceFabricOperationalEvent/read	Read data from the ServiceFabricOperationalEvent table
Microsoft.OperationalInsights/workspaces/query/ServiceFabricReliableActorEvent/read	Read data from the ServiceFabricReliableActorEvent table
Microsoft.OperationalInsights/workspaces/query/ServiceFabricReliableServiceEvent/read	Read data from the ServiceFabricReliableServiceEvent table
Microsoft.OperationalInsights/workspaces/query/SfBAssessmentRecommendation/read	Read data from the SfBAssessmentRecommendation table
Microsoft.OperationalInsights/workspaces/query/SfBOnlineAssessmentRecommendation/read	Read data from the SfBOnlineAssessmentRecommendation table
Microsoft.OperationalInsights/workspaces/query/SharePointOnlineAssessmentRecommendation/read	Read data from the SharePointOnlineAssessmentRecommendation table
Microsoft.OperationalInsights/workspaces/query/SignalRServiceDiagnosticLogs/read	Read data from the SignalRServiceDiagnosticLogs table
Microsoft.OperationalInsights/workspaces/query/SigninLogs/read	Read data from the SigninLogs table
Microsoft.OperationalInsights/workspaces/query/SPAssessmentRecommendation/read	Read data from the SPAssessmentRecommendation table
Microsoft.OperationalInsights/workspaces/query/SQLAssessmentRecommendation/read	Read data from the SQLAssessmentRecommendation table
Microsoft.OperationalInsights/workspaces/query/SqlDataClassification/read	Read data from the SqlDataClassification table
Microsoft.OperationalInsights/workspaces/query/SQLQueryPerformance/read	Read data from the SQLQueryPerformance table

ACTION	DESCRIPTION
Microsoft.OperationalInsights/workspaces/query/SqlVulnerabilityAssessmentResult/read	Read data from the SqlVulnerabilityAssessmentResult table
Microsoft.OperationalInsights/workspaces/query/StorageBlobLogs/read	Read data from the StorageBlobLogs table
Microsoft.OperationalInsights/workspaces/query/StorageFileLogs/read	Read data from the StorageFileLogs table
Microsoft.OperationalInsights/workspaces/query/StorageQueueLogs/read	Read data from the StorageQueueLogs table
Microsoft.OperationalInsights/workspaces/query/StorageTableLogs/read	Read data from the StorageTableLogs table
Microsoft.OperationalInsights/workspaces/query/SucceededIngestion/read	Read data from the SucceededIngestion table
Microsoft.OperationalInsights/workspaces/query/Syslog/read	Read data from the Syslog table
Microsoft.OperationalInsights/workspaces/query/SysmonEvent/read	Read data from the SysmonEvent table
Microsoft.OperationalInsights/workspaces/query/Tables.Custom/read	Reading data from any custom log
Microsoft.OperationalInsights/workspaces/query/ThreatIntelligenceIndicator/read	Read data from the ThreatIntelligenceIndicator table
Microsoft.OperationalInsights/workspaces/query/TSIIngress/read	Read data from the TSIIngress table
Microsoft.OperationalInsights/workspaces/query/UAApp/read	Read data from the UAApp table
Microsoft.OperationalInsights/workspaces/query/UAComputer/read	Read data from the UAComputer table
Microsoft.OperationalInsights/workspaces/query/UAComputerRank/read	Read data from the UAComputerRank table
Microsoft.OperationalInsights/workspaces/query/UADriver/read	Read data from the UADriver table
Microsoft.OperationalInsights/workspaces/query/UADriverProblemCodes/read	Read data from the UADriverProblemCodes table
Microsoft.OperationalInsights/workspaces/query/UAFeedback/read	Read data from the UAFeedback table
Microsoft.OperationalInsights/workspaces/query/UAHardwareSecurity/read	Read data from the UAHardwareSecurity table

ACTION	DESCRIPTION
Microsoft.OperationalInsights/workspaces/query/UAIESiteDiscovery/read	Read data from the UAIESiteDiscovery table
Microsoft.OperationalInsights/workspaces/query/UAOfficeAddIn/read	Read data from the UAOfficeAddIn table
Microsoft.OperationalInsights/workspaces/query/UAProposedActionPlan/read	Read data from the UAProposedActionPlan table
Microsoft.OperationalInsights/workspaces/query/UASysReqIssue/read	Read data from the UASysReqIssue table
Microsoft.OperationalInsights/workspaces/query/UAUpgradedComputer/read	Read data from the UAUpgradedComputer table
Microsoft.OperationalInsights/workspaces/query/Update/read	Read data from the Update table
Microsoft.OperationalInsights/workspaces/query/UpdateRunProgress/read	Read data from the UpdateRunProgress table
Microsoft.OperationalInsights/workspaces/query/UpdateSummary/read	Read data from the UpdateSummary table
Microsoft.OperationalInsights/workspaces/query/Usage/read	Read data from the Usage table
Microsoft.OperationalInsights/workspaces/query/VMBoundPort/read	Read data from the VMBoundPort table
Microsoft.OperationalInsights/workspaces/query/VMComputer/read	Read data from the VMComputer table
Microsoft.OperationalInsights/workspaces/query/VMConnection/read	Read data from the VMConnection table
Microsoft.OperationalInsights/workspaces/query/VMProcess/read	Read data from the VMProcess table
Microsoft.OperationalInsights/workspaces/query/W3CIIISLog/read	Read data from the W3CIIISLog table
Microsoft.OperationalInsights/workspaces/query/WaaSDeploymentStatus/read	Read data from the WaaSDeploymentStatus table
Microsoft.OperationalInsights/workspaces/query/WaaSInsiderStatus/read	Read data from the WaaSInsiderStatus table
Microsoft.OperationalInsights/workspaces/query/WaaSUpdateStatus/read	Read data from the WaaSUpdateStatus table
Microsoft.OperationalInsights/workspaces/query/WDAVStatus/read	Read data from the WDAVStatus table

ACTION	DESCRIPTION
Microsoft.OperationalInsights/workspaces/query/WDAVThreat/read	Read data from the WDAVThreat table
Microsoft.OperationalInsights/workspaces/query/WindowsClientAssessmentRecommendation/read	Read data from the WindowsClientAssessmentRecommendation table
Microsoft.OperationalInsights/workspaces/query/WindowsEvent/read	Read data from the WindowsEvent table
Microsoft.OperationalInsights/workspaces/query/WindowsFirewall/read	Read data from the WindowsFirewall table
Microsoft.OperationalInsights/workspaces/query/WindowsServerAssessmentRecommendation/read	Read data from the WindowsServerAssessmentRecommendation table
Microsoft.OperationalInsights/workspaces/query/WireData/read	Read data from the WireData table
Microsoft.OperationalInsights/workspaces/query/WorkloadMonitoringPerf/read	Read data from the WorkloadMonitoringPerf table
Microsoft.OperationalInsights/workspaces/query/WUDOAggregatedStatus/read	Read data from the WUDOAggregatedStatus table
Microsoft.OperationalInsights/workspaces/query/WUDOSTatus/read	Read data from the WUDOSTatus table
Microsoft.OperationalInsights/workspaces/query/WVDCheckpoints/read	Read data from the WVDCheckpoints table
Microsoft.OperationalInsights/workspaces/query/WVDConnections/read	Read data from the WVDConnections table
Microsoft.OperationalInsights/workspaces/query/WVDErrors/read	Read data from the WVDErrors table
Microsoft.OperationalInsights/workspaces/query/WVDFeeds/read	Read data from the WVDFeeds table
Microsoft.OperationalInsights/workspaces/query/WVDHostRegistrations/read	Read data from the WVDHostRegistrations table
Microsoft.OperationalInsights/workspaces/query/WVDMManagement/read	Read data from the WVDMManagement table
microsoft.operationalinsights/workspaces/rules/read	Get all alert rules.
Microsoft.OperationalInsights/workspaces/savedSearches/read	Gets a saved search query
Microsoft.OperationalInsights/workspaces/savedSearches/write	Creates a saved search query

ACTION	DESCRIPTION
Microsoft.OperationalInsights/workspaces/savedSearches/delete	Deletes a saved search query
microsoft.operationalinsights/workspaces/savedsearches/results/read	Get saved searches results. Deprecated
microsoft.operationalinsights/workspaces/savedsearches/schedules/read	Get scheduled searches.
microsoft.operationalinsights/workspaces/savedsearches/schedules/delete	Delete scheduled searches.
microsoft.operationalinsights/workspaces/savedsearches/schedules/write	Create or update scheduled searches.
microsoft.operationalinsights/workspaces/savedsearches/schedules/actions/read	Get scheduled search actions.
microsoft.operationalinsights/workspaces/savedsearches/schedules/actions/delete	Delete scheduled search actions.
microsoft.operationalinsights/workspaces/savedsearches/schedules/actions/write	Create or update scheduled search actions.
Microsoft.OperationalInsights/workspaces/schema/read	Gets the search schema for the workspace. Search schema includes the exposed fields and their types.
microsoft.operationalinsights/workspaces/scopedPrivateLinkProxies/read	Get Scoped Private Link Proxy.
microsoft.operationalinsights/workspaces/scopedPrivateLinkProxies/write	Put Scoped Private Link Proxy.
microsoft.operationalinsights/workspaces/scopedPrivateLinkProxies/delete	Delete Scoped Private Link Proxy.
microsoft.operationalinsights/workspaces/search/read	Get search results. Deprecated.
Microsoft.OperationalInsights/workspaces/sharedKeys/read	Retrieves the shared keys for the workspace. These keys are used to connect Microsoft Operational Insights agents to the workspace.
Microsoft.OperationalInsights/workspaces/storageinsightconfigs/write	Creates a new storage configuration. These configurations are used to pull data from a location in an existing storage account.
Microsoft.OperationalInsights/workspaces/storageinsightconfigs/read	Gets a storage configuration.
Microsoft.OperationalInsights/workspaces/storageinsightconfigs/delete	Deletes a storage configuration. This will stop Microsoft Operational Insights from reading data from the storage account.

ACTION	DESCRIPTION
Microsoft.OperationalInsights/workspaces/upgradetranslationfailures/read	Get Search Upgrade Translation Failure log for the workspace
Microsoft.OperationalInsights/workspaces/usages/read	Gets usage data for a workspace including the amount of data read by the workspace.

## Microsoft.OperationsManagement

Azure service: [Azure Monitor](#)

ACTION	DESCRIPTION
Microsoft.OperationsManagement/register/action	Register a subscription to a resource provider.
Microsoft.OperationsManagement/managementAssociations/write	Create a new Management Association
Microsoft.OperationsManagement/managementAssociations/read	Get Existing Management Association
Microsoft.OperationsManagement/managementAssociations/delete	Delete existing Management Association
Microsoft.OperationsManagement/managementConfigurations/write	Create a new Management Configuration
Microsoft.OperationsManagement/managementConfigurations/read	Get Existing Management Configuration
Microsoft.OperationsManagement/managementConfigurations/delete	Delete existing Management Configuration
Microsoft.OperationsManagement/solutions/write	Create new OMS solution
Microsoft.OperationsManagement/solutions/read	Get exiting OMS solution
Microsoft.OperationsManagement/solutions/delete	Delete existing OMS solution

## Microsoft.WorkloadMonitor

Azure service: [Azure Monitor](#)

ACTION	DESCRIPTION
Microsoft.WorkloadMonitor/components/read	Gets components for the resource
Microsoft.WorkloadMonitor/componentsSummary/read	Gets summary of components
Microsoft.WorkloadMonitor/monitorInstances/read	Gets instances of monitors for the resource
Microsoft.WorkloadMonitor/monitorInstancesSummary/read	Gets summary of monitor instances
Microsoft.WorkloadMonitor/monitors/read	Gets monitors for the resource

ACTION	DESCRIPTION
Microsoft.WorkloadMonitor/monitors/write	Configure monitor for the resource
Microsoft.WorkloadMonitor/notificationSettings/read	Gets notification settings for the resource
Microsoft.WorkloadMonitor/notificationSettings/write	Configure notification settings for the resource
Microsoft.WorkloadMonitor/operations/read	Gets the supported operations

## Management + governance

### Microsoft.Advisor

Azure service: [Azure Advisor](#)

ACTION	DESCRIPTION
Microsoft.Advisor/generateRecommendations/action	Gets generate recommendations status
Microsoft.Advisor/register/action	Registers the subscription for the Microsoft Advisor
Microsoft.Advisor/unregister/action	Unregisters the subscription for the Microsoft Advisor
Microsoft.Advisor/configurations/read	Get configurations
Microsoft.Advisor/configurations/write	Creates/updates configuration
Microsoft.Advisor/generateRecommendations/read	Gets generate recommendations status
Microsoft.Advisor/metadata/read	Get Metadata
Microsoft.Advisor/operations/read	Gets the operations for the Microsoft Advisor
Microsoft.Advisor/recommendations/read	Reads recommendations
Microsoft.Advisor/recommendations/available/action	New recommendation is available in Microsoft Advisor
Microsoft.Advisor/recommendations/suppressions/read	Gets suppressions
Microsoft.Advisor/recommendations/suppressions/write	Creates/updates suppressions
Microsoft.Advisor/recommendations/suppressions/delete	Deletes suppression
Microsoft.Advisor/suppressions/read	Gets suppressions
Microsoft.Advisor/suppressions/write	Creates/updates suppressions
Microsoft.Advisor/suppressions/delete	Deletes suppression

### Microsoft.Authorization

Azure service: [Azure Policy](#), [Azure RBAC](#), [Azure Resource Manager](#)

ACTION	DESCRIPTION
Microsoft.Authorization/elevateAccess/action	Grants the caller User Access Administrator access at the tenant scope
Microsoft.Authorization/classicAdministrators/read	Reads the administrators for the subscription.
Microsoft.Authorization/classicAdministrators/write	Add or modify administrator to a subscription.
Microsoft.Authorization/classicAdministrators/delete	Removes the administrator from the subscription.
Microsoft.Authorization/classicAdministrators/operationstatuses/read	Gets the administrator operation statuses of the subscription.
Microsoft.Authorization/denyAssignments/read	Get information about a deny assignment.
Microsoft.Authorization/denyAssignments/write	Create a deny assignment at the specified scope.
Microsoft.Authorization/denyAssignments/delete	Delete a deny assignment at the specified scope.
Microsoft.Authorization/locks/read	Gets locks at the specified scope.
Microsoft.Authorization/locks/write	Add locks at the specified scope.
Microsoft.Authorization/locks/delete	Delete locks at the specified scope.
Microsoft.Authorization/operations/read	Gets the list of operations
Microsoft.Authorization/permissions/read	Lists all the permissions the caller has at a given scope.
Microsoft.Authorization/policies/audit/action	Action taken as a result of evaluation of Azure Policy with 'audit' effect
Microsoft.Authorization/policies/auditIfNotExists/action	Action taken as a result of evaluation of Azure Policy with 'auditIfNotExists' effect
Microsoft.Authorization/policies/deny/action	Action taken as a result of evaluation of Azure Policy with 'deny' effect
Microsoft.Authorization/policies/deployIfNotExists/action	Action taken as a result of evaluation of Azure Policy with 'deployIfNotExists' effect
Microsoft.Authorization/policyAssignments/read	Get information about a policy assignment.
Microsoft.Authorization/policyAssignments/write	Create a policy assignment at the specified scope.
Microsoft.Authorization/policyAssignments/delete	Delete a policy assignment at the specified scope.
Microsoft.Authorization/policyAssignments/privateLinkAssociations/read	Get information about private link association.
Microsoft.Authorization/policyAssignments/privateLinkAssociations/write	Creates or updates a private link association.

ACTION	DESCRIPTION
Microsoft.Authorization/policyAssignments/privateLinkAssociations/delete	Deletes a private link association.
Microsoft.Authorization/policyAssignments/resourceManagementPrivateLinks/read	Get information about resource management private link.
Microsoft.Authorization/policyAssignments/resourceManagementPrivateLinks/write	Creates or updates a resource management private link.
Microsoft.Authorization/policyAssignments/resourceManagementPrivateLinks/delete	Deletes a resource management private link.
Microsoft.Authorization/policyAssignments/resourceManagementPrivateLinks/privateEndpointConnectionProxies/read	Get information about private endpoint connection proxy.
Microsoft.Authorization/policyAssignments/resourceManagementPrivateLinks/privateEndpointConnectionProxies/write	Creates or updates a private endpoint connection proxy.
Microsoft.Authorization/policyAssignments/resourceManagementPrivateLinks/privateEndpointConnectionProxies/delete	Deletes a private endpoint connection proxy.
Microsoft.Authorization/policyAssignments/resourceManagementPrivateLinks/privateEndpointConnectionProxies/validate /action	Validates a private endpoint connection proxy.
Microsoft.Authorization/policyAssignments/resourceManagementPrivateLinks/privateEndpointConnections/read	Get information about private endpoint connection.
Microsoft.Authorization/policyAssignments/resourceManagementPrivateLinks/privateEndpointConnections/write	Creates or updates a private endpoint connection.
Microsoft.Authorization/policyAssignments/resourceManagementPrivateLinks/privateEndpointConnections/delete	Deletes a private endpoint connection.
Microsoft.Authorization/policyDefinitions/read	Get information about a policy definition.
Microsoft.Authorization/policyDefinitions/write	Create a custom policy definition.
Microsoft.Authorization/policyDefinitions/delete	Delete a policy definition.
Microsoft.Authorization/policySetDefinitions/read	Get information about a policy set definition.
Microsoft.Authorization/policySetDefinitions/write	Create a custom policy set definition.
Microsoft.Authorization/policySetDefinitions/delete	Delete a policy set definition.
Microsoft.Authorization/providerOperations/read	Get operations for all resource providers which can be used in role definitions.
Microsoft.Authorization/roleAssignments/read	Get information about a role assignment.
Microsoft.Authorization/roleAssignments/write	Create a role assignment at the specified scope.

ACTION	DESCRIPTION
Microsoft.Authorization/roleAssignments/delete	Delete a role assignment at the specified scope.
Microsoft.Authorization/roleDefinitions/read	Get information about a role definition.
Microsoft.Authorization/roleDefinitions/write	Create or update a custom role definition with specified permissions and assignable scopes.
Microsoft.Authorization/roleDefinitions/delete	Delete the specified custom role definition.

## Microsoft.Automation

Azure service: [Automation](#)

ACTION	DESCRIPTION
Microsoft.Automation/register/action	Registers the subscription to Azure Automation
Microsoft.Automation/automationAccounts/webhooks/action	Generates a URI for an Azure Automation webhook
Microsoft.Automation/automationAccounts/read	Gets an Azure Automation account
Microsoft.Automation/automationAccounts/write	Creates or updates an Azure Automation account
Microsoft.Automation/automationAccounts/listKeys/action	Reads the Keys for the automation account
Microsoft.Automation/automationAccounts/delete	Deletes an Azure Automation account
Microsoft.Automation/automationAccounts/agentRegistrationInformation/read	Read an Azure Automation DSC's registration information
Microsoft.Automation/automationAccounts/agentRegistrationInformation/regenerateKey/action	Writes a request to regenerate Azure Automation DSC keys
Microsoft.Automation/automationAccounts/certificates/getCount/action	Reads the count of certificates
Microsoft.Automation/automationAccounts/certificates/read	Gets an Azure Automation certificate asset
Microsoft.Automation/automationAccounts/certificates/write	Creates or updates an Azure Automation certificate asset
Microsoft.Automation/automationAccounts/certificates/delete	Deletes an Azure Automation certificate asset
Microsoft.Automation/automationAccounts/compilationJobs/write	Writes an Azure Automation DSC's Compilation
Microsoft.Automation/automationAccounts/compilationJobs/read	Reads an Azure Automation DSC's Compilation
Microsoft.Automation/automationAccounts/compilationJobs/write	Writes an Azure Automation DSC's Compilation

ACTION	DESCRIPTION
Microsoft.Automation/automationAccounts/compilationJobs/read	Reads an Azure Automation DSC's Compilation
Microsoft.Automation/automationAccounts/configurations/read	Gets an Azure Automation DSC's content
Microsoft.Automation/automationAccounts/configurations/getCount/action	Reads the count of an Azure Automation DSC's content
Microsoft.Automation/automationAccounts/configurations/write	Writes an Azure Automation DSC's content
Microsoft.Automation/automationAccounts/configurations/delete	Deletes an Azure Automation DSC's content
Microsoft.Automation/automationAccounts/configurations/content/read	Reads the configuration media content
Microsoft.Automation/automationAccounts/connections/read	Gets an Azure Automation connection asset
Microsoft.Automation/automationAccounts/connections/getCount/action	Reads the count of connections
Microsoft.Automation/automationAccounts/connections/write	Creates or updates an Azure Automation connection asset
Microsoft.Automation/automationAccounts/connections/delete	Deletes an Azure Automation connection asset
Microsoft.Automation/automationAccounts/connectionTypes/read	Gets an Azure Automation connection type asset
Microsoft.Automation/automationAccounts/connectionTypes/write	Creates an Azure Automation connection type asset
Microsoft.Automation/automationAccounts/connectionTypes/delete	Deletes an Azure Automation connection type asset
Microsoft.Automation/automationAccounts/credentials/read	Gets an Azure Automation credential asset
Microsoft.Automation/automationAccounts/credentials/getCount/action	Reads the count of credentials
Microsoft.Automation/automationAccounts/credentials/write	Creates or updates an Azure Automation credential asset
Microsoft.Automation/automationAccounts/credentials/delete	Deletes an Azure Automation credential asset
Microsoft.Automation/automationAccounts/hybridRunbookWorkerGroups/read	Reads Hybrid Runbook Worker Resources

ACTION	DESCRIPTION
Microsoft.Automation/automationAccounts/hybridRunbookWorkerGroups/delete	Deletes Hybrid Runbook Worker Resources
Microsoft.Automation/automationAccounts/jobs/runbookContent/action	Gets the content of the Azure Automation runbook at the time of the job execution
Microsoft.Automation/automationAccounts/jobs/read	Gets an Azure Automation job
Microsoft.Automation/automationAccounts/jobs/write	Creates an Azure Automation job
Microsoft.Automation/automationAccounts/jobs/stop/action	Stops an Azure Automation job
Microsoft.Automation/automationAccounts/jobs/suspend/action	Suspends an Azure Automation job
Microsoft.Automation/automationAccounts/jobs/resume/action	Resumes an Azure Automation job
Microsoft.Automation/automationAccounts/jobs/output/read	Gets the output of a job
Microsoft.Automation/automationAccounts/jobsstreams/read	Gets an Azure Automation job stream
Microsoft.Automation/automationAccounts/jobsstreams/read	Gets an Azure Automation job stream
Microsoft.Automation/automationAccounts/jobSchedules/read	Gets an Azure Automation job schedule
Microsoft.Automation/automationAccounts/jobSchedules/write	Creates an Azure Automation job schedule
Microsoft.Automation/automationAccounts/jobSchedules/delete	Deletes an Azure Automation job schedule
Microsoft.Automation/automationAccounts/linkedWorkspace/read	Gets the workspace linked to the automation account
Microsoft.Automation/automationAccounts/modules/read	Gets an Azure Automation Powershell module
Microsoft.Automation/automationAccounts/modules/getCount/action	Gets the count of Powershell modules within the Automation Account
Microsoft.Automation/automationAccounts/modules/write	Creates or updates an Azure Automation Powershell module
Microsoft.Automation/automationAccounts/modules/delete	Deletes an Azure Automation Powershell module
Microsoft.Automation/automationAccounts/modules/activities/read	Gets Azure Automation Activities
Microsoft.Automation/automationAccounts/nodeConfigurations/rawContent/action	Reads an Azure Automation DSC's node configuration content

ACTION	DESCRIPTION
Microsoft.Automation/automationAccounts/nodeConfigurations/read	Reads an Azure Automation DSC's node configuration
Microsoft.Automation/automationAccounts/nodeConfigurations/write	Writes an Azure Automation DSC's node configuration
Microsoft.Automation/automationAccounts/nodeConfigurations/delete	Deletes an Azure Automation DSC's node configuration
Microsoft.Automation/automationAccounts/nodects/read	Reads node count summary for the specified type
Microsoft.Automation/automationAccounts/nodes/read	Reads Azure Automation DSC nodes
Microsoft.Automation/automationAccounts/nodes/write	Creates or updates Azure Automation DSC nodes
Microsoft.Automation/automationAccounts/nodes/delete	Deletes Azure Automation DSC nodes
Microsoft.Automation/automationAccounts/nodes/reports/read	Reads Azure Automation DSC reports
Microsoft.Automation/automationAccounts/nodes/reports/content/read	Reads Azure Automation DSC report contents
Microsoft.Automation/automationAccounts/objectDataTypes/fields/read	Gets Azure Automation TypeFields
Microsoft.Automation/automationAccounts/privateEndpointConnectionProxies/read	Reads Azure Automation Private Endpoint Connection Proxy
Microsoft.Automation/automationAccounts/privateEndpointConnectionProxies/write	Creates an Azure Automation Private Endpoint Connection Proxy
Microsoft.Automation/automationAccounts/privateEndpointConnectionProxies/validate/action	Validate a Private endpoint connection request (groupId Validation)
Microsoft.Automation/automationAccounts/privateEndpointConnectionProxies/delete	Delete an Azure Automation Private Endpoint Connection Proxy
Microsoft.Automation/automationAccounts/privateEndpointConnectionProxies/operationResults/read	Get Azure Automation private endpoint proxy operation results.
Microsoft.Automation/automationAccounts/privateEndpointConnections/read	Get Azure Automation Private Endpoint Connection status
Microsoft.Automation/automationAccounts/privateEndpointConnections/write	Approve or reject an Azure Automation Private Endpoint Connection
Microsoft.Automation/automationAccounts/privateLinkResources/read	Reads Group Information for private endpoints
Microsoft.Automation/automationAccounts/python2Packages/read	Gets an Azure Automation Python 2 package

ACTION	DESCRIPTION
Microsoft.Automation/automationAccounts/python2Packages/write	Creates or updates an Azure Automation Python 2 package
Microsoft.Automation/automationAccounts/python2Packages/delete	Deletes an Azure Automation Python 2 package
Microsoft.Automation/automationAccounts/python3Packages/read	Gets an Azure Automation Python 3 package
Microsoft.Automation/automationAccounts/python3Packages/write	Creates or updates an Azure Automation Python 3 package
Microsoft.Automation/automationAccounts/python3Packages/delete	Deletes an Azure Automation Python 3 package
Microsoft.Automation/automationAccounts/runbooks/read	Gets an Azure Automation runbook
Microsoft.Automation/automationAccounts/runbooks/getCount/action	Gets the count of Azure Automation runbooks
Microsoft.Automation/automationAccounts/runbooks/write	Creates or updates an Azure Automation runbook
Microsoft.Automation/automationAccounts/runbooks/delete	Deletes an Azure Automation runbook
Microsoft.Automation/automationAccounts/runbooks/publish/action	Publishes an Azure Automation runbook draft
Microsoft.Automation/automationAccounts/runbooks/content/read	Gets the content of an Azure Automation runbook
Microsoft.Automation/automationAccounts/runbooks/draft/read	Gets an Azure Automation runbook draft
Microsoft.Automation/automationAccounts/runbooks/draft/undoEdit/action	Undo edits to an Azure Automation runbook draft
Microsoft.Automation/automationAccounts/runbooks/draft/content/write	Creates the content of an Azure Automation runbook draft
Microsoft.Automation/automationAccounts/runbooks/draft/operationResults/read	Gets Azure Automation runbook draft operation results
Microsoft.Automation/automationAccounts/runbooks/draft/testJob/read	Gets an Azure Automation runbook draft test job
Microsoft.Automation/automationAccounts/runbooks/draft/testJob/write	Creates an Azure Automation runbook draft test job
Microsoft.Automation/automationAccounts/runbooks/draft/testJob/stop/action	Stops an Azure Automation runbook draft test job
Microsoft.Automation/automationAccounts/runbooks/draft/testJob/suspend/action	Suspends an Azure Automation runbook draft test job

ACTION	DESCRIPTION
Microsoft.Automation/automationAccounts/runbooks/draft/testJob/resume/action	Resumes an Azure Automation runbook draft test job
Microsoft.Automation/automationAccounts/schedules/read	Gets an Azure Automation schedule asset
Microsoft.Automation/automationAccounts/schedules/getCount/action	Gets the count of Azure Automation schedules
Microsoft.Automation/automationAccounts/schedules/write	Creates or updates an Azure Automation schedule asset
Microsoft.Automation/automationAccounts/schedules/delete	Deletes an Azure Automation schedule asset
Microsoft.Automation/automationAccounts/softwareUpdateConfigurationMachineRuns/read	Gets an Azure Automation Software Update Configuration Machine Run
Microsoft.Automation/automationAccounts/softwareUpdateConfigurationRuns/read	Gets an Azure Automation Software Update Configuration Run
Microsoft.Automation/automationAccounts/softwareUpdateConfigurations/write	Creates or updates Azure Automation Software Update Configuration
Microsoft.Automation/automationAccounts/softwareUpdateConfigurations/read	Gets an Azure Automation Software Update Configuration
Microsoft.Automation/automationAccounts/softwareUpdateConfigurations/delete	Deletes an Azure Automation Software Update Configuration
Microsoft.Automation/automationAccounts/softwareUpdateConfigurations/write	Creates or updates Azure Automation Software Update Configuration
Microsoft.Automation/automationAccounts/softwareUpdateConfigurations/read	Gets an Azure Automation Software Update Configuration
Microsoft.Automation/automationAccounts/softwareUpdateConfigurations/delete	Deletes an Azure Automation Software Update Configuration
Microsoft.Automation/automationAccounts/statistics/read	Gets Azure Automation Statistics
Microsoft.Automation/automationAccounts/updateDeploymentMachineRuns/read	Get an Azure Automation update deployment machine
Microsoft.Automation/automationAccounts/updateManagementPatchJob/read	Gets an Azure Automation update management patch job
Microsoft.Automation/automationAccounts/usages/read	Gets Azure Automation Usage
Microsoft.Automation/automationAccounts/variables/read	Reads an Azure Automation variable asset
Microsoft.Automation/automationAccounts/variables/write	Creates or updates an Azure Automation variable asset
Microsoft.Automation/automationAccounts/variables/delete	Deletes an Azure Automation variable asset

ACTION	DESCRIPTION
Microsoft.Automation/automationAccounts/watchers/write	Creates an Azure Automation watcher job
Microsoft.Automation/automationAccounts/watchers/read	Gets an Azure Automation watcher job
Microsoft.Automation/automationAccounts/watchers/delete	Delete an Azure Automation watcher job
Microsoft.Automation/automationAccounts/watchers/start/action	Start an Azure Automation watcher job
Microsoft.Automation/automationAccounts/watchers/stop/action	Stop an Azure Automation watcher job
Microsoft.Automation/automationAccounts/watchers/stream/read	Gets an Azure Automation watcher job stream
Microsoft.Automation/automationAccounts/watchers/watcherActions/write	Create an Azure Automation watcher job actions
Microsoft.Automation/automationAccounts/watchers/watcherActions/read	Gets an Azure Automation watcher job actions
Microsoft.Automation/automationAccounts/watchers/watcherActions/delete	Delete an Azure Automation watcher job actions
Microsoft.Automation/automationAccounts/webhooks/read	Reads an Azure Automation webhook
Microsoft.Automation/automationAccounts/webhooks/write	Creates or updates an Azure Automation webhook
Microsoft.Automation/automationAccounts/webhooks/delete	Deletes an Azure Automation webhook
Microsoft.Automation/operations/read	Gets Available Operations for Azure Automation resources

## Microsoft.Batch

Azure service: [Batch](#)

ACTION	DESCRIPTION
Microsoft.Batch/register/action	Registers the subscription for the Batch Resource Provider and enables the creation of Batch accounts
Microsoft.Batch/unregister/action	Unregisters the subscription for the Batch Resource Provider preventing the creation of Batch accounts
Microsoft.Batch/batchAccounts/read	Lists Batch accounts or gets the properties of a Batch account
Microsoft.Batch/batchAccounts/write	Creates a new Batch account or updates an existing Batch account
Microsoft.Batch/batchAccounts/delete	Deletes a Batch account

ACTION	DESCRIPTION
Microsoft.Batch/batchAccounts/listkeys/action	Lists access keys for a Batch account
Microsoft.Batch/batchAccounts/regeneratekeys/action	Regenerates access keys for a Batch account
Microsoft.Batch/batchAccounts/syncAutoStorageKeys/action	Synchronizes access keys for the auto storage account configured for a Batch account
Microsoft.Batch/batchAccounts/applications/read	Lists applications or gets the properties of an application
Microsoft.Batch/batchAccounts/applications/write	Creates a new application or updates an existing application
Microsoft.Batch/batchAccounts/applications/delete	Deletes an application
Microsoft.Batch/batchAccounts/applications/versions/read	Gets the properties of an application package
Microsoft.Batch/batchAccounts/applications/versions/write	Creates a new application package or updates an existing application package
Microsoft.Batch/batchAccounts/applications/versions/delete	Deletes an application package
Microsoft.Batch/batchAccounts/applications/versions/activate/action	Activates an application package
Microsoft.Batch/batchAccounts/certificateOperationResults/read	Gets the results of a long running certificate operation on a Batch account
Microsoft.Batch/batchAccounts/certificates/read	Lists certificates on a Batch account or gets the properties of a certificate
Microsoft.Batch/batchAccounts/certificates/write	Creates a new certificate on a Batch account or updates an existing certificate
Microsoft.Batch/batchAccounts/certificates/delete	Deletes a certificate from a Batch account
Microsoft.Batch/batchAccounts/certificates/cancelDelete/acti on	Cancels the failed deletion of a certificate on a Batch account
Microsoft.Batch/batchAccounts/operationResults/read	Gets the results of a long running Batch account operation
Microsoft.Batch/batchAccounts/poolOperationResults/read	Gets the results of a long running pool operation on a Batch account
Microsoft.Batch/batchAccounts/pools/read	Lists pools on a Batch account or gets the properties of a pool
Microsoft.Batch/batchAccounts/pools/write	Creates a new pool on a Batch account or updates an existing pool
Microsoft.Batch/batchAccounts/pools/delete	Deletes a pool from a Batch account
Microsoft.Batch/batchAccounts/pools/stopResize/action	Stops an ongoing resize operation on a Batch account pool

ACTION	DESCRIPTION
Microsoft.Batch/batchAccounts/pools/disableAutoscale/action	Disables automatic scaling for a Batch account pool
Microsoft.Batch/batchAccounts/privateEndpointConnectionResults/read	Gets the results of a long running Batch account private endpoint connection operation
Microsoft.Batch/batchAccounts/privateEndpointConnections/write	Update an existing Private endpoint connection on a Batch account
Microsoft.Batch/batchAccounts/privateEndpointConnections/read	Gets Private endpoint connection or Lists Private endpoint connections on a Batch account
Microsoft.Batch/batchAccounts/privateLinkResources/read	Gets the properties of a Private link resource or Lists Private link resources on a Batch account
Microsoft.Batch/locations/checkNameAvailability/action	Checks that the account name is valid and not in use.
Microsoft.Batch/locations/accountOperationResults/read	Gets the results of a long running Batch account operation
Microsoft.Batch/locations/quotas/read	Gets Batch quotas of the specified subscription at the specified Azure region
Microsoft.Batch/operations/read	Lists operations available on Microsoft.Batch resource provider
DataAction	Description
Microsoft.Batch/batchAccounts/jobs/read	Lists jobs on a Batch account or gets the properties of a job
Microsoft.Batch/batchAccounts/jobs/write	Creates a new job on a Batch account or updates an existing job
Microsoft.Batch/batchAccounts/jobs/delete	Deletes a job from a Batch account
Microsoft.Batch/batchAccounts/jobSchedules/read	Lists job schedules on a Batch account or gets the properties of a job schedule
Microsoft.Batch/batchAccounts/jobSchedules/write	Creates a new job schedule on a Batch account or updates an existing job schedule
Microsoft.Batch/batchAccounts/jobSchedules/delete	Deletes a job schedule from a Batch account

## Microsoft.Billing

Azure service: Cost Management + Billing

ACTION	DESCRIPTION
Microsoft.Billing/validateAddress/action	
Microsoft.Billing/register/action	
Microsoft.Billing/billingAccounts/read	

ACTION	DESCRIPTION
Microsoft.Billing/billingAccounts/listInvoiceSectionsWithCreateSubscriptionPermission/action	
Microsoft.Billing/billingAccounts/write	
Microsoft.Billing/billingAccounts/agreements/read	
Microsoft.Billing/billingAccounts/billingPermissions/read	
Microsoft.Billing/billingAccounts/billingProfiles/read	
Microsoft.Billing/billingAccounts/billingProfiles/write	
Microsoft.Billing/billingAccounts/billingProfiles/billingPermissions/read	
Microsoft.Billing/billingAccounts/billingProfiles/customers/read	
Microsoft.Billing/billingAccounts/billingProfiles/invoiceSections/read	
Microsoft.Billing/billingAccounts/billingProfiles/invoiceSections/write	
Microsoft.Billing/billingAccounts/billingProfiles/invoiceSections/billingPermissions/read	
Microsoft.Billing/billingAccounts/billingProfiles/pricesheet/download/action	
Microsoft.Billing/billingAccounts/billingSubscriptions/read	
Microsoft.Billing/billingAccounts/billingSubscriptions/move/action	
Microsoft.Billing/billingAccounts/billingSubscriptions/validateMoveEligibility/action	
Microsoft.Billing/billingAccounts/customers/read	
Microsoft.Billing/billingAccounts/customers/billingPermissions/read	
Microsoft.Billing/billingAccounts/departments/read	
Microsoft.Billing/billingAccounts/departments/billingPermissions/read	
Microsoft.Billing/billingAccounts/enrollmentAccounts/read	

ACTION	DESCRIPTION
Microsoft.Billing/billingAccounts/enrollmentAccounts/billingPermissions/read	
Microsoft.Billing/billingAccounts/invoices/pricesheet/download/action	
Microsoft.Billing/billingAccounts/products/read	
Microsoft.Billing/billingAccounts/products/move/action	
Microsoft.Billing/billingAccounts/products/validateMoveEligibility/action	
Microsoft.Billing/departments/read	
Microsoft.Billing/invoices/download/action	Download invoice using download link from list
Microsoft.Billing/operations/read	

## Microsoft.Blueprint

Azure service: [Azure Blueprints](#)

ACTION	DESCRIPTION
Microsoft.Blueprint/register/action	Registers the Azure Blueprints Resource Provider
Microsoft.Blueprint/blueprintAssignments/read	Read any blueprint artifacts
Microsoft.Blueprint/blueprintAssignments/write	Create or update any blueprint artifacts
Microsoft.Blueprint/blueprintAssignments/delete	Delete any blueprint artifacts
Microsoft.Blueprint/blueprintAssignments/whoisblueprint/act ion	Get Azure Blueprints service principal object Id.
Microsoft.Blueprint/blueprintAssignments/assignmentOperat ions/read	Read any blueprint artifacts
Microsoft.Blueprint/blueprints/read	Read any blueprints
Microsoft.Blueprint/blueprints/write	Create or update any blueprints
Microsoft.Blueprint/blueprints/delete	Delete any blueprints
Microsoft.Blueprint/blueprints/artifacts/read	Read any blueprint artifacts
Microsoft.Blueprint/blueprints/artifacts/write	Create or update any blueprint artifacts
Microsoft.Blueprint/blueprints/artifacts/delete	Delete any blueprint artifacts
Microsoft.Blueprint/blueprints/versions/read	Read any blueprints

ACTION	DESCRIPTION
Microsoft.Blueprint/blueprints/versions/write	Create or update any blueprints
Microsoft.Blueprint/blueprints/versions/delete	Delete any blueprints
Microsoft.Blueprint/blueprints/versions/artifacts/read	Read any blueprint artifacts

## Microsoft.Capacity

Azure service: core

ACTION	DESCRIPTION
Microsoft.Capacity/calculateprice/action	Calculate any Reservation Price
Microsoft.Capacity/checkoffers/action	Check any Subscription Offers
Microsoft.Capacity/checkscopes/action	Check any Subscription
Microsoft.Capacity/validatereservationorder/action	Validate any Reservation
Microsoft.Capacity/reservationorders/action	Update any Reservation
Microsoft.Capacity/register/action	Registers the Capacity resource provider and enables the creation of Capacity resources.
Microsoft.Capacity/unregister/action	Unregister any Tenant
Microsoft.Capacity/calculateexchange/action	Computes the exchange amount and price of new purchase and returns policy Errors.
Microsoft.Capacity/exchange/action	Exchange any Reservation
Microsoft.Capacity/appliedreservations/read	Read All Reservations
Microsoft.Capacity/catalogs/read	Read catalog of Reservation
Microsoft.Capacity/commercialreservationorders/read	Get Reservation Orders created in any Tenant
Microsoft.Capacity/operations/read	Read any Operation
Microsoft.Capacity/reservationorders/availablescopes/action	Find any Available Scope
Microsoft.Capacity/reservationorders/read	Read All Reservations
Microsoft.Capacity/reservationorders/write	Create any Reservation
Microsoft.Capacity/reservationorders/delete	Delete any Reservation
Microsoft.Capacity/reservationorders/reservations/action	Update any Reservation
Microsoft.Capacity/reservationorders/return/action	Return any Reservation

ACTION	DESCRIPTION
Microsoft.Capacity/reservationorders/swap/action	Swap any Reservation
Microsoft.Capacity/reservationorders/split/action	Split any Reservation
Microsoft.Capacity/reservationorders/merge/action	Merge any Reservation
Microsoft.Capacity/reservationorders/calculaterefund/action	Computes the refund amount and price of new purchase and returns policy Errors.
Microsoft.Capacity/reservationorders/mergeoperationresults/read	Poll any merge operation
Microsoft.Capacity/reservationorders/reservations/availablescopes/action	Find any Available Scope
Microsoft.Capacity/reservationorders/reservations/read	Read All Reservations
Microsoft.Capacity/reservationorders/reservations/write	Create any Reservation
Microsoft.Capacity/reservationorders/reservations/delete	Delete any Reservation
Microsoft.Capacity/reservationorders/reservations/revisions/read	Read All Reservations
Microsoft.Capacity/reservationorders/splitoperationresults/read	Poll any split operation
Microsoft.Capacity/tenants/register/action	Register any Tenant

## Microsoft.Commerce

Azure service: core

ACTION	DESCRIPTION
Microsoft.Commerce/register/action	Register Subscription for Microsoft Commerce UsageAggregate
Microsoft.Commerce/unregister/action	Unregister Subscription for Microsoft Commerce UsageAggregate
Microsoft.Commerce/RateCard/read	Returns offer data, resource/meter metadata and rates for the given subscription.
Microsoft.Commerce/UsageAggregates/read	Retrieves Microsoft Azure's consumption by a subscription. The result contains aggregates usage data, subscription and resource related information, on a particular time range.

## Microsoft.Consumption

Azure service: Cost Management

ACTION	DESCRIPTION
Microsoft.Consumption/register/action	Register to Consumption RP
Microsoft.Consumption/aggregatedcost/read	List AggregatedCost for management group.
Microsoft.Consumption/balances/read	List the utilization summary for a billing period for a management group.
Microsoft.Consumption/budgets/read	List the budgets by a subscription or a management group.
Microsoft.Consumption/budgets/write	Creates and update the budgets by a subscription or a management group.
Microsoft.Consumption/budgets/delete	Delete the budgets by a subscription or a management group.
Microsoft.Consumption/charges/read	List charges
Microsoft.Consumption/credits/read	List credits
Microsoft.Consumption/events/read	List events
Microsoft.Consumption/externalBillingAccounts/tags/read	List tags for EA and subscriptions.
Microsoft.Consumption/externalSubscriptions/tags/read	List tags for EA and subscriptions.
Microsoft.Consumption/forecasts/read	List forecasts
Microsoft.Consumption/lots/read	List lots
Microsoft.Consumption/marketplaces/read	List the marketplace resource usage details for a scope for EA and WebDirect subscriptions.
Microsoft.Consumption/operationresults/read	List operationresults
Microsoft.Consumption/operations/read	List all supported operations by Microsoft.Consumption resource provider.
Microsoft.Consumption/operationstatus/read	List operationstatus
Microsoft.Consumption/pricesheets/read	List the Pricesheets data for a subscription or a management group.
Microsoft.Consumption/reservationDetails/read	List the utilization details for reserved instances by reservation order or management groups. The details data is per instance per day level.
Microsoft.Consumption/reservationRecommendations/read	List single or shared recommendations for Reserved instances for a subscription.
Microsoft.Consumption/reservationSummaries/read	List the utilization summary for reserved instances by reservation order or management groups. The summary data is either at monthly or daily level.

ACTION	DESCRIPTION
Microsoft.Consumption/reservationTransactions/read	List the transaction history for reserved instances by management groups.
Microsoft.Consumption/tags/read	List tags for EA and subscriptions.
Microsoft.Consumption/tenants/register/action	Register action for scope of Microsoft.Consumption by a tenant.
Microsoft.Consumption/tenants/read	List tenants
Microsoft.Consumption/terms/read	List the terms for a subscription or a management group.
Microsoft.Consumption/usageDetails/read	List the usage details for a scope for EA and WebDirect subscriptions.

## Microsoft.CostManagement

Azure service: [Cost Management](#)

ACTION	DESCRIPTION
Microsoft.CostManagement/query/action	Query usage data by a scope.
Microsoft.CostManagement/reports/action	Schedule reports on usage data by a scope.
Microsoft.CostManagement/exports/action	Run the specified export.
Microsoft.CostManagement/register/action	Register action for scope of Microsoft.CostManagement by a subscription.
Microsoft.CostManagement/views/action	Create view.
Microsoft.CostManagement/forecast/action	Forecast usage data by a scope.
Microsoft.CostManagement/alerts/write	Update alerts.
Microsoft.CostManagement/alerts/read	List alerts.
Microsoft.CostManagement/cloudConnectors/read	List the cloudConnectors for the authenticated user.
Microsoft.CostManagement/cloudConnectors/write	Create or update the specified cloudConnector.
Microsoft.CostManagement/cloudConnectors/delete	Delete the specified cloudConnector.
Microsoft.CostManagement/dimensions/read	List all supported dimensions by a scope.
Microsoft.CostManagement/exports/read	List the exports by scope.
Microsoft.CostManagement/exports/write	Create or update the specified export.
Microsoft.CostManagement/exports/delete	Delete the specified export.

ACTION	DESCRIPTION
Microsoft.CostManagement/exports/run/action	Run exports.
Microsoft.CostManagement/externalBillingAccounts/read	List the externalBillingAccounts for the authenticated user.
Microsoft.CostManagement/externalBillingAccounts/query/action	Query usage data for external BillingAccounts.
Microsoft.CostManagement/externalBillingAccounts/forecast/action	Forecast usage data for external BillingAccounts.
Microsoft.CostManagement/externalBillingAccounts/dimensions/read	List all supported dimensions for external BillingAccounts.
Microsoft.CostManagement/externalBillingAccounts/externalSubscriptions/read	List the externalSubscriptions within an externalBillingAccount for the authenticated user.
Microsoft.CostManagement/externalBillingAccounts/forecast/read	Forecast usage data for external BillingAccounts.
Microsoft.CostManagement/externalBillingAccounts/query/read	Query usage data for external BillingAccounts.
Microsoft.CostManagement/externalSubscriptions/read	List the externalSubscriptions for the authenticated user.
Microsoft.CostManagement/externalSubscriptions/write	Update associated management group of externalSubscription
Microsoft.CostManagement/externalSubscriptions/query/acti on	Query usage data for external subscription.
Microsoft.CostManagement/externalSubscriptions/forecast/a ction	Forecast usage data for external BillingAccounts.
Microsoft.CostManagement/externalSubscriptions/dimensio ns/read	List all supported dimensions for external subscription.
Microsoft.CostManagement/externalSubscriptions/forecast/r ead	Forecast usage data for external BillingAccounts.
Microsoft.CostManagement/externalSubscriptions/query/re ad	Query usage data for external subscription.
Microsoft.CostManagement/forecast/read	Forecast usage data by a scope.
Microsoft.CostManagement/operations/read	List all supported operations by Microsoft.CostManagement resource provider.
Microsoft.CostManagement/query/read	Query usage data by a scope.
Microsoft.CostManagement/reports/read	Schedule reports on usage data by a scope.
Microsoft.CostManagement/tenants/register/action	Register action for scope of Microsoft.CostManagement by a tenant.

ACTION	DESCRIPTION
Microsoft.CostManagement/views/read	List all saved views.
Microsoft.CostManagement/views/delete	Delete saved views.
Microsoft.CostManagement/views/write	Update view.

## Microsoft.Features

Azure service: [Azure Resource Manager](#)

ACTION	DESCRIPTION
Microsoft.Features/register/action	Registers the feature of a subscription.
Microsoft.Features/features/read	Gets the features of a subscription.
Microsoft.Features/operations/read	Gets the list of operations.
Microsoft.Features/providers/features/read	Gets the feature of a subscription in a given resource provider.
Microsoft.Features/providers/features/register/action	Registers the feature for a subscription in a given resource provider.
Microsoft.Features/providers/features/unregister/action	Unregisters the feature for a subscription in a given resource provider.

## Microsoft.GuestConfiguration

Azure service: [Azure Policy](#)

ACTION	DESCRIPTION
Microsoft.GuestConfiguration/register/action	Registers the subscription for the Microsoft.GuestConfiguration resource provider.
Microsoft.GuestConfiguration/guestConfigurationAssignments/write	Create new guest configuration assignment.
Microsoft.GuestConfiguration/guestConfigurationAssignments/read	Get guest configuration assignment.
Microsoft.GuestConfiguration/guestConfigurationAssignments/delete	Delete guest configuration assignment.
Microsoft.GuestConfiguration/guestConfigurationAssignments/reports/read	Get guest configuration assignment report.
Microsoft.GuestConfiguration/operations/read	Gets the operations for the Microsoft.GuestConfiguration resource provider

## Microsoft.HybridCompute

Azure service: [Azure Arc](#)

ACTION	DESCRIPTION
Microsoft.HybridCompute/register/action	Registers the subscription for the Microsoft.HybridCompute Resource Provider
Microsoft.HybridCompute/unregister/action	Unregisters the subscription for Microsoft.HybridCompute Resource Provider
Microsoft.HybridCompute/locations/operationresults/read	Reads the status of an operation on Microsoft.HybridCompute Resource Provider
Microsoft.HybridCompute/machines/read	Read any Azure Arc machines
Microsoft.HybridCompute/machines/write	Writes an Azure Arc machines
Microsoft.HybridCompute/machines/delete	Deletes an Azure Arc machines
Microsoft.HybridCompute/machines/reconnect/action	Reconnects an Azure Arc machines
Microsoft.HybridCompute/machines/extensions/read	Reads any Azure Arc extensions
Microsoft.HybridCompute/machines/extensions/write	Installs or Updates an Azure Arc extensions
Microsoft.HybridCompute/machines/extensions/delete	Deletes an Azure Arc extensions
Microsoft.HybridCompute/operations/read	Read all Operations for Azure Arc for Servers

## Microsoft.ManagedServices

Azure service: [Azure Lighthouse](#)

ACTION	DESCRIPTION
Microsoft.ManagedServices/register/action	Register to Managed Services.
Microsoft.ManagedServices/unregister/action	Unregister from Managed Services.
Microsoft.ManagedServices/marketplaceRegistrationDefinitions/read	Retrieves a list of Managed Services registration definitions.
Microsoft.ManagedServices/operations/read	Retrieves a list of Managed Services operations.
Microsoft.ManagedServices/operationStatuses/read	Reads the operation status for the resource.
Microsoft.ManagedServices/registrationAssignments/read	Retrieves a list of Managed Services registration assignments.
Microsoft.ManagedServices/registrationAssignments/write	Add or modify Managed Services registration assignment.
Microsoft.ManagedServices/registrationAssignments/delete	Removes Managed Services registration assignment.
Microsoft.ManagedServices/registrationDefinitions/read	Retrieves a list of Managed Services registration definitions.
Microsoft.ManagedServices/registrationDefinitions/write	Add or modify Managed Services registration definition.

ACTION	DESCRIPTION
Microsoft.ManagedServices/registrationDefinitions/delete	Removes Managed Services registration definition.

## Microsoft.Management

Azure service: [Management Groups](#)

ACTION	DESCRIPTION
Microsoft.Management/checkNameAvailability/action	Checks if the specified management group name is valid and unique.
Microsoft.Management/getEntities/action	List all entities (Management Groups, Subscriptions, etc.) for the authenticated user.
Microsoft.Management/register/action	Register the specified subscription with Microsoft.Management
Microsoft.Management/managementGroups/read	List management groups for the authenticated user.
Microsoft.Management/managementGroups/write	Create or update a management group.
Microsoft.Management/managementGroups/delete	Delete management group.
Microsoft.Management/managementGroups/descendants/read	Gets all the descendants (Management Groups, Subscriptions) of a Management Group.
Microsoft.Management/managementGroups/settings/read	Lists existing management group hierarchy settings.
Microsoft.Management/managementGroups/settings/write	Creates or updates management group hierarchy settings.
Microsoft.Management/managementGroups/settings/delete	Deletes management group hierarchy settings.
Microsoft.Management/managementGroups/subscriptions/read	Lists subscription under the given management group.
Microsoft.Management/managementGroups/subscriptions/write	Associates existing subscription with the management group.
Microsoft.Management/managementGroups/subscriptions/delete	De-associates subscription from the management group.

## Microsoft.PolicyInsights

Azure service: [Azure Policy](#)

ACTION	DESCRIPTION
Microsoft.PolicyInsights/register/action	Registers the Microsoft Policy Insights resource provider and enables actions on it.
Microsoft.PolicyInsights/unregister/action	Unregisters the Microsoft Policy Insights resource provider.
Microsoft.PolicyInsights/asyncOperationResults/read	Gets the async operation result.

ACTION	DESCRIPTION
Microsoft.PolicyInsights/attestations/read	Get compliance state attestations.
Microsoft.PolicyInsights/attestations/write	Create or update compliance state attestations.
Microsoft.PolicyInsights/attestations/delete	Delete compliance state attestations.
Microsoft.PolicyInsights/operations/read	Gets supported operations on Microsoft.PolicyInsights namespace
Microsoft.PolicyInsights/policyEvents/queryResults/action	Query information about policy events.
Microsoft.PolicyInsights/policyEvents/queryResults/read	Query information about policy events.
Microsoft.PolicyInsights/policyMetadata/read	Get Policy Metadata resources.
Microsoft.PolicyInsights/policyStates/queryResults/action	Query information about policy states.
Microsoft.PolicyInsights/policyStates/summarize/action	Query summary information about policy latest states.
Microsoft.PolicyInsights/policyStates/triggerEvaluation/action	Triggers a new compliance evaluation for the selected scope.
Microsoft.PolicyInsights/policyStates/queryResults/read	Query information about policy states.
Microsoft.PolicyInsights/policyStates/summarize/read	Query summary information about policy latest states.
Microsoft.PolicyInsights/policyTrackedResources/queryResults/read	Query information about resources required by DeployIfNotExists policies.
Microsoft.PolicyInsights/remediations/read	Get policy remediations.
Microsoft.PolicyInsights/remediations/write	Create or update Microsoft Policy remediations.
Microsoft.PolicyInsights/remediations/delete	Delete policy remediations.
Microsoft.PolicyInsights/remediations/cancel/action	Cancel in-progress Microsoft Policy remediations.
Microsoft.PolicyInsights/remediations/listDeployments/read	Lists the deployments required by a policy remediation.
DataAction	Description
Microsoft.PolicyInsights/checkDataPolicyCompliance/action	Check the compliance status of a given component against data policies.
Microsoft.PolicyInsights/policyEvents/logDataEvents/action	Log the resource component policy events.

## Microsoft.Portal

Azure service: [Azure portal](#)

ACTION	DESCRIPTION
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ACTION	DESCRIPTION
Microsoft.Portal/register/action	Register to Portal
Microsoft.Portal/consoles/delete	Removes the Cloud Shell instance.
Microsoft.Portal/consoles/write	Create or update a Cloud Shell instance.
Microsoft.Portal/consoles/read	Reads the Cloud Shell instance.
Microsoft.Portal/dashboards/read	Reads the dashboards for the subscription.
Microsoft.Portal/dashboards/write	Add or modify dashboard to a subscription.
Microsoft.Portal/dashboards/delete	Removes the dashboard from the subscription.
Microsoft.Portal/usersettings/delete	Removes the Cloud Shell user settings.
Microsoft.Portal/usersettings/write	Create or update Cloud Shell user setting.
Microsoft.Portal/usersettings/read	Reads the Cloud Shell user settings.

## Microsoft.RecoveryServices

Azure service: Site Recovery

ACTION	DESCRIPTION
Microsoft.RecoveryServices/register/action	Registers subscription for given Resource Provider
microsoft.recoveryservices/Locations/backupPreValidateProtection/action	
microsoft.recoveryservices/Locations/backupStatus/action	Check Backup Status for Recovery Services Vaults
microsoft.recoveryservices/Locations/backupValidateFeatures /action	Validate Features
Microsoft.RecoveryServices/locations/allocateStamp/action	AllocateStamp is internal operation used by service
Microsoft.RecoveryServices/locations/checkNameAvailability/ action	Check Resource Name Availability is an API to check if resource name is available
Microsoft.RecoveryServices/locations/allocatedStamp/read	GetAllocatedStamp is internal operation used by service
microsoft.recoveryservices/Locations/backupProtectedItem/ write	Create a backup Protected Item
microsoft.recoveryservices/Locations/backupProtectedItems/ read	Returns the list of all Protected Items.
Microsoft.RecoveryServices/locations/operationStatus/read	Gets Operation Status for a given Operation

ACTION	DESCRIPTION
Microsoft.RecoveryServices/operations/read	Operation returns the list of Operations for a Resource Provider
microsoft.recoveryservices/Vaults/backupJobsExport/action	Export Jobs
microsoft.recoveryservices/Vaults/backupSecurityPIN/action	Returns Security PIN Information for Recovery Services Vault.
microsoft.recoveryservices/Vaults/backupValidateOperation/action	Validate Operation on Protected Item
Microsoft.RecoveryServices/Vaults/write	Create Vault operation creates an Azure resource of type 'vault'
Microsoft.RecoveryServices/Vaults/read	The Get Vault operation gets an object representing the Azure resource of type 'vault'
Microsoft.RecoveryServices/Vaults/delete	The Delete Vault operation deletes the specified Azure resource of type 'vault'
microsoft.recoveryservices/Vaults/backupconfig/read	Returns Configuration for Recovery Services Vault.
microsoft.recoveryservices/Vaults/backupconfig/write	Updates Configuration for Recovery Services Vault.
microsoft.recoveryservices/Vaults/backupEncryptionConfigs/read	Gets Backup Resource Encryption Configuration.
microsoft.recoveryservices/Vaults/backupEncryptionConfigs/write	Updates Backup Resource Encryption Configuration
microsoft.recoveryservices/Vaults/backupEngines/read	Returns all the backup management servers registered with vault.
microsoft.recoveryservices/Vaults/backupFabrics/refreshContainers/action	Refreshes the container list
microsoft.recoveryservices/Vaults/backupFabrics/backupProtectionIntent/delete	Delete a backup Protection Intent
microsoft.recoveryservices/Vaults/backupFabrics/backupProtectionIntent/read	Get a backup Protection Intent
microsoft.recoveryservices/Vaults/backupFabrics/backupProtectionIntent/write	Create a backup Protection Intent
microsoft.recoveryservices/Vaults/backupFabrics/operationResults/read	Returns status of the operation
microsoft.recoveryservices/Vaults/backupFabrics/operationsStatus/read	Returns status of the operation
microsoft.recoveryservices/Vaults/backupFabrics/protectableContainers/read	Get all protectable containers

ACTION	DESCRIPTION
microsoft.recoveryservices/Vaults/backupFabrics/protectionContainers/delete	Deletes the registered Container
microsoft.recoveryservices/Vaults/backupFabrics/protectionContainers/inquire/action	Do inquiry for workloads within a container
microsoft.recoveryservices/Vaults/backupFabrics/protectionContainers/read	Returns all registered containers
microsoft.recoveryservices/Vaults/backupFabrics/protectionContainers/write	Creates a registered container
microsoft.recoveryservices/Vaults/backupFabrics/protectionContainers/items/read	Get all items in a container
microsoft.recoveryservices/Vaults/backupFabrics/protectionContainers/operationResults/read	Gets result of Operation performed on Protection Container.
microsoft.recoveryservices/Vaults/backupFabrics/protectionContainers/operationsStatus/read	Gets status of Operation performed on Protection Container.
microsoft.recoveryservices/Vaults/backupFabrics/protectionContainers/protectedItems/backup/action	Performs Backup for Protected Item.
microsoft.recoveryservices/Vaults/backupFabrics/protectionContainers/protectedItems/delete	Deletes Protected Item
microsoft.recoveryservices/Vaults/backupFabrics/protectionContainers/protectedItems/read	Returns object details of the Protected Item
microsoft.recoveryservices/Vaults/backupFabrics/protectionContainers/protectedItems/write	Create a backup Protected Item
microsoft.recoveryservices/Vaults/backupFabrics/protectionContainers/protectedItems/operationResults/read	Gets Result of Operation Performed on Protected Items.
microsoft.recoveryservices/Vaults/backupFabrics/protectionContainers/protectedItems/operationsStatus/read	Returns the status of Operation performed on Protected Items.
microsoft.recoveryservices/Vaults/backupFabrics/protectionContainers/protectedItems/recoveryPoints/provisionInstantItemRecovery/action	Provision Instant Item Recovery for Protected Item
microsoft.recoveryservices/Vaults/backupFabrics/protectionContainers/protectedItems/recoveryPoints/read	Get Recovery Points for Protected Items.
microsoft.recoveryservices/Vaults/backupFabrics/protectionContainers/protectedItems/recoveryPoints/restore/action	Restore Recovery Points for Protected Items.
microsoft.recoveryservices/Vaults/backupFabrics/protectionContainers/protectedItems/recoveryPoints/revokeInstantItemRecovery/action	Revoke Instant Item Recovery for Protected Item
microsoft.recoveryservices/Vaults/backupJobs/cancel/action	Cancel the Job

ACTION	DESCRIPTION
microsoft.recoveryservices/Vaults/backupJobs/read	Returns all Job Objects
microsoft.recoveryservices/Vaults/backupJobs/operationResults/read	Returns the Result of Job Operation.
microsoft.recoveryservices/Vaults/backupJobs/operationsStatus/read	Returns the status of Job Operation.
microsoft.recoveryservices/Vaults/backupOperationResults/read	Returns Backup Operation Result for Recovery Services Vault.
microsoft.recoveryservices/Vaults/backupOperations/read	Returns Backup Operation Status for Recovery Services Vault.
microsoft.recoveryservices/Vaults/backupPolicies/delete	Delete a Protection Policy
microsoft.recoveryservices/Vaults/backupPolicies/read	Returns all Protection Policies
microsoft.recoveryservices/Vaults/backupPolicies/write	Creates Protection Policy
microsoft.recoveryservices/Vaults/backupPolicies/operationResults/read	Get Results of Policy Operation.
microsoft.recoveryservices/Vaults/backupPolicies/operations/read	Get Status of Policy Operation.
microsoft.recoveryservices/Vaults/backupProtectableItems/read	Returns list of all Protectable Items.
microsoft.recoveryservices/Vaults/backupProtectedItems/read	Returns the list of all Protected Items.
microsoft.recoveryservices/Vaults/backupProtectionContainers/read	Returns all containers belonging to the subscription
microsoft.recoveryservices/Vaults/backupProtectionIntents/read	List all backup Protection Intents
microsoft.recoveryservices/Vaults/backupstorageconfig/read	Returns Storage Configuration for Recovery Services Vault.
microsoft.recoveryservices/Vaults/backupstorageconfig/write	Updates Storage Configuration for Recovery Services Vault.
microsoft.recoveryservices/Vaults/backupUsageSummaries/read	Returns summaries for Protected Items and Protected Servers for a Recovery Services .
Microsoft.RecoveryServices/Vaults/certificates/write	The Update Resource Certificate operation updates the resource/vault credential certificate.
Microsoft.RecoveryServices/Vaults/extendedInformation/read	The Get Extended Info operation gets an object's Extended Info representing the Azure resource of type ?vault?
Microsoft.RecoveryServices/Vaults/extendedInformation/write	The Get Extended Info operation gets an object's Extended Info representing the Azure resource of type ?vault?

ACTION	DESCRIPTION
Microsoft.RecoveryServices/Vaults/extendedInformation/delete	The Get Extended Info operation gets an object's Extended Info representing the Azure resource of type ?vault?
Microsoft.RecoveryServices/Vaults/monitoringAlerts/read	Gets the alerts for the Recovery services vault.
Microsoft.RecoveryServices/Vaults/monitoringAlerts/write	Resolves the alert.
Microsoft.RecoveryServices/Vaults/monitoringConfigurations/read	Gets the Recovery services vault notification configuration.
Microsoft.RecoveryServices/Vaults/monitoringConfigurations/write	Configures e-mail notifications to Recovery services vault.
microsoft.recoveryservices/Vaults/privateEndpointConnectio nProxies/delete	Wait for a few minutes and then try the operation again. If the issue persists, please contact Microsoft support.
microsoft.recoveryservices/Vaults/privateEndpointConnectio nProxies/read	Get all protectable containers
microsoft.recoveryservices/Vaults/privateEndpointConnectio nProxies/validate/action	Get all protectable containers
microsoft.recoveryservices/Vaults/privateEndpointConnectio nProxies/write	Get all protectable containers
microsoft.recoveryservices/Vaults/privateEndpointConnectio nProxies/operationsStatus/read	Get all protectable containers
microsoft.recoveryservices/Vaults/privateEndpointConnectio ns/delete	Delete Private Endpoint requests. This call is made by Backup Admin.
microsoft.recoveryservices/Vaults/privateEndpointConnectio ns/write	Approve or Reject Private Endpoint requests. This call is made by Backup Admin.
microsoft.recoveryservices/Vaults/privateEndpointConnectio ns/operationsStatus/read	Returns the operation status for a private endpoint connection.
Microsoft.RecoveryServices/Vaults/registeredIdentities/write	The Register Service Container operation can be used to register a container with Recovery Service.
Microsoft.RecoveryServices/Vaults/registeredIdentities/read	The Get Containers operation can be used get the containers registered for a resource.
Microsoft.RecoveryServices/Vaults/registeredIdentities/delete	The UnRegister Container operation can be used to unregister a container.
Microsoft.RecoveryServices/Vaults/registeredIdentities/operationResults/read	The Get Operation Results operation can be used get the operation status and result for the asynchronously submitted operation
Microsoft.RecoveryServices/vaults/replicationAlertSettings/re ad	Read any Alerts Settings

ACTION	DESCRIPTION
Microsoft.RecoveryServices/vaults/replicationAlertSettings/write	Create or Update any Alerts Settings
Microsoft.RecoveryServices/vaults/replicationEvents/read	Read any Events
Microsoft.RecoveryServices/vaults/replicationFabrics/read	Read any Fabrics
Microsoft.RecoveryServices/vaults/replicationFabrics/write	Create or Update any Fabrics
Microsoft.RecoveryServices/vaults/replicationFabrics/remove/action	Remove Fabric
Microsoft.RecoveryServices/vaults/replicationFabrics/checkConsistency/action	Checks Consistency of the Fabric
Microsoft.RecoveryServices/vaults/replicationFabrics/delete	Delete any Fabrics
Microsoft.RecoveryServices/vaults/replicationFabrics/renewCertificate/action	Renew Certificate for Fabric
Microsoft.RecoveryServices/vaults/replicationFabrics/deployProcessServerImage/action	Deploy Process Server Image
Microsoft.RecoveryServices/vaults/replicationFabrics/reassociateGateway/action	Reassociate Gateway
Microsoft.RecoveryServices/vaults/replicationFabrics/migrateToaad/action	Migrate Fabric To AAD
Microsoft.RecoveryServices/vaults/replicationFabrics/operations/results/read	Track the results of an asynchronous operation on the resource Fabrics
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationLogicalNetworks/read	Read any Logical Networks
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationNetworks/read	Read any Networks
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationNetworkMappings/read	Read any Network Mappings
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationNetworkMappings/write	Create or Update any Network Mappings
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationNetworkMappings/delete	Delete any Network Mappings
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/read	Read any Protection Containers
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/discoverProtectableItem/action	Discover Protectable Item

ACTION	DESCRIPTION
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/write	Create or Update any Protection Containers
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/remove/action	Remove Protection Container
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/switchprotection/action	Switch Protection Container
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/operationresults/read	Track the results of an asynchronous operation on the resource Protection Containers
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationMigrationItems/read	Read any Migration Items
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationMigrationItems/write	Create or Update any Migration Items
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationMigrationItems/delete	Delete any Migration Items
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationMigrationItems/resync/action	Resynchronize
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationMigrationItems/migrate/action	Migrate Item
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationMigrationItems/testMigrate/action	Test Migrate
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationMigrationItems/testMigrateCleanup/action	Test Migrate Cleanup
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationMigrationItems/migrationRecoveryPoints/read	Read any Migration Recovery Points
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationMigrationItems/operationresults/read	Track the results of an asynchronous operation on the resource Migration Items
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectableItems/read	Read any Protectable Items
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/read	Read any Protected Items
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/write	Create or Update any Protected Items

ACTION	DESCRIPTION
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/delete	Delete any Protected Items
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/remove/action	Remove Protected Item
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/plannedFailover/action	Planned Failover
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/unplannedFailover/action	Failover
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/testFailover/action	Test Failover
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/testFailoverCleanup/action	Test Failover Cleanup
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/failoverCommit/action	Failover Commit
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/reProtect/action	ReProtect Protected Item
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/updateMobilityService/action	Update Mobility Service
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/repairReplication/action	Repair replication
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/applyRecoveryPoint/action	Apply Recovery Point
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/submitFeedback/action	Submit Feedback
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/addDisks/action	Add disks
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/removeDisks/action	Remove disks

ACTION	DESCRIPTION
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/ResolveHealthErrors/action	
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/operationResults/read	Track the results of an asynchronous operation on the resource Protected Items
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/recoveryPoints/read	Read any Replication Recovery Points
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectedItems/targetComputeSizes/read	Read any Target Compute Sizes
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectionContainerMappings/read	Read any Protection Container Mappings
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectionContainerMappings/write	Create or Update any Protection Container Mappings
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectionContainerMappings/remove/action	Remove Protection Container Mapping
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectionContainerMappings/delete	Delete any Protection Container Mappings
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationProtectionContainers/replicationProtectionContainerMappings/operationResults/read	Track the results of an asynchronous operation on the resource Protection Container Mappings
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationOnRecoveryServicesProviders/read	Read any Recovery Services Providers
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationOnRecoveryServicesProviders/write	Create or Update any Recovery Services Providers
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationOnRecoveryServicesProviders/remove/action	Remove Recovery Services Provider
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationOnRecoveryServicesProviders/delete	Delete any Recovery Services Providers
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationOnRecoveryServicesProviders/refreshProvider/action	Refresh Provider
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationOnRecoveryServicesProviders/operationResults/read	Track the results of an asynchronous operation on the resource Recovery Services Providers

ACTION	DESCRIPTION
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationStorageClassifications/read	Read any Storage Classifications
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationStorageClassifications/replicationStorageClassificationMappings/read	Read any Storage Classification Mappings
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationStorageClassifications/replicationStorageClassificationMappings/write	Create or Update any Storage Classification Mappings
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationStorageClassifications/replicationStorageClassificationMappings/delete	Delete any Storage Classification Mappings
Microsoft.RecoveryServices/vaults/replicationFabrics/replicationStorageClassifications/replicationStorageClassificationMappings/operationresults/read	Track the results of an asynchronous operation on the resource Storage Classification Mappings
Microsoft.RecoveryServices/vaults/replicationFabrics/replicatonvCenters/read	Read any vCenters
Microsoft.RecoveryServices/vaults/replicationFabrics/replicatonvCenters/write	Create or Update any vCenters
Microsoft.RecoveryServices/vaults/replicationFabrics/replicatonvCenters/delete	Delete any vCenters
Microsoft.RecoveryServices/vaults/replicationFabrics/replicatonvCenters/operationresults/read	Track the results of an asynchronous operation on the resource vCenters
Microsoft.RecoveryServices/vaults/replicationJobs/read	Read any Jobs
Microsoft.RecoveryServices/vaults/replicationJobs/cancel/acti on	Cancel Job
Microsoft.RecoveryServices/vaults/replicationJobs/restart/acti on	Restart job
Microsoft.RecoveryServices/vaults/replicationJobs/resume/ac tion	Resume Job
Microsoft.RecoveryServices/vaults/replicationJobs/operationr esults/read	Track the results of an asynchronous operation on the resource Jobs
Microsoft.RecoveryServices/vaults/replicationMigrationItems/ read	Read any Migration Items
Microsoft.RecoveryServices/vaults/replicationNetworkMappin gs/read	Read any Network Mappings
Microsoft.RecoveryServices/vaults/replicationNetworks/read	Read any Networks

ACTION	DESCRIPTION
Microsoft.RecoveryServices/vaults/replicationOperationStatus/read	Read any Vault Replication Operation Status
Microsoft.RecoveryServices/vaults/replicationPolicies/read	Read any Policies
Microsoft.RecoveryServices/vaults/replicationPolicies/write	Create or Update any Policies
Microsoft.RecoveryServices/vaults/replicationPolicies/delete	Delete any Policies
Microsoft.RecoveryServices/vaults/replicationPolicies/operationsresults/read	Track the results of an asynchronous operation on the resource Policies
Microsoft.RecoveryServices/vaults/replicationProtectedItems/read	Read any Protected Items
Microsoft.RecoveryServices/vaults/replicationProtectionContainerMappings/read	Read any Protection Container Mappings
Microsoft.RecoveryServices/vaults/replicationProtectionContainers/read	Read any Protection Containers
Microsoft.RecoveryServices/vaults/replicationRecoveryPlans/read	Read any Recovery Plans
Microsoft.RecoveryServices/vaults/replicationRecoveryPlans/write	Create or Update any Recovery Plans
Microsoft.RecoveryServices/vaults/replicationRecoveryPlans/delete	Delete any Recovery Plans
Microsoft.RecoveryServices/vaults/replicationRecoveryPlans/plannedFailover/action	Planned Failover Recovery Plan
Microsoft.RecoveryServices/vaults/replicationRecoveryPlans/unplannedFailover/action	Failover Recovery Plan
Microsoft.RecoveryServices/vaults/replicationRecoveryPlans/testFailover/action	Test Failover Recovery Plan
Microsoft.RecoveryServices/vaults/replicationRecoveryPlans/testFailoverCleanup/action	Test Failover Cleanup Recovery Plan
Microsoft.RecoveryServices/vaults/replicationRecoveryPlans/ failoverCommit/action	Failover Commit Recovery Plan
Microsoft.RecoveryServices/vaults/replicationRecoveryPlans/reProtect/action	ReProtect Recovery Plan
Microsoft.RecoveryServices/vaults/replicationRecoveryPlans/operationresults/read	Track the results of an asynchronous operation on the resource Recovery Plans
Microsoft.RecoveryServices/vaults/replicationRecoveryService sProviders/read	Read any Recovery Services Providers

ACTION	DESCRIPTION
Microsoft.RecoveryServices/vaults/replicationStorageClassificationMappings/read	Read any Storage Classification Mappings
Microsoft.RecoveryServices/vaults/replicationStorageClassifications/read	Read any Storage Classifications
Microsoft.RecoveryServices/vaults/replicationSupportedOperatingSystems/read	Read any
Microsoft.RecoveryServices/vaults/replicationUsages/read	Read any Vault Replication Usages
Microsoft.RecoveryServices/vaults/replicationVaultHealth/read	Read any Vault Replication Health
Microsoft.RecoveryServices/vaults/replicationVaultHealth/refresh/action	Refresh Vault Health
Microsoft.RecoveryServices/vaults/replicationVaultHealth/operationresults/read	Track the results of an asynchronous operation on the resource Vault Replication Health
Microsoft.RecoveryServices/vaults/replicationVaultSettings/read	Read any
Microsoft.RecoveryServices/vaults/replicationVaultSettings/write	Create or Update any
Microsoft.RecoveryServices/vaults/replicationvCenters/read	Read any vCenters
microsoft.recoveryservices/Vaults/usages/read	Returns usage details for a Recovery Services Vault.
Microsoft.RecoveryServices/vaults/usages/read	Read any Vault Usages
Microsoft.RecoveryServices/Vaults/vaultTokens/read	The Vault Token operation can be used to get Vault Token for vault level backend operations.

## Microsoft.Resources

Azure service: [Azure Resource Manager](#)

ACTION	DESCRIPTION
Microsoft.Resources/checkResourceName/action	Check the resource name for validity.
Microsoft.Resources/calculateTemplateHash/action	Calculate the hash of provided template.
Microsoft.Resources/checkPolicyCompliance/read	Check the compliance status of a given resource against resource policies.
Microsoft.Resources/deployments/read	Gets or lists deployments.
Microsoft.Resources/deployments/write	Creates or updates an deployment.
Microsoft.Resources/deployments/delete	Deletes a deployment.

ACTION	DESCRIPTION
Microsoft.Resources/deployments/cancel/action	Cancels a deployment.
Microsoft.Resources/deployments/validate/action	Validates an deployment.
Microsoft.Resources/deployments/whatIf/action	Predicts template deployment changes.
Microsoft.Resources/deployments/exportTemplate/action	Export template for a deployment
Microsoft.Resources/deployments/operations/read	Gets or lists deployment operations.
Microsoft.Resources/deployments/operationstatuses/read	Gets or lists deployment operation statuses.
Microsoft.Resources/deploymentScripts/read	Gets or lists deployment scripts
Microsoft.Resources/deploymentScripts/write	Creates or updates a deployment script
Microsoft.Resources/deploymentScripts/delete	Deletes a deployment script
Microsoft.Resources/deploymentScripts/logs/read	Gets or lists deployment script logs
Microsoft.Resources/links/read	Gets or lists resource links.
Microsoft.Resources/links/write	Creates or updates a resource link.
Microsoft.Resources/links/delete	Deletes a resource link.
Microsoft.Resources/marketplace/purchase/action	Purchases a resource from the marketplace.
Microsoft.Resources/providers/read	Get the list of providers.
Microsoft.Resources/resources/read	Get the list of resources based upon filters.
Microsoft.Resources/subscriptions/read	Gets the list of subscriptions.
Microsoft.Resources/subscriptions/locations/read	Gets the list of locations supported.
Microsoft.Resources/subscriptions/operationresults/read	Get the subscription operation results.
Microsoft.Resources/subscriptions/providers/read	Gets or lists resource providers.
Microsoft.Resources/subscriptions/resourceGroups/read	Gets or lists resource groups.
Microsoft.Resources/subscriptions/resourceGroups/write	Creates or updates a resource group.
Microsoft.Resources/subscriptions/resourceGroups/delete	Deletes a resource group and all its resources.
Microsoft.Resources/subscriptions/resourceGroups/moveResources/action	Moves resources from one resource group to another.

ACTION	DESCRIPTION
Microsoft.Resources/subscriptions/resourceGroups/validateMoveResources/action	Validate move of resources from one resource group to another.
Microsoft.Resources/subscriptions/resourcegroups/deployments/read	Gets or lists deployments.
Microsoft.Resources/subscriptions/resourcegroups/deployments/write	Creates or updates an deployment.
Microsoft.Resources/subscriptions/resourcegroups/deployments/operations/read	Gets or lists deployment operations.
Microsoft.Resources/subscriptions/resourcegroups/deployments/operationstatuses/read	Gets or lists deployment operation statuses.
Microsoft.Resources/subscriptions/resourcegroups/resources/read	Gets the resources for the resource group.
Microsoft.Resources/subscriptions/resources/read	Gets resources of a subscription.
Microsoft.Resources/subscriptions/tagNames/read	Gets or lists subscription tags.
Microsoft.Resources/subscriptions/tagNames/write	Adds a subscription tag.
Microsoft.Resources/subscriptions/tagNames/delete	Deletes a subscription tag.
Microsoft.Resources/subscriptions/tagNames/tagValues/read	Gets or lists subscription tag values.
Microsoft.Resources/subscriptions/tagNames/tagValues/write	Adds a subscription tag value.
Microsoft.Resources/subscriptions/tagNames/tagValues/delete	Deletes a subscription tag value.
Microsoft.Resources/tags/read	Gets all the tags on a resource.
Microsoft.Resources/tags/write	Updates the tags on a resource by replacing or merging existing tags with a new set of tags, or removing existing tags.
Microsoft.Resources/tags/delete	Removes all the tags on a resource.
Microsoft.Resources/templateSpecs/read	Gets or lists template specs
Microsoft.Resources/templateSpecs/write	Creates or updates a template spec
Microsoft.Resources/templateSpecs/delete	Deletes a template spec
Microsoft.Resources/templateSpecs/versions/read	Gets or lists template specs
Microsoft.Resources/templateSpecs/versions/write	Creates or updates a template spec version
Microsoft.Resources/templateSpecs/versions/delete	Deletes a template spec version

ACTION	DESCRIPTION
Microsoft.Resources/tenants/read	Gets the list of tenants.

## Microsoft.Scheduler

Azure service: [Scheduler](#)

ACTION	DESCRIPTION
Microsoft.Scheduler/jobcollections/read	Get Job Collection
Microsoft.Scheduler/jobcollections/write	Creates or updates job collection.
Microsoft.Scheduler/jobcollections/delete	Deletes job collection.
Microsoft.Scheduler/jobcollections/enable/action	Enables job collection.
Microsoft.Scheduler/jobcollections/disable/action	Disables job collection.
Microsoft.Scheduler/jobcollections/jobs/read	Gets job.
Microsoft.Scheduler/jobcollections/jobs/write	Creates or updates job.
Microsoft.Scheduler/jobcollections/jobs/delete	Deletes job.
Microsoft.Scheduler/jobcollections/jobs/run/action	Runs job.
Microsoft.Scheduler/jobcollections/jobs/generateLogicAppDefinition/action	Generates Logic App definition based on a Scheduler Job.
Microsoft.Scheduler/jobcollections/jobs/jobhistories/read	Gets job history.

## Microsoft.Solutions

Azure service: [Azure Managed Applications](#)

ACTION	DESCRIPTION
Microsoft.Solutions/register/action	Register to Solutions.
Microsoft.Solutions/unregister/action	Unregisters from Solutions.
Microsoft.Solutions/applicationDefinitions/read	Retrieves a list of application definitions.
Microsoft.Solutions/applicationDefinitions/write	Add or modify an application definition.
Microsoft.Solutions/applicationDefinitions/delete	Removes an application definition.
Microsoft.Solutions/applicationDefinitions/applicationArtifacts/read	Lists application artifacts of application definition.
Microsoft.Solutions/applications/read	Retrieves a list of applications.

ACTION	DESCRIPTION
Microsoft.Solutions/applications/write	Creates an application.
Microsoft.Solutions/applications/delete	Removes an application.
Microsoft.Solutions/applications/refreshPermissions/action	Refreshes application permission(s).
Microsoft.Solutions/applications/updateAccess/action	Updates application access.
Microsoft.Solutions/applications/applicationArtifacts/read	Lists application artifacts.
Microsoft.Solutions/jitRequests/read	Retrieves a list of JitRequests
Microsoft.Solutions/jitRequests/write	Creates a JitRequest
Microsoft.Solutions/jitRequests/delete	Remove a JitRequest
Microsoft.Solutions/locations/operationStatuses/read	Reads the operation status for the resource.
Microsoft.Solutions/operations/read	Gets the list of operations.

## Microsoft.Subscription

Azure service: core

ACTION	DESCRIPTION
Microsoft.Subscription/CreateSubscription/action	Create an Azure subscription
Microsoft.Subscription/register/action	Registers Subscription with Microsoft.Subscription resource provider
Microsoft.Subscription/cancel/action	Cancels the Subscription
Microsoft.Subscription/rename/action	Renames the subscription
Microsoft.Subscription/SubscriptionDefinitions/read	Get an Azure subscription definition within a management group.
Microsoft.Subscription/SubscriptionDefinitions/write	Create an Azure subscription definition

## Intune

### Microsoft.Intune

Azure service: Microsoft Monitoring Insights

ACTION	DESCRIPTION
Microsoft.Intune/diagnosticsettings/write	Writing a diagnostic setting
Microsoft.Intune/diagnosticsettings/read	Reading a diagnostic setting

ACTION	DESCRIPTION
Microsoft.Intune/diagnosticsettings/delete	Deleting a diagnostic setting
Microsoft.Intune/diagnosticsettingscategories/read	Reading a diagnostic setting categories

## Other

### Microsoft.BingMaps

Azure service: [Bing Maps](#)

ACTION	DESCRIPTION
Microsoft.BingMaps/updateCommunicationPreference/action	Updates the communication preferences for the owner of Microsoft.BingMaps
Microsoft.BingMaps/listCommunicationPreference/action	Gets the communication preferences for the owner of Microsoft.BingMaps
Microsoft.BingMaps/mapApis/Read	Gets the resource for Microsoft.BingMaps/mapApis
Microsoft.BingMaps/mapApis/Write	Updates the resource for Microsoft.BingMaps/mapApis
Microsoft.BingMaps/mapApis/Delete	Deletes the resource for Microsoft.BingMaps/mapApis
Microsoft.BingMaps/mapApis/regenerateKey/action	Regenerate key(s) for Microsoft.BingMaps/mapApis
Microsoft.BingMaps/mapApis/listSecrets/action	List the secrets for Microsoft.BingMaps/mapApis
Microsoft.BingMaps/mapApis/listUsageMetrics/action	List the metrics for Microsoft.BingMaps/mapApis
Microsoft.BingMaps/Operations/read	List the operations for Microsoft.BingMaps

## Next steps

- [Match resource provider to service](#)
- [Azure built-in roles](#)
- [Cloud Adoption Framework: Resource access management in Azure](#)

# Azure subscription and service limits, quotas, and constraints

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This document lists some of the most common Microsoft Azure limits, which are also sometimes called quotas.

To learn more about Azure pricing, see [Azure pricing overview](#). There, you can estimate your costs by using the [pricing calculator](#). You also can go to the pricing details page for a particular service, for example, [Windows VMs](#). For tips to help manage your costs, see [Prevent unexpected costs with Azure billing and cost management](#).

## Managing limits

### NOTE

Some services have adjustable limits.

When a service doesn't have adjustable limits, the following tables use the header **Limit**. In those cases, the default and the maximum limits are the same.

When the limit can be adjusted, the tables include **Default limit** and **Maximum limit** headers. The limit can be raised above the default limit but not above the maximum limit.

If you want to raise the limit or quota above the default limit, [open an online customer support request at no charge](#).

[Free Trial subscriptions](#) aren't eligible for limit or quota increases. If you have a [Free Trial subscription](#), you can upgrade to a [Pay-As-You-Go](#) subscription. For more information, see [Upgrade your Azure Free Trial subscription to a Pay-As-You-Go subscription](#) and the [Free Trial subscription FAQ](#).

Some limits are managed at a regional level.

Let's use vCPU quotas as an example. To request a quota increase with support for vCPUs, you must decide how many vCPUs you want to use in which regions. You then make a specific request for Azure resource group vCPU quotas for the amounts and regions that you want. If you need to use 30 vCPUs in West Europe to run your application there, you specifically request 30 vCPUs in West Europe. Your vCPU quota isn't increased in any other region--only West Europe has the 30-vCPU quota.

As a result, decide what your Azure resource group quotas must be for your workload in any one region. Then request that amount in each region into which you want to deploy. For help in how to determine your current quotas for specific regions, see [Resolve errors for resource quotas](#).

## General limits

For limits on resource names, see [Naming rules and restrictions for Azure resources](#).

For information about Resource Manager API read and write limits, see [Throttling Resource Manager requests](#).

### Management group limits

The following limits apply to [management groups](#).

RESOURCE	LIMIT
Management groups per directory	10,000
Subscriptions per management group	Unlimited.
Levels of management group hierarchy	Root level plus 6 levels <sup>1</sup>
Direct parent management group per management group	One
<a href="#">Management group level deployments</a> per location	800 <sup>2</sup>

<sup>1</sup>The 6 levels don't include the subscription level.

<sup>2</sup>If you reach the limit of 800 deployments, delete deployments from the history that are no longer needed. To delete management group level deployments, use [Remove-AzManagementGroupDeployment](#) or [az deployment mg delete](#).

## Subscription limits

The following limits apply when you use Azure Resource Manager and Azure resource groups.

RESOURCE	LIMIT
Subscriptions per Azure Active Directory tenant	Unlimited.
<a href="#">Coadministrators</a> per subscription	Unlimited.
<a href="#">Resource groups</a> per subscription	980
Azure Resource Manager API request size	4,194,304 bytes.
Tags per subscription <sup>1</sup>	50
Unique tag calculations per subscription <sup>1</sup>	10,000
<a href="#">Subscription-level deployments</a> per location	800 <sup>2</sup>

<sup>1</sup>You can apply up to 50 tags directly to a subscription. However, the subscription can contain an unlimited number of tags that are applied to resource groups and resources within the subscription. The number of tags per resource or resource group is limited to 50. Resource Manager returns a [list of unique tag name and values](#) in the subscription only when the number of tags is 10,000 or less. You still can find a resource by tag when the number exceeds 10,000.

<sup>2</sup>If you reach the limit of 800 deployments, delete deployments from the history that are no longer needed. To delete subscription level deployments, use [Remove-AzDeployment](#) or [az deployment sub delete](#).

## Resource group limits

RESOURCE	LIMIT
Resources per <a href="#">resource group</a>	Resources aren't limited by resource group. Instead, they're limited by resource type in a resource group. See next row.

RESOURCE	LIMIT
Resources per resource group, per resource type	800 - Some resource types can exceed the 800 limit. See <a href="#">Resources not limited to 800 instances per resource group</a> .
Deployments per resource group in the deployment history	800 <sup>1</sup>
Resources per deployment	800
Management locks per unique scope	20
Number of tags per resource or resource group	50
Tag key length	512
Tag value length	256

<sup>1</sup>Starting in June 2020, deployments will be automatically deleted from the history as you near the limit. Deleting an entry from the deployment history doesn't affect the deployed resources. For more information, see [Automatic deletions from deployment history](#).

#### Template limits

VALUE	LIMIT
Parameters	256
Variables	256
Resources (including copy count)	800
Outputs	64
Template expression	24,576 chars
Resources in exported templates	200
Template size	4 MB
Parameter file size	64 KB

You can exceed some template limits by using a nested template. For more information, see [Use linked templates when you deploy Azure resources](#). To reduce the number of parameters, variables, or outputs, you can combine several values into an object. For more information, see [Objects as parameters](#).

## Active Directory limits

Here are the usage constraints and other service limits for the Azure Active Directory (Azure AD) service.

CATEGORY	LIMIT
Directories	A single user can belong to a maximum of 500 Azure AD directories as a member or a guest. A single user can create a maximum of 200 directories.

CATEGORY	LIMIT
Domains	You can add no more than 900 managed domain names. If you set up all of your domains for federation with on-premises Active Directory, you can add no more than 450 domain names in each directory.
Resources	<ul style="list-style-type: none"> <li>A maximum of 50,000 Azure AD resources can be created in a single directory by users of the Free edition of Azure Active Directory by default. If you have at least one verified domain, the default Azure AD service quota for your organization is extended to 300,000 Azure AD resources. This service limit is unrelated to the pricing tier limit of 500,000 resources on the Azure AD pricing page. To go beyond the default quota, you must contact Microsoft Support.</li> <li>A non-admin user can create no more than 250 Azure AD resources. Both active resources and deleted resources that are available to restore count toward this quota. Only deleted Azure AD resources that were deleted fewer than 30 days ago are available to restore. Deleted Azure AD resources that are no longer available to restore count toward this quota at a value of one-quarter for 30 days. If you have developers who are likely to repeatedly exceed this quota in the course of their regular duties, you can <a href="#">create and assign a custom role</a> with permission to create a limitless number of app registrations.</li> </ul>
Schema extensions	<ul style="list-style-type: none"> <li>String-type extensions can have a maximum of 256 characters.</li> <li>Binary-type extensions are limited to 256 bytes.</li> <li>Only 100 extension values, across <i>all</i> types and <i>all</i> applications, can be written to any single Azure AD resource.</li> <li>Only User, Group, TenantDetail, Device, Application, and ServicePrincipal entities can be extended with string-type or binary-type single-valued attributes.</li> <li>Schema extensions are available only in the Graph API version 1.21 preview. The application must be granted write access to register an extension.</li> </ul>
Applications	A maximum of 100 users can be owners of a single application.
Application Manifest	A maximum of 1200 entries can be added in the Application Manifest.

CATEGORY	LIMIT
Groups	<ul style="list-style-type: none"> <li>A user can create a maximum of 250 groups in an Azure AD organization.</li> <li>An Azure AD organization can have a maximum of 5000 dynamic groups.</li> <li>A maximum of 100 users can be owners of a single group.</li> <li>Any number of Azure AD resources can be members of a single group.</li> <li>A user can be a member of any number of groups.</li> <li>The number of members in a group that you can synchronize from your on-premises Active Directory to Azure Active Directory by using Azure AD Connect is limited to 50,000 members.</li> <li>Nested Groups in Azure AD are not supported within all scenarios</li> </ul> <p>At this time the following are the supported scenarios with nested groups.</p> <ul style="list-style-type: none"> <li>One group can be added as a member of another group and you can achieve group nesting.</li> <li>Group membership claims (when an app is configured to receive group membership claims in the token, nested groups the signed-in user is a member of are included)</li> <li>Conditional access (when scoping a conditional access policy to a group)</li> <li>Restricting access to self-serve password reset</li> <li>Restricting which users can do Azure AD Join and device registration</li> </ul> <p>The following scenarios DO NOT support nested groups:</p> <ul style="list-style-type: none"> <li>App role assignment (assigning groups to an app is supported, but groups nested within the directly assigned group will not have access), both for access and for provisioning</li> <li>Group-based licensing (assigning a license automatically to all members of a group)</li> <li>Office 365 Groups.</li> </ul>
Application Proxy	<ul style="list-style-type: none"> <li>A maximum of 500 transactions per second per App Proxy application</li> <li>A maximum of 750 transactions per second for the Azure AD organization</li> </ul> <p>A transaction is defined as a single http request and response for a unique resource. When throttled, clients will receive a 429 response (too many requests).</p>
Access Panel	There's no limit to the number of applications that can be seen in the Access Panel per user regardless of assigned licenses.
Reports	A maximum of 1,000 rows can be viewed or downloaded in any report. Any additional data is truncated.

CATEGORY	LIMIT
Administrative units	An Azure AD resource can be a member of no more than 30 administrative units.
Admin roles and permissions	<ul style="list-style-type: none"> <li>A group cannot be added as an <a href="#">owner</a>.</li> <li>A group cannot be assigned to a <a href="#">role</a>.</li> <li>Users' ability to read other users' directory information cannot be restricted outside of the Azure AD organization-wide switch to disable all non-admin users' access to all directory information (not recommended). More information on default permissions <a href="#">here</a>.</li> <li>It may take up to 15 minutes or signing out/signing in before admin role membership additions and revocations take effect.</li> </ul>

## API Management limits

RESOURCE	LIMIT
Maximum number of scale units	10 per region <sup>1</sup>
Cache size	5 GiB per unit <sup>2</sup>
Concurrent back-end connections <sup>3</sup> per HTTP authority	2,048 per unit <sup>4</sup>
Maximum cached response size	2 MiB
Maximum policy document size	256 KiB <sup>5</sup>
Maximum custom gateway domains per service instance <sup>6</sup>	20
Maximum number of CA certificates per service instance <sup>7</sup>	10
Maximum number of service instances per subscription <sup>8</sup>	20
Maximum number of subscriptions per service instance <sup>8</sup>	500
Maximum number of client certificates per service instance <sup>8</sup>	50
Maximum number of APIs per service instance <sup>8</sup>	50
Maximum number of API operations per service instance <sup>8</sup>	1,000
Maximum total request duration <sup>8</sup>	30 seconds
Maximum buffered payload size <sup>8</sup>	2 MiB
Maximum request URL size <sup>9</sup>	4096 bytes
Maximum number of self-hosted gateways <sup>10</sup>	25

<sup>1</sup>Scaling limits depend on the pricing tier. For details on the pricing tiers and their scaling limits, see [API Management pricing](#).

<sup>2</sup>Per unit cache size depends on the pricing tier. To see the pricing tiers and their scaling limits, see [API Management pricing](#).

<sup>3</sup>Connections are pooled and reused unless explicitly closed by the back end.

<sup>4</sup>This limit is per unit of the Basic, Standard, and Premium tiers. The Developer tier is limited to 1,024. This limit doesn't apply to the Consumption tier.

<sup>5</sup>This limit applies to the Basic, Standard, and Premium tiers. In the Consumption tier, policy document size is limited to 4 KiB.

<sup>6</sup>Multiple custom domains are supported in the Developer and Premium tiers only.

<sup>7</sup>CA certificates are not supported in the Consumption tier.

<sup>8</sup>This resource applies to the Consumption tier only.

<sup>9</sup>Applies to the Consumption tier only. Includes an up to 2048 bytes long query string.

<sup>10</sup>Self-hosted gateways are supported in the Developer and Premium tiers only. The limit applies to the number of [self-hosted gateway resources](#). To raise this limit please contact [support](#). Note, that the number of nodes (or replicas) associated with a self-hosted gateway resource is unlimited in the Premium tier and capped at a single node in the Developer tier.

## App Service limits

The following App Service limits include limits for Web Apps, Mobile Apps, and API Apps.

RESOURCE	FREE	SHARED	BASIC	STANDARD	PREMIUM (V2)	ISOLATED
Web, mobile, or API apps per <a href="#">Azure App Service plan</a> <sup>1</sup>	10	100	Unlimited <sup>2</sup>	Unlimited <sup>2</sup>	Unlimited <sup>2</sup>	Unlimited <sup>2</sup>
App Service plan	10 per region	10 per resource group	100 per resource group	100 per resource group	100 per resource group	100 per resource group
Compute instance type	Shared	Shared	Dedicated <sup>3</sup>	Dedicated <sup>3</sup>	Dedicated <sup>3</sup>	Dedicated <sup>3</sup>
Scale out (maximum instances)	1 shared	1 shared	3 dedicated <sup>3</sup>	10 dedicated <sup>3</sup>	30 dedicated <sup>3</sup>	100 dedicated <sup>4</sup>
Storage <sup>5</sup>	1 GB <sup>5</sup>	1 GB <sup>5</sup>	10 GB <sup>5</sup>	50 GB <sup>5</sup>	250 GB <sup>5</sup> For more than 250 GB, submit a support request.	1 TB <sup>5</sup> The available storage quota is 999 GB.
CPU time (5 minutes) <sup>6</sup>	3 minutes	3 minutes	Unlimited, pay at standard rates	Unlimited, pay at standard rates	Unlimited, pay at standard rates	Unlimited, pay at standard rates
CPU time (day) <sup>6</sup>	60 minutes	240 minutes	Unlimited, pay at standard rates	Unlimited, pay at standard rates	Unlimited, pay at standard rates	Unlimited, pay at standard rates

Resource	Free	Shared	Basic	Standard	Premium (V2)	Isolated
Memory (1 hour)	1,024 MB per App Service plan	1,024 MB per app	N/A	N/A	N/A	N/A
Bandwidth	165 MB	Unlimited, <a href="#">data transfer rates apply</a>	Unlimited, <a href="#">data transfer rates apply</a>	Unlimited, <a href="#">data transfer rates apply</a>	Unlimited, <a href="#">data transfer rates apply</a>	Unlimited, <a href="#">data transfer rates apply</a>
Application architecture	32-bit	32-bit	32-bit/64-bit	32-bit/64-bit	32-bit/64-bit	32-bit/64-bit
Web sockets per instance <sup>7</sup>	5	35	350	Unlimited	Unlimited	Unlimited
IP connections	600	600	Depends on instance size <sup>8</sup>	Depends on instance size <sup>8</sup>	Depends on instance size <sup>8</sup>	16,000
Concurrent debugger connections per application	1	1	1	5	5	5
App Service Certificates per subscription <sup>9</sup>	Not supported	Not supported	10	10	10	10
Custom domains per app	0 ( <code>azurewebsites.net</code> subdomain only)	500	500	500	500	500
Custom domain SSL support	Not supported, wildcard certificate for <code>*.azurewebsite.s.net</code> available by default	Not supported, wildcard certificate for <code>*.azurewebsite.s.net</code> available by default	Unlimited SNI SSL connections	Unlimited SNI SSL and 1 IP SSL connections included	Unlimited SNI SSL and 1 IP SSL connections included	Unlimited SNI SSL and 1 IP SSL connections included
Hybrid connections per plan			5	25	200	200
Integrated load balancer		X	X	X	X	X <sup>10</sup>
Always On			X	X	X	X

RESOURCE	FREE	SHARED	BASIC	STANDARD	PREMIUM (V2)	ISOLATED
Scheduled backups				Scheduled backups every 2 hours, a maximum of 12 backups per day (manual + scheduled)	Scheduled backups every hour, a maximum of 50 backups per day (manual + scheduled)	Scheduled backups every hour, a maximum of 50 backups per day (manual + scheduled)
Autoscale				X	X	X
WebJobs <sup>11</sup>	X	X	X	X	X	X
Endpoint monitoring			X	X	X	X
Staging slots per app				5	20	20
SLA			99.95%	99.95%	99.95%	99.95%

<sup>1</sup>Apps and storage quotas are per App Service plan unless noted otherwise.

<sup>2</sup>The actual number of apps that you can host on these machines depends on the activity of the apps, the size of the machine instances, and the corresponding resource utilization.

<sup>3</sup>Dedicated instances can be of different sizes. For more information, see [App Service pricing](#).

<sup>4</sup>More are allowed upon request.

<sup>5</sup>The storage limit is the total content size across all apps in the same App service plan. The total content size of all apps across all App service plans in a single resource group and region cannot exceed 500GB.

<sup>6</sup>These resources are constrained by physical resources on the dedicated instances (the instance size and the number of instances).

<sup>7</sup>If you scale an app in the Basic tier to two instances, you have 350 concurrent connections for each of the two instances. For Standard tier and above, there are no theoretical limits to web sockets, but other factors can limit the number of web sockets. For example, maximum concurrent requests allowed (defined by

`maxConcurrentRequestsPerCpu`) are: 7,500 per small VM, 15,000 per medium VM (7,500 x 2 cores), and 75,000 per large VM (18,750 x 4 cores).

<sup>8</sup>The maximum IP connections are per instance and depend on the instance size: 1,920 per B1/S1/P1V2 instance, 3,968 per B2/S2/P2V2 instance, 8,064 per B3/S3/P3V2 instance.

<sup>9</sup>The App Service Certificate quota limit per subscription can be increased via a support request to a maximum limit of 200.

<sup>10</sup>App Service Isolated SKUs can be internally load balanced (ILB) with Azure Load Balancer, so there's no public connectivity from the internet. As a result, some features of an ILB Isolated App Service must be used from machines that have direct access to the ILB network endpoint.

<sup>11</sup>Run custom executables and/or scripts on demand, on a schedule, or continuously as a background task within your App Service instance. Always On is required for continuous WebJobs execution. There's no predefined limit on the number of WebJobs that can run in an App Service instance. There are practical limits that depend on what the application code is trying to do.

## Automation limits

### Process automation

Resource	Limit	Notes
Maximum number of new jobs that can be submitted every 30 seconds per Azure Automation account (nonscheduled jobs)	100	When this limit is reached, the subsequent requests to create a job fail. The client receives an error response.
Maximum number of concurrent running jobs at the same instance of time per Automation account (nonscheduled jobs)	200	When this limit is reached, the subsequent requests to create a job fail. The client receives an error response.
Maximum storage size of job metadata for a 30-day rolling period	10 GB (approximately 4 million jobs)	When this limit is reached, the subsequent requests to create a job fail.
Maximum job stream limit	1 MiB	A single stream cannot be larger than 1 MB.
Maximum number of modules that can be imported every 30 seconds per Automation account	5	
Maximum size of a module	100 MB	
Job run time, Free tier	500 minutes per subscription per calendar month	
Maximum amount of disk space allowed per sandbox <sup>1</sup>	1 GB	Applies to Azure sandboxes only.
Maximum amount of memory given to a sandbox <sup>1</sup>	400 MB	Applies to Azure sandboxes only.
Maximum number of network sockets allowed per sandbox <sup>1</sup>	1,000	Applies to Azure sandboxes only.
Maximum runtime allowed per runbook <sup>1</sup>	3 hours	Applies to Azure sandboxes only.
Maximum number of Automation accounts in a subscription	No limit	
Maximum number of Hybrid Worker Groups per Automation Account	4,000	
Maximum number of concurrent jobs that can be run on a single Hybrid Runbook Worker	50	
Maximum runbook job parameter size	512 kilobytes	
Maximum runbook parameters	50	If you reach the 50-parameter limit, you can pass a JSON or XML string to a parameter and parse it with the runbook.

RESOURCE	LIMIT	NOTES
Maximum webhook payload size	512 kilobytes	
Maximum days that job data is retained	30 days	
Maximum PowerShell workflow state size	5 MB	Applies to PowerShell workflow runbooks when checkpointing workflow.

<sup>1</sup>A sandbox is a shared environment that can be used by multiple jobs. Jobs that use the same sandbox are bound by the resource limitations of the sandbox.

#### Change Tracking and Inventory

The following table shows the tracked item limits per machine for change tracking.

RESOURCE	LIMIT	NOTES
File	500	
Registry	250	
Windows software	250	Doesn't include software updates.
Linux packages	1,250	
Services	250	
Daemon	250	

#### Update Management

The following table shows the limits for Update Management.

RESOURCE	LIMIT	NOTES
Number of machines per update deployment	1000	

## Azure Cache for Redis limits

RESOURCE	LIMIT
Cache size	1.2 TB
Databases	64
Maximum connected clients	40,000
Azure Cache for Redis replicas, for high availability	1
Shards in a premium cache with clustering	10

Azure Cache for Redis limits and sizes are different for each pricing tier. To see the pricing tiers and their associated sizes, see [Azure Cache for Redis pricing](#).

For more information on Azure Cache for Redis configuration limits, see [Default Redis server configuration](#).

Because configuration and management of Azure Cache for Redis instances is done by Microsoft, not all Redis commands are supported in Azure Cache for Redis. For more information, see [Redis commands not supported in Azure Cache for Redis](#).

## Azure Cloud Services limits

RESOURCE	LIMIT
<a href="#">Web or worker roles per deployment</a> <sup>1</sup>	25
<a href="#">Instance input endpoints</a> per deployment	25
<a href="#">Input endpoints</a> per deployment	25
<a href="#">Internal endpoints</a> per deployment	25
<a href="#">Hosted service certificates</a> per deployment	199

<sup>1</sup>Each Azure Cloud Service with web or worker roles can have two deployments, one for production and one for staging. This limit refers to the number of distinct roles, that is, configuration. This limit doesn't refer to the number of instances per role, that is, scaling.

## Azure Cognitive Search limits

Pricing tiers determine the capacity and limits of your search service. Tiers include:

- **Free** multi-tenant service, shared with other Azure subscribers, is intended for evaluation and small development projects.
- **Basic** provides dedicated computing resources for production workloads at a smaller scale, with up to three replicas for highly available query workloads.
- **Standard**, which includes S1, S2, S3, and S3 High Density, is for larger production workloads. Multiple levels exist within the Standard tier so that you can choose a resource configuration that best matches your workload profile.

### Limits per subscription

You can create multiple services within a subscription. Each one can be provisioned at a specific tier. You're limited only by the number of services allowed at each tier. For example, you could create up to 12 services at the Basic tier and another 12 services at the S1 tier within the same subscription. For more information about tiers, see [Choose an SKU or tier for Azure Cognitive Search](#).

Maximum service limits can be raised upon request. If you need more services within the same subscription, contact Azure Support.

RESOURCE	FREE <sup>1</sup>	BASIC	S1	S2	S3	S3 HD	L1	L2
Maximum services	1	16	16	8	6	6	6	6

RESOURCE	FREE	BASIC	S1	S2	S3	S3 HD	L1	L2
Maximum scale in search units (SU) <sup>2</sup>	N/A	3 SU	36 SU	36 SU	36 SU	36 SU	36 SU	36 SU

<sup>1</sup> Free is based on shared, not dedicated, resources. Scale-up is not supported on shared resources.

<sup>2</sup> Search units are billing units, allocated as either a *replica* or a *partition*. You need both resources for storage, indexing, and query operations. To learn more about SU computations, see [Scale resource levels for query and index workloads](#).

## Limits per search service

A search service is constrained by disk space or by a hard limit on the maximum number of indexes or indexers, whichever comes first. The following table documents storage limits. For maximum object limits, see [Limits by resource](#).

RESOURCE	FREE	BASIC <sup>1</sup>	S1	S2	S3	S3 HD	L1	L2
Service level agreement (SLA) <sup>2</sup>	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Storage per partition	50 MB	2 GB	25 GB	100 GB	200 GB	200 GB	1 TB	2 TB
Partitions per service	N/A	1	12	12	12	3	12	12
Partition size	N/A	2 GB	25 GB	100 GB	200 GB	200 GB	1 TB	2 TB
Replicas	N/A	3	12	12	12	12	12	12

<sup>1</sup> Basic has one fixed partition. Additional search units can be used to add replicas for larger query volumes.

<sup>2</sup> Service level agreements are in effect for billable services on dedicated resources. Free services and preview features have no SLA. For billable services, SLAs take effect when you provision sufficient redundancy for your service. Two or more replicas are required for query (read) SLAs. Three or more replicas are required for query and indexing (read-write) SLAs. The number of partitions isn't an SLA consideration.

To learn more about limits on a more granular level, such as document size, queries per second, keys, requests, and responses, see [Service limits in Azure Cognitive Search](#).

## Azure Cognitive Services limits

The following limits are for the number of Cognitive Services resources per Azure subscription. Each of the Cognitive Services may have additional limitations, for more information see [Azure Cognitive Services](#).

Type	Limit	Example
A mixture of Cognitive Services resources	Maximum of 200 total Cognitive Services resources.	100 Computer Vision resources in West US 2, 50 Speech Service resources in West US, and 50 Text Analytics resources in East US.
A single type of Cognitive Services resources.	Maximum of 100 resources per region, with a maximum of 200 total Cognitive Services resources.	100 Computer Vision resources in West US 2, and 100 Computer Vision resources in East US.

## Azure Cosmos DB limits

For Azure Cosmos DB limits, see [Limits in Azure Cosmos DB](#).

## Azure Data Explorer limits

The following table describes the maximum limits for Azure Data Explorer clusters.

Resource	Limit
Clusters per region per subscription	20
Instances per cluster	1000
Number of databases in a cluster	10,000
Number of attached database configurations in a cluster	70

The following table describes the limits on management operations performed on Azure Data Explorer clusters.

Scope	Operation	Limit
Cluster	read (for example, get a cluster)	500 per 5 minutes
Cluster	write (for example, create a database)	1000 per hour

## Azure Database for MySQL

For Azure Database for MySQL limits, see [Limitations in Azure Database for MySQL](#).

## Azure Database for PostgreSQL

For Azure Database for PostgreSQL limits, see [Limitations in Azure Database for PostgreSQL](#).

## Azure Functions limits

Resource	Consumption Plan	Premium Plan	Dedicated Plan	ASE	Kubernetes
Default timeout duration (min)	5	30	30 <sup>1</sup>	30	30

RESOURCE	CONSUMPTION PLAN	PREMIUM PLAN	DEDICATED PLAN	ASE	KUBERNETES
Max <a href="#">timeout duration</a> (min)	10	unbounded <sup>7</sup>	unbounded <sup>2</sup>	unbounded	unbounded
Max outbound connections (per instance)	600 active (1200 total)	unbounded	unbounded	unbounded	unbounded
Max request size (MB) <sup>3</sup>	100	100	100	100	Depends on cluster
Max query string length <sup>3</sup>	4096	4096	4096	4096	Depends on cluster
Max request URL length <sup>3</sup>	8192	8192	8192	8192	Depends on cluster
<a href="#">ACU</a> per instance	100	210-840	100-840	210-250 <sup>8</sup>	<a href="#">AKS pricing</a>
Max memory (GB per instance)	1.5	3.5-14	1.75-14	3.5 - 14	Any node is supported
Function apps per plan	100	100	unbounded <sup>4</sup>	unbounded	unbounded
<a href="#">App Service plans</a>	100 per region	100 per resource group	100 per resource group	-	-
Storage <sup>5</sup>	5 TB	250 GB	50-1000 GB	1 TB	n/a
Custom domains per app	500 <sup>6</sup>	500	500	500	n/a
Custom domain <a href="#">SSL support</a>	unbounded SNI SSL connection included	unbounded SNI SSL and 1 IP SSL connections included	unbounded SNI SSL and 1 IP SSL connections included	unbounded SNI SSL and 1 IP SSL connections included	n/a

<sup>1</sup> By default, the timeout for the Functions 1.x runtime in an App Service plan is unbounded.

<sup>2</sup> Requires the App Service plan be set to [Always On](#). Pay at standard [rates](#).

<sup>3</sup> These limits are [set in the host](#).

<sup>4</sup> The actual number of function apps that you can host depends on the activity of the apps, the size of the machine instances, and the corresponding resource utilization.

<sup>5</sup> The storage limit is the total content size in temporary storage across all apps in the same App Service plan. Consumption plan uses Azure Files for temporary storage.

<sup>6</sup> When your function app is hosted in a [Consumption plan](#), only the CNAME option is supported. For function apps in a [Premium plan](#) or an [App Service plan](#), you can map a custom domain using either a CNAME or an A record.

<sup>7</sup> Guaranteed for up to 60 minutes.

<sup>8</sup> Workers are roles that host customer apps. Workers are available in three fixed sizes: One vCPU/3.5 GB RAM; Two vCPU/7 GB RAM; Four vCPU/14 GB RAM.

For more information, see [Functions Hosting plans comparison](#).

## Azure Kubernetes Service limits

RESOURCE	LIMIT
Maximum clusters per subscription	100
Maximum nodes per cluster with Virtual Machine Availability Sets and Basic Load Balancer SKU	100
Maximum nodes per cluster with Virtual Machine Scale Sets and <a href="#">Standard Load Balancer SKU</a>	1000 (100 nodes per <a href="#">node pool</a> )
Maximum pods per node: <a href="#">Basic networking</a> with Kubenet	110
Maximum pods per node: <a href="#">Advanced networking</a> with Azure Container Networking Interface	Azure CLI deployment: 30 <sup>1</sup> Azure Resource Manager template: 30 <sup>1</sup> Portal deployment: 30

<sup>1</sup>When you deploy an Azure Kubernetes Service (AKS) cluster with the Azure CLI or a Resource Manager template, this value is configurable up to 250 pods per node. You can't configure maximum pods per node after you've already deployed an AKS cluster, or if you deploy a cluster by using the Azure portal.

## Azure Machine Learning limits

The latest values for Azure Machine Learning Compute quotas can be found in the [Azure Machine Learning quota page](#)

## Azure Maps limits

The following table shows the usage limit for the Azure Maps S0 pricing tier. Usage limit depends on the pricing tier.

RESOURCE	S0 PRICING TIER LIMIT
Maximum request rate per subscription	50 requests per second

The following table shows the cumulative data size limit for Azure Maps accounts in an Azure subscription. The Azure Maps Data service is available only at the S1 pricing tier.

RESOURCE	LIMIT
Maximum storage per Azure subscription	1 GB
Maximum size per file upload	100 MB

For more information on the Azure Maps pricing tiers, see [Azure Maps pricing](#).

## Azure Monitor limits

### Alerts

RESOURCE	DEFAULT LIMIT	MAXIMUM LIMIT
Metric alerts (classic)	100 active alert rules per subscription.	Call support.

RESOURCE	DEFAULT LIMIT	MAXIMUM LIMIT
Metric alerts	5,000 active alert rules per subscription in Azure public, Azure China 21Vianet and Azure Government clouds. If you are hitting this limit, explore if you can use <a href="#">same type multi-resource alerts</a> .	Call support.
Activity log alerts	100 active alert rules per subscription.	Same as default.
Log alerts	512 active alert rules per subscription. 200 active alert rules per resource.	Call support.
Action groups	2,000 action groups per subscription.	Call support.
Autoscale settings	100 per region per subscription.	Same as default.
Autoscale profiles	20 profiles per autoscale setting.	Same as default.

## Action groups

RESOURCE	DEFAULT LIMIT	MAXIMUM LIMIT
Azure app push	10 Azure app actions per action group.	Call support.
Email	1,000 email actions in an action group. No more than 100 emails in an hour. Also see the <a href="#">rate limiting information</a> .	Call support.
ITSM	10 ITSM actions in an action group.	Call support.
Logic app	10 logic app actions in an action group.	Call support.
Runbook	10 runbook actions in an action group.	Call support.
SMS	10 SMS actions in an action group. No more than 1 SMS message every 5 minutes. Also see the <a href="#">rate limiting information</a> .	Call support.
Voice	10 voice actions in an action group. No more than 1 voice call every 5 minutes. Also see the <a href="#">rate limiting information</a> .	Call support.
Webhook	10 webhook actions in an action group. Maximum number of webhook calls is 1500 per minute per subscription. Other limits are available at <a href="#">action-specific information</a> .	Call support.

## Log queries and language

### General query limits

LIMIT	DESCRIPTION
Query language	Azure Monitor uses the same <a href="#">Kusto query language</a> as Azure Data Explorer. See <a href="#">Azure Monitor log query language differences</a> for KQL language elements not supported in Azure Monitor.
Azure regions	Log queries can experience excessive overhead when data spans Log Analytics workspaces in multiple Azure regions. See <a href="#">Query limits</a> for details.
Cross resource queries	Maximum number of Application Insights resources and Log Analytics workspaces in a single query limited to 100. Cross-resource query is not supported in View Designer. Cross-resource query in log alerts is supported in the new scheduledQueryRules API. See <a href="#">Cross-resource query limits</a> for details.

## User query throttling

Azure Monitor has several throttling limits to protect against users sending an excessive number of queries. Such behavior can potentially overload the system backend resources and jeopardize service responsiveness. The following limits are designed to protect customers from interruptions and ensure consistent service level. The user throttling and limits are designed to impact only extreme usage scenario and should not be relevant for typical usage.

MEASURE	LIMIT PER USER	DESCRIPTION
Concurrent queries	5	If there are already 5 queries running for the user, any new queries are placed in a per-user concurrency queue. When one of the running queries ends, the next query will be pulled from the queue and started. This does not include queries from alert rules.
Time in concurrency queue	2.5 minutes	If a query sits in the queue for more than 2.5 minutes without being started, it will be terminated with an HTTP error response with code 429.
Total queries in concurrency queue	40	Once the number of queries in the queue reaches 40, any additional queries will be rejected with an HTTP error code 429. This number is in addition to the 5 queries that can be running simultaneously.
Query rate	200 queries per 30 seconds	This is the overall rate that queries can be submitted by a single user to all workspaces. This limit applies to programmatic queries or queries initiated by visualization parts such as Azure dashboards and the Log Analytics workspace summary page.

- Optimize your queries as described in [Optimize log queries in Azure Monitor](#).
- Dashboards and workbooks can contain multiple queries in a single view that generate a burst of queries every time they load or refresh. Consider breaking them up into multiple views that load on demand.

- In Power BI, consider extracting only aggregated results rather than raw logs.

## Log Analytics workspaces

### Data collection volume and retention

TIER	LIMIT PER DAY	DATA RETENTION	COMMENT
Current Per GB pricing tier (introduced April 2018)	No limit	30 - 730 days	Data retention beyond 31 days is available for additional charges. Learn more about Azure Monitor pricing.
Legacy Free tiers (introduced April 2016)	500 MB	7 days	When your workspace reaches the 500 MB per day limit, data ingestion stops and resumes at the start of the next day. A day is based on UTC. Note that data collected by Azure Security Center is not included in this 500 MB per day limit and will continue to be collected above this limit.
Legacy Standalone Per GB tier (introduced April 2016)	No limit	30 to 730 days	Data retention beyond 31 days is available for additional charges. Learn more about Azure Monitor pricing.
Legacy Per Node (OMS) (introduced April 2016)	No limit	30 to 730 days	Data retention beyond 31 days is available for additional charges. Learn more about Azure Monitor pricing.
Legacy Standard tier	No limit	30 days	Retention can't be adjusted
Legacy Premium tier	No limit	365 days	Retention can't be adjusted

### Number of workspaces per subscription.

PRICING TIER	WORKSPACE LIMIT	COMMENTS
Free tier	10	This limit can't be increased.
All other tiers	No limit	You're limited by the number of resources within a resource group and the number of resource groups per subscription.

### Azure portal

CATEGORY	LIMIT	COMMENTS
Maximum records returned by a log query	10,000	Reduce results using query scope, time range, and filters in the query.

## Data Collector API

CATEGORY	LIMIT	COMMENTS
Maximum size for a single post	30 MB	Split larger volumes into multiple posts.
Maximum size for field values	32 KB	Fields longer than 32 KB are truncated.

## Search API

CATEGORY	LIMIT	COMMENTS
Maximum records returned in a single query	500,000	
Maximum size of data returned	64,000,000 bytes (~61 MiB)	
Maximum query running time	10 minutes	See <a href="#">Timeouts</a> for details.
Maximum request rate	200 requests per 30 seconds per AAD user or client IP address	See <a href="#">Rate limits</a> for details.

## General workspace limits

CATEGORY	LIMIT	COMMENTS
Maximum columns in a table	500	
Maximum characters for column name	500	
Data export	Not currently available	Use Azure Function or Logic App to aggregate and export data.

## Data ingestion volume rate

Azure Monitor is a high scale data service that serves thousands of customers sending terabytes of data each month at a growing pace. The default ingestion volume rate limit for data sent from Azure resources using [diagnostic settings](#) is approximately **6 GB/min** per workspace. This is an approximate value since the actual size can vary between data types depending on the log length and its compression ratio. This limit does not apply to data that is sent from agents or [Data Collector API](#).

If you send data at a higher rate to a single workspace, some data is dropped, and an event is sent to the *Operation* table in your workspace every 6 hours while the threshold continues to be exceeded. If your ingestion volume continues to exceed the rate limit or you are expecting to reach it sometime soon, you can request an increase to your workspace by sending an email to [LAIgestionRate@microsoft.com](mailto:LAIgestionRate@microsoft.com) or opening a support request.

To be notified on such an event in your workspace, create a [log alert rule](#) using the following query with alert logic base on number of results grater than zero.

```
Operation
|where OperationCategory == "Ingestion"
|where Detail startswith "The rate of data crossed the threshold"
```

**NOTE**

Depending on how long you've been using Log Analytics, you might have access to legacy pricing tiers. Learn more about [Log Analytics legacy pricing tiers](#).

## Application Insights

There are some limits on the number of metrics and events per application, that is, per instrumentation key. Limits depend on the [pricing plan](#) that you choose.

RESOURCE	LIMIT	NOTE
Total data per day	100 GB	You can reduce data by setting a cap. If you need more data, you can increase the limit in the portal, up to 1,000 GB. For capacities greater than 1,000 GB, send email to <a href="mailto:AIDataCap@microsoft.com">AIDataCap@microsoft.com</a> .
Throttling	32,000 events/second	The limit is measured over a minute.
Data retention	90 days	This resource is for <a href="#">Search</a> , <a href="#">Analytics</a> , and <a href="#">Metrics Explorer</a> .
<a href="#">Availability multi-step test</a> detailed results retention	90 days	This resource provides detailed results of each step.
Maximum event size	64,000,000 bytes	
Property and metric name length	150	See <a href="#">type schemas</a> .
Property value string length	8,192	See <a href="#">type schemas</a> .
Trace and exception message length	32,768	See <a href="#">type schemas</a> .
<a href="#">Availability tests</a> count per app	100	
Profiler data retention	5 days	
Profiler data sent per day	10 GB	

For more information, see [About pricing and quotas in Application Insights](#).

## Azure Policy limits

There's a maximum count for each object type for Azure Policy. An entry of *Scope* means either the subscription or the [management group](#).

WHERE	WHAT	MAXIMUM COUNT
Scope	Policy definitions	500
Scope	Initiative definitions	100

WHERE	WHAT	MAXIMUM COUNT
Tenant	Initiative definitions	2,500
Scope	Policy or initiative assignments	100
Policy definition	Parameters	20
Initiative definition	Policies	100
Initiative definition	Parameters	100
Policy or initiative assignments	Exclusions (notScopes)	400
Policy rule	Nested conditionals	512
Remediation task	Resources	500

## Azure SignalR Service limits

RESOURCE	DEFAULT LIMIT	MAXIMUM LIMIT
Azure SignalR Service units per instance for Free tier	1	1
Azure SignalR Service units per instance for Standard tier	100	100
Azure SignalR Service units per subscription per region for Free tier	5	5
Total Azure SignalR Service unit counts per subscription per region	150	Unlimited
Connections per unit per day for Free tier	20	20
Connections per unit per day for Standard tier	1,000	1,000
Included messages per unit per day for Free tier	20,000	20,000
Additional messages per unit per day for Free tier	0	0
Included messages per unit per day for Standard tier	1,000,000	1,000,000
Additional messages per unit per day for Standard tier	Unlimited	Unlimited

To request an update to your subscription's default limits, open a support ticket.

# Backup limits

For a summary of Azure Backup support settings and limitations, see [Azure Backup Support Matrices](#).

## Batch limits

RESOURCE	DEFAULT LIMIT	MAXIMUM LIMIT
Azure Batch accounts per region per subscription	1-3	50
Dedicated cores per Batch account	90-900	Contact support
Low-priority cores per Batch account	10-100	Contact support
<b>Active</b> jobs and job schedules per Batch account ( <b>completed</b> jobs have no limit)	100-300	1,000 <sup>1</sup>
Pools per Batch account	20-100	500 <sup>1</sup>

<sup>1</sup>To request an increase beyond this limit, contact Azure Support.

### IMPORTANT

We are changing how you request and manage dedicated quota. The total dedicated vCPUs is the currently enforced value, but soon we will enforce dedicated quota per VM series. Low-priority quota will continue being enforced based on the total limit; it will not be enforced by VM series.

### NOTE

Default limits vary depending on the type of subscription you use to create a Batch account. Cores quotas shown are for Batch accounts in Batch service mode. [View the quotas in your Batch account](#).

### IMPORTANT

To help us better manage capacity during the global health pandemic, the default core quotas for new Batch accounts in some regions and for some types of subscription have been reduced from the above range of values, in some cases to zero cores. When you create a new Batch account, [check your core quota](#) and [request a core quota increase](#), if required.

## Classic deployment model limits

If you use classic deployment model instead of the Azure Resource Manager deployment model, the following limits apply.

RESOURCE	DEFAULT LIMIT	MAXIMUM LIMIT
vCPUs per <a href="#">subscription</a> <sup>1</sup>	20	10,000
<a href="#">Coadministrators</a> per subscription	200	200

RESOURCE	DEFAULT LIMIT	MAXIMUM LIMIT
Storage accounts per subscription <sup>2</sup>	100	100
Cloud services per subscription	20	200
Local networks per subscription	10	500
DNS servers per subscription	9	100
Reserved IPs per subscription	20	100
Affinity groups per subscription	256	256
Subscription name length (characters)	64	64

<sup>1</sup>Extra small instances count as one vCPU toward the vCPU limit despite using a partial CPU core.

<sup>2</sup>The storage account limit includes both Standard and Premium storage accounts.

## Container Instances limits

RESOURCE	LIMIT
Standard sku container groups per region per <a href="#">subscription</a>	100 <sup>1</sup>
Dedicated sku container groups per region per <a href="#">subscription</a>	0 <sup>1</sup>
Number of containers per container group	60
Number of volumes per container group	20
Ports per IP	5
Container instance log size - running instance	4 MB
Container instance log size - stopped instance	16 KB or 1,000 lines
Container creates per hour	300 <sup>1</sup>
Container creates per 5 minutes	100 <sup>1</sup>
Container deletes per hour	300 <sup>1</sup>
Container deletes per 5 minutes	100 <sup>1</sup>

<sup>1</sup>To request a limit increase, create an [Azure Support request](#).

## Container Registry limits

The following table details the features and limits of the Basic, Standard, and Premium [service tiers](#).

Resource	Basic	Standard	Premium
Included storage <sup>1</sup> (GiB)	10	100	500
Storage limit (TiB)	20	20	20
Maximum image layer size (GiB)	200	200	200
ReadOps per minute <sup>2, 3</sup>	1,000	3,000	10,000
WriteOps per minute <sup>2, 4</sup>	100	500	2,000
Download bandwidth MBps <sup>2</sup>	30	60	100
Upload bandwidth MBps <sup>2</sup>	10	20	50
Webhooks	2	10	500
Geo-replication	N/A	N/A	Supported
Content trust	N/A	N/A	Supported
Private link with private endpoints	N/A	N/A	Supported
• Private endpoints	N/A	N/A	10
Service endpoint VNet access	N/A	N/A	Preview
Customer-managed keys	N/A	N/A	Supported
Repository-scoped permissions	N/A	N/A	Preview
• Tokens	N/A	N/A	20,000
• Scope maps	N/A	N/A	20,000
• Repositories per scope map	N/A	N/A	500

<sup>1</sup> Storage included in the daily rate for each tier. For additional storage, you're charged an additional daily rate per GiB, up to the storage limit. For rate information, see [Azure Container Registry pricing](#).

<sup>2</sup> *ReadOps*, *WriteOps*, and *Bandwidth* are minimum estimates. Azure Container Registry strives to improve performance as usage requires.

<sup>3</sup> A `docker pull` translates to multiple read operations based on the number of layers in the image, plus the manifest retrieval.

<sup>4</sup> A `docker push` translates to multiple write operations, based on the number of layers that must be pushed. A `docker push` includes *ReadOps* to retrieve a manifest for an existing image.

## Content Delivery Network limits

RESOURCE	LIMIT
Azure Content Delivery Network profiles	25
Content Delivery Network endpoints per profile	25
Custom domains per endpoint	25

A Content Delivery Network subscription can contain one or more Content Delivery Network profiles. A Content Delivery Network profile can contain one or more Content Delivery Network endpoints. You might want to use multiple profiles to organize your Content Delivery Network endpoints by internet domain, web application, or some other criteria.

## Data Factory limits

Azure Data Factory is a multitenant service that has the following default limits in place to make sure customer subscriptions are protected from each other's workloads. To raise the limits up to the maximum for your subscription, contact support.

### Version 2

RESOURCE	DEFAULT LIMIT	MAXIMUM LIMIT
Data factories in an Azure subscription	800	<a href="#">Contact support.</a>
Total number of entities, such as pipelines, data sets, triggers, linked services, and integration runtimes, within a data factory	5,000	<a href="#">Contact support.</a>
Total CPU cores for Azure-SSIS Integration Runtimes under one subscription	256	<a href="#">Contact support.</a>
Concurrent pipeline runs per data factory that's shared among all pipelines in the factory	10,000	<a href="#">Contact support.</a>
Concurrent External activity runs per subscription per <a href="#">Azure Integration Runtime region</a> External activities are managed on integration runtime but execute on linked services, including Databricks, stored procedure, HDInsights, Web, and others.	3000	<a href="#">Contact support.</a>
Concurrent Pipeline activity runs per subscription per <a href="#">Azure Integration Runtime region</a> Pipeline activities execute on integration runtime, including Lookup, GetMetadata, and Delete.	1000	<a href="#">Contact support.</a>

RESOURCE	DEFAULT LIMIT	MAXIMUM LIMIT
Concurrent authoring operations per subscription per <a href="#">Azure Integration Runtime region</a>  Including test connection, browse folder list and table list, preview data.	200	<a href="#">Contact support.</a>
Concurrent Data Integration Units <sup>1</sup> consumption per subscription per <a href="#">Azure Integration Runtime region</a>	Region group 1 <sup>2</sup> : 6000 Region group 2 <sup>2</sup> : 3000 Region group 3 <sup>2</sup> : 1500	<a href="#">Contact support.</a>
Maximum activities per pipeline, which includes inner activities for containers	40	40
Maximum number of linked integration runtimes that can be created against a single self-hosted integration runtime	100	<a href="#">Contact support.</a>
Maximum parameters per pipeline	50	50
ForEach items	100,000	100,000
ForEach parallelism	20	50
Maximum queued runs per pipeline	100	100
Characters per expression	8,192	8,192
Minimum tumbling window trigger interval	15 min	15 min
Maximum timeout for pipeline activity runs	7 days	7 days
Bytes per object for pipeline objects <sup>3</sup>	200 KB	200 KB
Bytes per object for dataset and linked service objects <sup>3</sup>	100 KB	2,000 KB
Data Integration Units <sup>1</sup> per copy activity run	256	<a href="#">Contact support.</a>
Write API calls	1,200/h  This limit is imposed by Azure Resource Manager, not Azure Data Factory.	<a href="#">Contact support.</a>
Read API calls	12,500/h  This limit is imposed by Azure Resource Manager, not Azure Data Factory.	<a href="#">Contact support.</a>
Monitoring queries per minute	1,000	<a href="#">Contact support.</a>
Entity CRUD operations per minute	50	<a href="#">Contact support.</a>

RESOURCE	DEFAULT LIMIT	MAXIMUM LIMIT
Maximum time of data flow debug session	8 hrs	8 hrs
Concurrent number of data flows per integration runtime	50	<a href="#">Contact support.</a>
Concurrent number of data flow debug sessions per user per factory	3	3
Data Flow Azure IR TTL limit	4 hrs	<a href="#">Contact support.</a>

<sup>1</sup> The data integration unit (DIU) is used in a cloud-to-cloud copy operation, learn more from [Data integration units \(version 2\)](#). For information on billing, see [Azure Data Factory pricing](#).

<sup>2</sup> [Azure Integration Runtime](#) is [globally available](#) to ensure data compliance, efficiency, and reduced network egress costs.

REGION GROUP	REGIONS
Region group 1	Central US, East US, East US2, North Europe, West Europe, West US, West US 2
Region group 2	Australia East, Australia Southeast, Brazil South, Central India, Japan East, Northcentral US, Southcentral US, Southeast Asia, West Central US
Region group 3	Canada Central, East Asia, France Central, Korea Central, UK South

<sup>3</sup> Pipeline, data set, and linked service objects represent a logical grouping of your workload. Limits for these objects don't relate to the amount of data you can move and process with Azure Data Factory. Data Factory is designed to scale to handle petabytes of data.

## Version 1

RESOURCE	DEFAULT LIMIT	MAXIMUM LIMIT
Pipelines within a data factory	2,500	<a href="#">Contact support.</a>
Data sets within a data factory	5,000	<a href="#">Contact support.</a>
Concurrent slices per data set	10	10
Bytes per object for pipeline objects <sup>1</sup>	200 KB	200 KB
Bytes per object for data set and linked service objects <sup>1</sup>	100 KB	2,000 KB
Azure HDInsight on-demand cluster cores within a subscription <sup>2</sup>	60	<a href="#">Contact support.</a>

RESOURCE	DEFAULT LIMIT	MAXIMUM LIMIT
Cloud data movement units per copy activity run <sup>3</sup>	32	Contact support.
Retry count for pipeline activity runs	1,000	MaxInt (32 bit)

<sup>1</sup> Pipeline, data set, and linked service objects represent a logical grouping of your workload. Limits for these objects don't relate to the amount of data you can move and process with Azure Data Factory. Data Factory is designed to scale to handle petabytes of data.

<sup>2</sup> On-demand HDInsight cores are allocated out of the subscription that contains the data factory. As a result, the previous limit is the Data Factory-enforced core limit for on-demand HDInsight cores. It's different from the core limit that's associated with your Azure subscription.

<sup>3</sup> The cloud data movement unit (DMU) for version 1 is used in a cloud-to-cloud copy operation, learn more from [Cloud data movement units \(version 1\)](#). For information on billing, see [Azure Data Factory pricing](#).

RESOURCE	DEFAULT LOWER LIMIT	MINIMUM LIMIT
Scheduling interval	15 minutes	15 minutes
Interval between retry attempts	1 second	1 second
Retry timeout value	1 second	1 second

#### Web service call limits

Azure Resource Manager has limits for API calls. You can make API calls at a rate within the [Azure Resource Manager API limits](#).

## Data Lake Analytics limits

Azure Data Lake Analytics makes the complex task of managing distributed infrastructure and complex code easy. It dynamically provisions resources, and you can use it to do analytics on exabytes of data. When the job completes, it winds down resources automatically. You pay only for the processing power that was used. As you increase or decrease the size of data stored or the amount of compute used, you don't have to rewrite code. To raise the default limits for your subscription, contact support.

RESOURCE	LIMIT	COMMENTS
Maximum number of concurrent jobs	20	
Maximum number of analytics units (AUs) per account	250	Use any combination of up to a maximum of 250 AUs across 20 jobs. To increase this limit, contact Microsoft Support.
Maximum script size for job submission	3 MB	
Maximum number of Data Lake Analytics accounts per region per subscription	5	To increase this limit, contact Microsoft Support.

## Data Lake Store limits

Azure Data Lake Storage Gen1 is an enterprise-wide hyper-scale repository for big data analytic workloads. You can use Data Lake Storage Gen1 to capture data of any size, type, and ingestion speed in one single place for operational and exploratory analytics. There's no limit to the amount of data you can store in a Data Lake Storage Gen1 account.

RESOURCE	LIMIT	COMMENTS
Maximum number of Data Lake Storage Gen1 accounts, per subscription, per region	10	To request an increase for this limit, contact support.
Maximum number of access ACLs, per file or folder	32	This is a hard limit. Use groups to manage access with fewer entries.
Maximum number of default ACLs, per file or folder	32	This is a hard limit. Use groups to manage access with fewer entries.

## Data Share limits

Azure Data Share enables organizations to simply and securely share data with their customers and partners.

RESOURCE	LIMIT
Maximum number of Data Share resources per Azure subscription	50
Maximum number of sent shares per Data Share resource	100
Maximum number of received shares per Data Share resource	100
Maximum number of invitations per sent share	100
Maximum number of share subscriptions per sent share	100
Maximum number of datasets per share	100
Maximum number of snapshot schedules per share	1

## Database Migration Service Limits

Azure Database Migration Service is a fully managed service designed to enable seamless migrations from multiple database sources to Azure data platforms with minimal downtime.

RESOURCE	LIMIT	COMMENTS
Maximum number of services per subscription, per region	2	To request an increase for this limit, contact support.

## Digital Twins limits

**NOTE**

Some areas of this service have adjustable limits, and others do not. This is represented in the tables below with the *Adjustable?* column. When the limit can be adjusted, the *Adjustable?* value is *Yes*.

**Functional limits**

The table below lists the functional limits of Azure Digital Twins in the current preview.

Area	Capability	Default Limit	Adjustable?
Azure resource	Number of Azure Digital Twins instances in a region, per subscription	10	Yes
Digital twins	Number of twins in an Azure Digital Twins instance	200,000	Yes
Routing	Number of endpoints for a single Azure Digital Twins instance	6	No
Routing	Number of routes for a single Azure Digital Twins instance	6	Yes
Models	Number of models within a single Azure Digital Twins instance	10,000	Yes
Models	Number of models that can be uploaded in a single API call	250	No
Models	Number of items returned in a single page	100	No
Query	Number of items returned in a single page	100	No
Query	Number of <code>AND</code> / <code>OR</code> expressions in a query	50	Yes
Query	Number of array items in an <code>IN</code> / <code>NOT IN</code> clause	50	Yes
Query	Number of characters in a query	8,000	Yes
Query	Number of <code>JOINS</code> in a query	1	Yes

**Rate limits**

This table reflects the rate limits of different APIs.

API	Capability	Default Limit	Adjustable?
Models API	Number of requests per second	100	Yes
Digital Twins API	Number of requests per second	1,000	Yes
Query API	Number of requests per second	500	Yes
Query API	Query units per second	4,000	Yes
Event Routes API	Number of requests per second	100	Yes

## Other limits

Limits on data types and fields within DTDL documents for Azure Digital Twins models can be found within its spec documentation in GitHub: [Digital Twins Definition Language \(DTDL\) - version 2](#).

Query latency details and other guidelines on writing queries during preview can be found in [How-to: Query the twin graph](#).

## Event Grid limits

The following limits apply to Azure Event Grid system topics and custom topics, *not* event domains.

Resource	Limit
Custom topics per Azure subscription	100
Event subscriptions per topic	500
Publish rate for a custom topic (ingress)	5,000 events per second per topic
Event size	1 MB. Operations are charged in 64 KB increments though. So, events over 64 KB will incur operations charges as though they were multiple events. For example, an event that is 130 KB would incur operations as though it were 3 separate events.
Topics per event domain	100,000
Event subscriptions per topic within a domain	500
Domain scope event subscriptions	50
Publish rate for an event domain (ingress)	5,000 events per second
Event Domains per Azure Subscription	100
Private endpoint connections per topic or domain	64
IP Firewall rules per topic or domain	16

## Event Hubs limits

The following tables provide quotas and limits specific to [Azure Event Hubs](#). For information about Event Hubs pricing, see [Event Hubs pricing](#).

The following limits are common across basic and standard tiers.

LIMIT	SCOPE	NOTES	VALUE
Number of Event Hubs namespaces per subscription	Subscription	-	100
Number of event hubs per namespace	Namespace	Subsequent requests for creation of a new event hub are rejected.	10
Number of partitions per event hub	Entity	-	32
Maximum size of an event hub name	Entity	-	256 characters
Maximum size of a consumer group name	Entity	-	256 characters
Number of non-epoch receivers per consumer group	Entity	-	5
Maximum throughput units	Namespace	Exceeding the throughput unit limit causes your data to be throttled and generates a <a href="#">server busy exception</a> . To request a larger number of throughput units for a Standard tier, file a <a href="#">support request</a> . Additional throughput units are available in blocks of 20 on a committed purchase basis.	20
Number of authorization rules per namespace	Namespace	Subsequent requests for authorization rule creation are rejected.	12
Number of calls to the GetRuntimeInformation method	Entity	-	50 per second
Number of virtual network (VNet) and IP Config rules	Entity	-	128

### Event Hubs Basic and Standard - quotas and limits

LIMIT	SCOPE	NOTES	BASIC	STANDARD
Maximum size of Event Hubs event	Entity		256 KB	1 MB

LIMIT	SCOPE	NOTES	BASIC	STANDARD
Number of consumer groups per event hub	Entity		1	20
Number of AMQP connections per namespace	Namespace	Subsequent requests for additional connections are rejected, and an exception is received by the calling code.	100	5,000
Maximum retention period of event data	Entity		1 day	1-7 days
Apache Kafka enabled namespace	Namespace	Event Hubs namespace streams applications using Kafka protocol	No	Yes
Capture	Entity	When enabled, micro-batches on the same stream	No	Yes

### Event Hubs Dedicated - quotas and limits

The Event Hubs Dedicated offering is billed at a fixed monthly price, with a minimum of 4 hours of usage. The Dedicated tier offers all the features of the Standard plan, but with enterprise scale capacity and limits for customers with demanding workloads.

FEATURE	LIMITS
Bandwidth	20 CUs
Namespaces	50 per CU
Event Hubs	1000 per namespace
Ingress events	Included
Message Size	1 MB
Partitions	2000 per CU
Consumer groups	No limit per CU, 1000 per event hub
Brokered connections	100 K included
Message Retention	90 days, 10 TB included per CU
Capture	Included

### Identity Manager limits

CATEGORY	LIMIT
User-assigned managed identities	<ul style="list-style-type: none"> <li>When you create user-assigned managed identities, only alphanumeric characters (0-9, a-z, and A-Z) and the hyphen (-) are supported. For the assignment to a virtual machine or virtual machine scale set to work properly, the name is limited to 24 characters.</li> <li>If you use the managed identity virtual machine extension, the supported limit is 32 user-assigned managed identities. Without the managed identity virtual machine extension, the supported limit is 512 user-assigned identities.</li> </ul>

## IoT Central limits

IoT Central limits the number of applications you can deploy in a subscription to 10. If you need to increase this limit, contact [Microsoft support](#).

## IoT Hub limits

The following table lists the limits associated with the different service tiers S1, S2, S3, and F1. For information about the cost of each *unit* in each tier, see [Azure IoT Hub pricing](#).

RESOURCE	S1 STANDARD	S2 STANDARD	S3 STANDARD	F1 FREE
Messages/day	400,000	6,000,000	300,000,000	8,000
Maximum units	200	200	10	1

### NOTE

If you anticipate using more than 200 units with an S1 or S2 tier hub or 10 units with an S3 tier hub, contact Microsoft Support.

The following table lists the limits that apply to IoT Hub resources.

RESOURCE	LIMIT
Maximum paid IoT hubs per Azure subscription	50
Maximum free IoT hubs per Azure subscription	1
Maximum number of characters in a device ID	128
Maximum number of device identities returned in a single call	1,000
IoT Hub message maximum retention for device-to-cloud messages	7 days
Maximum size of device-to-cloud message	256 KB

RESOURCE	LIMIT
Maximum size of device-to-cloud batch	AMQP and HTTP: 256 KB for the entire batch MQTT: 256 KB for each message
Maximum messages in device-to-cloud batch	500
Maximum size of cloud-to-device message	64 KB
Maximum TTL for cloud-to-device messages	2 days
Maximum delivery count for cloud-to-device messages	100
Maximum cloud-to-device queue depth per device	50
Maximum delivery count for feedback messages in response to a cloud-to-device message	100
Maximum TTL for feedback messages in response to a cloud-to-device message	2 days
<a href="#">Maximum size of device twin</a>	8 KB for tags section, and 32 KB for desired and reported properties sections each
Maximum length of device twin string key	1 KB
Maximum length of device twin string value	4 KB
<a href="#">Maximum depth of object in device twin</a>	10
Maximum size of direct method payload	128 KB
Job history maximum retention	30 days
Maximum concurrent jobs	10 (for S3), 5 for (S2), 1 (for S1)
Maximum additional endpoints	10 (for S1, S2, and S3)
Maximum message routing rules	100 (for S1, S2, and S3)
Maximum number of concurrently connected device streams	50 (for S1, S2, S3, and F1 only)
Maximum device stream data transfer	300 MB per day (for S1, S2, S3, and F1 only)

#### NOTE

If you need more than 50 paid IoT hubs in an Azure subscription, contact Microsoft Support.

**NOTE**

Currently, the total number of devices plus modules that can be registered to a single IoT hub is capped at 1,000,000. If you want to increase this limit, contact [Microsoft Support](#).

IoT Hub throttles requests when the following quotas are exceeded.

THROTTLE	PER-HUB VALUE
Identity registry operations (create, retrieve, list, update, and delete), individual or bulk import/export	83.33/sec/unit (5,000/min/unit) (for S3). 1.67/sec/unit (100/min/unit) (for S1 and S2).
Device connections	6,000/sec/unit (for S3), 120/sec/unit (for S2), 12/sec/unit (for S1). Minimum of 100/sec.
Device-to-cloud sends	6,000/sec/unit (for S3), 120/sec/unit (for S2), 12/sec/unit (for S1). Minimum of 100/sec.
Cloud-to-device sends	83.33/sec/unit (5,000/min/unit) (for S3), 1.67/sec/unit (100/min/unit) (for S1 and S2).
Cloud-to-device receives	833.33/sec/unit (50,000/min/unit) (for S3), 16.67/sec/unit (1,000/min/unit) (for S1 and S2).
File upload operations	83.33 file upload initiations/sec/unit (5,000/min/unit) (for S3), 1.67 file upload initiations/sec/unit (100/min/unit) (for S1 and S2). 10,000 SAS URIs can be out for an Azure Storage account at one time. 10 SAS URIs/device can be out at one time.
Direct methods	24 MB/sec/unit (for S3), 480 KB/sec/unit (for S2), 160 KB/sec/unit (for S1). Based on 8-KB throttling meter size.
Device twin reads	500/sec/unit (for S3), Maximum of 100/sec or 10/sec/unit (for S2), 100/sec (for S1)
Device twin updates	250/sec/unit (for S3), Maximum of 50/sec or 5/sec/unit (for S2), 50/sec (for S1)
Jobs operations (create, update, list, and delete)	83.33/sec/unit (5,000/min/unit) (for S3), 1.67/sec/unit (100/min/unit) (for S2), 1.67/sec/unit (100/min/unit) (for S1).
Jobs per-device operation throughput	50/sec/unit (for S3), maximum of 10/sec or 1/sec/unit (for S2), 10/sec (for S1).
Device stream initiation rate	5 new streams/sec (for S1, S2, S3, and F1 only).

## IoT Hub Device Provisioning Service limits

The following table lists the limits that apply to Azure IoT Hub Device Provisioning Service resources.

RESOURCE	LIMIT
Maximum device provisioning services per Azure subscription	10
Maximum number of enrollments	1,000,000
Maximum number of registrations	1,000,000
Maximum number of enrollment groups	100
Maximum number of CAs	25
Maximum number of linked IoT hubs	50
Maximum size of message	96 KB

**NOTE**

To increase the number of enrollments and registrations on your provisioning service, contact [Microsoft Support](#).

**NOTE**

Increasing the maximum number of CAs is not supported.

The Device Provisioning Service throttles requests when the following quotas are exceeded.

THROTTLE	PER-UNIT VALUE
Operations	200/min/service
Device registrations	200/min/service
Device polling operation	5/10 sec/device

## Key Vault limits

**Key transactions (maximum transactions allowed in 10 seconds, per vault per region<sup>1</sup>):**

KEY TYPE	HSM KEY CREATE KEY	HSM KEY ALL OTHER TRANSACTIONS	SOFTWARE KEY CREATE KEY	SOFTWARE KEY ALL OTHER TRANSACTIONS
RSA 2,048-bit	5	1,000	10	2,000
RSA 3,072-bit	5	250	10	500
RSA 4,096-bit	5	125	10	250
ECC P-256	5	1,000	10	2,000
ECC P-384	5	1,000	10	2,000

KEY TYPE	HSM KEY CREATE KEY	HSM KEY ALL OTHER TRANSACTIONS	SOFTWARE KEY CREATE KEY	SOFTWARE KEY ALL OTHER TRANSACTIONS
ECC P-521	5	1,000	10	2,000
ECC SECP256K1	5	1,000	10	2,000

#### NOTE

In the previous table, we see that for RSA 2,048-bit software keys, 2,000 GET transactions per 10 seconds are allowed. For RSA 2,048-bit HSM-keys, 1,000 GET transactions per 10 seconds are allowed.

The throttling thresholds are weighted, and enforcement is on their sum. For example, as shown in the previous table, when you perform GET operations on RSA HSM-keys, it's eight times more expensive to use 4,096-bit keys compared to 2,048-bit keys. That's because  $1,000/125 = 8$ .

In a given 10-second interval, an Azure Key Vault client can do *only one* of the following operations before it encounters a 429 throttling HTTP status code:

- 2,000 RSA 2,048-bit software-key GET transactions
- 1,000 RSA 2,048-bit HSM-key GET transactions
- 125 RSA 4,096-bit HSM-key GET transactions
- 124 RSA 4,096-bit HSM-key GET transactions and 8 RSA 2,048-bit HSM-key GET transactions

#### Secrets, managed storage account keys, and vault transactions:

TRANSACTIONS TYPE	MAXIMUM TRANSACTIONS ALLOWED IN 10 SECONDS, PER VAULT PER REGION <sup>1</sup>
All transactions	2,000

For information on how to handle throttling when these limits are exceeded, see [Azure Key Vault throttling guidance](#).

<sup>1</sup> A subscription-wide limit for all transaction types is five times per key vault limit. For example, HSM-other transactions per subscription are limited to 5,000 transactions in 10 seconds per subscription.

#### Azure Private Link integration

#### NOTE

The number of key vaults with private endpoints enabled per subscription is an adjustable limit. The limit shown below is the default limit. If you would like to request a limit increase for your service, please send an email to [akv-privatelink@microsoft.com](mailto:akv-privatelink@microsoft.com). We will approve these requests on a case by case basis.

RESOURCE	LIMIT
Private endpoints per key vault	64
Key vaults with private endpoints per subscription	400

## Media Services limits

**NOTE**

For resources that aren't fixed, open a support ticket to ask for an increase in the quotas. Don't create additional Azure Media Services accounts in an attempt to obtain higher limits.

**Account limits**

RESOURCE	DEFAULT LIMIT
Media Services accounts in a single subscription	25 (fixed)

**Asset limits**

RESOURCE	DEFAULT LIMIT
Assets per Media Services account	1,000,000

**Storage (media) limits**

RESOURCE	DEFAULT LIMIT
File size	In some scenarios, there is a limit on the maximum file size supported for processing in Media Services. <sup>(1)</sup>
Storage accounts	100 <sup>(2)</sup> (fixed)

<sup>1</sup> The maximum size supported for a single blob is currently up to 5 TB in Azure Blob Storage. Additional limits apply in Media Services based on the VM sizes that are used by the service. The size limit applies to the files that you upload and also the files that get generated as a result of Media Services processing (encoding or analyzing). If your source file is larger than 260-GB, your Job will likely fail.

The following table shows the limits on the media reserved units S1, S2, and S3. If your source file is larger than the limits defined in the table, your encoding job fails. If you encode 4K resolution sources of long duration, you're required to use S3 media reserved units to achieve the performance needed. If you have 4K content that's larger than the 260-GB limit on the S3 media reserved units, open a support ticket.

MEDIA RESERVED UNIT TYPE	MAXIMUM INPUT SIZE (GB)
S1	26
S2	60
S3	260

<sup>2</sup> The storage accounts must be from the same Azure subscription.

**Jobs (encoding & analyzing) limits**

RESOURCE	DEFAULT LIMIT
Jobs per Media Services account	500,000 <sup>(3)</sup> (fixed)
Job inputs per Job	50 (fixed)

RESOURCE	DEFAULT LIMIT
Job outputs per Job	20 (fixed)
Transforms per Media Services account	100 (fixed)
Transform outputs in a Transform	20 (fixed)
Files per job input	10 (fixed)

<sup>3</sup> This number includes queued, finished, active, and canceled Jobs. It does not include deleted Jobs.

Any Job record in your account older than 90 days will be automatically deleted, even if the total number of records is below the maximum quota.

### Live streaming limits

RESOURCE	DEFAULT LIMIT
Live Events <sup>(4)</sup> per Media Services account	5
Live Outputs per Live Event	3 <sup>(5)</sup>
Max Live Output duration	Size of the DVR window

<sup>4</sup> For detailed information about Live Event limitations, see [Live Event types comparison and limitations](#).

<sup>5</sup> Live Outputs start on creation and stop when deleted.

### Packaging & delivery limits

RESOURCE	DEFAULT LIMIT
Streaming Endpoints (stopped or running) per Media Services account	2 (fixed)
Dynamic Manifest Filters	100
Streaming Policies	100 <sup>(6)</sup>
Unique Streaming Locators associated with an Asset at one time	100 <sup>(7)</sup> (fixed)

<sup>6</sup> When using a custom [Streaming Policy](#), you should design a limited set of such policies for your Media Service account, and re-use them for your StreamingLocators whenever the same encryption options and protocols are needed. You should not be creating a new Streaming Policy for each Streaming Locator.

<sup>7</sup> Streaming Locators are not designed for managing per-user access control. To give different access rights to individual users, use Digital Rights Management (DRM) solutions.

### Protection limits

RESOURCE	DEFAULT LIMIT
Options per Content Key Policy	30

RESOURCE	DEFAULT LIMIT
Licenses per month for each of the DRM types on Media Services key delivery service per account	1,000,000

## Support ticket

For resources that are not fixed, you may ask for the quotas to be raised, by opening a [support ticket](#). Include detailed information in the request on the desired quota changes, use-case scenarios, and regions required.

Do **not** create additional Azure Media Services accounts in an attempt to obtain higher limits.

## Media Services v2 (legacy)

For limits specific to Media Services v2 (legacy), see [Media Services v2 \(legacy\)](#)

## Mobile Services limits

TIER	FREE	BASIC	STANDARD
API calls	500,000	1.5 million per unit	15 million per unit
Active devices	500	Unlimited	Unlimited
Scale	N/A	Up to 6 units	Unlimited units
Push notifications	Azure Notification Hubs Free tier included, up to 1 million pushes	Notification Hubs Basic tier included, up to 10 million pushes	Notification Hubs Standard tier included, up to 10 million pushes
Real-time messaging/ Web Sockets	Limited	350 per mobile service	Unlimited
Offline synchronizations	Limited	Included	Included
Scheduled jobs	Limited	Included	Included
Azure SQL Database (required) Standard rates apply for additional capacity	20 MB included	20 MB included	20 MB included
CPU capacity	60 minutes per day	Unlimited	Unlimited
Outbound data transfer	165 MB per day (daily rollover)	Included	Included

For more information on limits and pricing, see [Azure Mobile Services pricing](#).

## Multi-Factor Authentication limits

RESOURCE	DEFAULT LIMIT	MAXIMUM LIMIT
Maximum number of trusted IP addresses or ranges per subscription	0	50

RESOURCE	DEFAULT LIMIT	MAXIMUM LIMIT
Remember my devices, number of days	14	60
Maximum number of app passwords	0	No limit
Allow X attempts during MFA call	1	99
Two-way text message timeout seconds	60	600
Default one-time bypass seconds	300	1,800
Lock user account after X consecutive MFA denials	Not set	99
Reset account lockout counter after X minutes	Not set	9,999
Unlock account after X minutes	Not set	9,999

## Networking limits

### Networking limits - Azure Resource Manager

The following limits apply only for networking resources managed through **Azure Resource Manager** per region per subscription. Learn how to [view your current resource usage against your subscription limits](#).

#### NOTE

We recently increased all default limits to their maximum limits. If there's no maximum limit column, the resource doesn't have adjustable limits. If you had these limits increased by support in the past and don't see updated limits in the following tables, [open an online customer support request at no charge](#)

RESOURCE	LIMIT
Virtual networks	1,000
Subnets per virtual network	3,000
Virtual network peerings per virtual network	500
Virtual network gateways (VPN gateways) per virtual network	1
Virtual network gateways (ExpressRoute gateways) per virtual network	1
DNS servers per virtual network	20
Private IP addresses per virtual network	65,536
Private IP addresses per network interface	256
Private IP addresses per virtual machine	256

RESOURCE	LIMIT
Public IP addresses per network interface	256
Public IP addresses per virtual machine	256
<a href="#">Concurrent TCP or UDP flows per NIC of a virtual machine or role instance</a>	500,000
Network interface cards	65,536
Network Security Groups	5,000
NSG rules per NSG	1,000
IP addresses and ranges specified for source or destination in a security group	4,000
Application security groups	3,000
Application security groups per IP configuration, per NIC	20
IP configurations per application security group	4,000
Application security groups that can be specified within all security rules of a network security group	100
User-defined route tables	200
User-defined routes per route table	400
Point-to-site root certificates per Azure VPN Gateway	20
Virtual network TAPs	100
Network interface TAP configurations per virtual network TAP	100

#### Public IP address limits

RESOURCE	DEFAULT LIMIT	MAXIMUM LIMIT
Public IP addresses <sup>1</sup>	10 for Basic.	Contact support.
Static Public IP addresses <sup>1</sup>	10 for Basic.	Contact support.
Standard Public IP addresses <sup>1</sup>	10	Contact support.
Public IP Prefixes	limited by number of Standard Public IPs in a subscription	Contact support.
Public IP prefix length	/28	Contact support.

<sup>1</sup>Default limits for Public IP addresses vary by offer category type, such as Free Trial, Pay-As-You-Go, CSP. For example, the default for Enterprise Agreement subscriptions is 1000.

#### Load balancer limits

The following limits apply only for networking resources managed through Azure Resource Manager per region per subscription. Learn how to [view your current resource usage against your subscription limits](#).

#### Standard Load Balancer

RESOURCE	LIMIT
Load balancers	1,000
Rules per resource	1,500
Rules per NIC (across all IPs on a NIC)	300
Frontend IP configurations	600
Backend pool size	1,000 IP configurations, single virtual network
Backend resources per Load Balancer <sup>1</sup>	150
High-availability ports	1 per internal frontend
Outbound rules per Load Balancer	600
TCP idle timeout	4 minutes/30 minutes

<sup>1</sup>The limit is up to 150 resources, in any combination of standalone virtual machine resources, availability set resources, and virtual machine scale-set placement groups.

#### Basic Load Balancer

RESOURCE	LIMIT
Load balancers	1,000
Rules per resource	250
Rules per NIC (across all IPs on a NIC)	300
Frontend IP configurations	200
Backend pool size	300 IP configurations, single availability set
Availability sets per Load Balancer	150

The following limits apply only for networking resources managed through the **classic** deployment model per subscription. Learn how to [view your current resource usage against your subscription limits](#).

RESOURCE	DEFAULT LIMIT	MAXIMUM LIMIT
Virtual networks	100	100

RESOURCE	DEFAULT LIMIT	MAXIMUM LIMIT
Local network sites	20	50
DNS servers per virtual network	20	20
Private IP addresses per virtual network	4,096	4,096
Concurrent TCP or UDP flows per NIC of a virtual machine or role instance	500,000, up to 1,000,000 for two or more NICs.	500,000, up to 1,000,000 for two or more NICs.
Network Security Groups (NSGs)	200	200
NSG rules per NSG	1,000	1,000
User-defined route tables	200	200
User-defined routes per route table	400	400
Public IP addresses (dynamic)	500	500
Reserved public IP addresses	500	500
Public VIP per deployment	5	Contact support
Private VIP (internal load balancing) per deployment	1	1
Endpoint access control lists (ACLs)	50	50

## ExpressRoute limits

RESOURCE	LIMIT
ExpressRoute circuits per subscription	10
ExpressRoute circuits per region per subscription, with Azure Resource Manager	10
Maximum number of routes advertised to Azure private peering with ExpressRoute Standard	4,000
Maximum number of routes advertised to Azure private peering with ExpressRoute Premium add-on	10,000
Maximum number of routes advertised from Azure private peering from the VNet address space for an ExpressRoute connection	200
Maximum number of routes advertised to Microsoft peering with ExpressRoute Standard	200
Maximum number of routes advertised to Microsoft peering with ExpressRoute Premium add-on	200

RESOURCE	LIMIT
Maximum number of ExpressRoute circuits linked to the same virtual network in the same peering location	4
Maximum number of ExpressRoute circuits linked to the same virtual network in different peering locations	4
Number of virtual network links allowed per ExpressRoute circuit	See the <a href="#">Number of virtual networks per ExpressRoute circuit table</a> .

#### Number of virtual networks per ExpressRoute circuit

CIRCUIT SIZE	NUMBER OF VIRTUAL NETWORK LINKS FOR STANDARD	NUMBER OF VIRTUAL NETWORK LINKS WITH PREMIUM ADD-ON
50 Mbps	10	20
100 Mbps	10	25
200 Mbps	10	25
500 Mbps	10	40
1 Gbps	10	50
2 Gbps	10	60
5 Gbps	10	75
10 Gbps	10	100
40 Gbps*	10	100
100 Gbps*	10	100

\* 100 Gbps ExpressRoute Direct Only

#### NOTE

Global Reach connections count against the limit of virtual network connections per ExpressRoute Circuit. For example, a 10 Gbps Premium Circuit would allow for 5 Global Reach connections and 95 connections to the ExpressRoute Gateways or 95 Global Reach connections and 5 connections to the ExpressRoute Gateways or any other combination up to the limit of 100 connections for the circuit.

#### Virtual WAN limits

RESOURCE	LIMIT
Virtual WAN hubs per region	1
Virtual WAN hubs per virtual wan	Azure regions
VPN (branch) connections per hub	1,000

RESOURCE	LIMIT
VNet connections per hub	500
Point-to-Site users per hub	10,000
Aggregate throughput per Virtual WAN VPN gateway	20 Gbps
Throughput per Virtual WAN VPN connection (2 tunnels)	2 Gbps with 1 Gbps/IPsec tunnel
Aggregate throughput per Virtual WAN ExpressRoute gateway	20 Gbps

## Application Gateway limits

The following table applies to v1, v2, Standard, and WAF SKUs unless otherwise stated.

RESOURCE	LIMIT	NOTE
Azure Application Gateway	1,000 per subscription	
Front-end IP configurations	2	1 public and 1 private
Front-end ports	100 <sup>1</sup>	
Back-end address pools	100 <sup>1</sup>	
Back-end servers per pool	1,200	
HTTP listeners	200 <sup>1</sup>	Limited to 100 active listeners that are routing traffic. Active listeners = total number of listeners - listeners not active. If a default configuration inside a routing rule is set to route traffic (for example, it has a listener, a backend pool, and HTTP settings) then that also counts as a listener.
HTTP load-balancing rules	100 <sup>1</sup>	
Back-end HTTP settings	100 <sup>1</sup>	
Instances per gateway	V1 SKU - 32 V2 SKU - 125	
SSL certificates	100 <sup>1</sup>	1 per HTTP listener
Maximum SSL certificate size	V1 SKU - 10 KB V2 SKU - 16 KB	
Authentication certificates	100	
Trusted root certificates	100	
Request timeout minimum	1 second	

RESOURCE	LIMIT	NOTE
Request timeout maximum	24 hours	
Number of sites	100 <sup>1</sup>	1 per HTTP listener
URL maps per listener	1	
Maximum path-based rules per URL map	100	
Redirect configurations	100 <sup>1</sup>	
Concurrent WebSocket connections	Medium gateways 20k Large gateways 50k	
Maximum URL length	32KB	
Maximum header size for HTTP/2	4KB	
Maximum file upload size, Standard	2 GB	
Maximum file upload size WAF	V1 Medium WAF gateways, 100 MB V1 Large WAF gateways, 500 MB V2 WAF, 750 MB	
WAF body size limit, without files	128 KB	
Maximum WAF custom rules	100	
Maximum WAF exclusions	100	

<sup>1</sup> In case of WAF-enabled SKUs, we recommend that you limit the number of resources to 40 for optimal performance.

## Network Watcher limits

RESOURCE	LIMIT	NOTE
Azure Network Watcher	1 per region	Network Watcher is created to enable access to the service. Only one instance of Network Watcher is required per subscription per region.
Packet capture sessions	10,000 per region	Number of sessions only, not saved captures.

## Private Link limits

The following limits apply to Azure private link:

RESOURCE	LIMIT
Number of private endpoints per virtual network	1000

RESOURCE	LIMIT
Number of private endpoints per subscription	64000
Number of private link services per subscription	800
Number of IP Configurations on a private link service	8 (This number is for the NAT IP addresses used per PLS)
Number of private endpoints on the same private link service	1000
Number of private endpoints per key vault	64
Number of key vaults with private endpoints per subscription	400

### Traffic Manager limits

RESOURCE	LIMIT
Profiles per subscription	200
Endpoints per profile	200

### Azure Bastion limits

RESOURCE	LIMIT
Concurrent RDP connections	25*
Concurrent SSH connections	50**

\*May vary due to other on-going RDP sessions or other on-going SSH sessions.

\*\*May vary if there are existing RDP connections or usage from other on-going SSH sessions.

### Azure DNS limits

#### Public DNS zones

RESOURCE	LIMIT
Public DNS Zones per subscription	250 <sup>1</sup>
Record sets per public DNS zone	10,000 <sup>1</sup>
Records per record set in public DNS zone	20
Number of Alias records for a single Azure resource	20

<sup>1</sup>If you need to increase these limits, contact Azure Support.

#### Private DNS zones

RESOURCE	LIMIT
Private DNS zones per subscription	1000

RESOURCE	LIMIT
Record sets per private DNS zone	25000
Records per record set for private DNS zones	20
Virtual Network Links per private DNS zone	1000
Virtual Networks Links per private DNS zones with auto-registration enabled	100
Number of private DNS zones a virtual network can get linked to with auto-registration enabled	1
Number of private DNS zones a virtual network can get linked	1000
Number of DNS queries a virtual machine can send to Azure DNS resolver, per second	500 <sup>1</sup>
Maximum number of DNS queries queued (pending response) per virtual machine	200 <sup>1</sup>

<sup>1</sup>These limits are applied to every individual virtual machine and not at the virtual network level. DNS queries exceeding these limits are dropped.

## Azure Firewall limits

RESOURCE	LIMIT
Data throughput	30 Gbps <sup>1</sup>
Rules	10,000. All rule types combined.
Maximum DNAT rules	298 for a single public IP address. Any additional public IP addresses contribute to the available SNAT ports, but reduce the number of the available DNAT rules. For example, two public IP address allow for 297 DNAT rules. If a rule's protocol is configured for both TCP and UDP, it counts as two rules.
Minimum AzureFirewallSubnet size	/26
Port range in network and application rules	1 - 65535
Public IP addresses	250 maximum. All public IP addresses can be used in DNAT rules and they all contribute to available SNAT ports.
IP addresses in IP Groups	Maximum of 100 IP Groups per firewall. Maximum 5000 individual IP addresses or IP prefixes per each IP Group.  For more information see <a href="#">IP Groups in Azure Firewall</a> .

RESOURCE	LIMIT
Route table	<p>By default, AzureFirewallSubnet has a 0.0.0.0/0 route with the NextHopType value set to <b>Internet</b>.</p> <p>Azure Firewall must have direct Internet connectivity. If your AzureFirewallSubnet learns a default route to your on-premises network via BGP, you must override that with a 0.0.0.0/0 UDR with the <b>NextHopType</b> value set as <b>Internet</b> to maintain direct Internet connectivity. By default, Azure Firewall doesn't support forced tunneling to an on-premises network.</p> <p>However, if your configuration requires forced tunneling to an on-premises network, Microsoft will support it on a case by case basis. Contact Support so that we can review your case. If accepted, we'll allow your subscription and ensure the required firewall Internet connectivity is maintained.</p>

<sup>1</sup>If you need to increase these limits, contact Azure Support.

## Azure Front Door Service limits

RESOURCE	LIMIT
Azure Front Door resources per subscription	100
Front-end hosts, which includes custom domains per resource	500
Routing rules per resource	500
Back-end pools per resource	50
Back ends per back-end pool	100
Path patterns to match for a routing rule	25
URLs in a single cache purge call	100
Custom web application firewall rules per policy	100
Web application firewall policy per subscription	100
Web application firewall match conditions per custom rule	10
Web application firewall IP address ranges per match condition	600
Web application firewall string match values per match condition	10
Web application firewall string match value length	256
Web application firewall POST body parameter name length	256
Web application firewall HTTP header name length	256

RESOURCE	LIMIT
Web application firewall cookie name length	256
Web application firewall HTTP request body size inspected	128 KB
Web application firewall custom response body length	2 KB

## Timeout values

### Client to Front Door

- Front Door has an idle TCP connection timeout of 61 seconds.

### Front Door to application back-end

- If the response is a chunked response, a 200 is returned if or when the first chunk is received.
- After the HTTP request is forwarded to the back end, Front Door waits for 30 seconds for the first packet from the back end. Then it returns a 503 error to the client. This value is configurable via the field `sendRecvTimeoutSeconds` in the API.
  - For caching scenarios, this timeout is not configurable and so, if a request is cached and it takes more than 30 seconds for the first packet from Front Door or from the backend, then a 504 error is returned to the client.
- After the first packet is received from the back end, Front Door waits for 30 seconds in an idle timeout. Then it returns a 503 error to the client. This timeout value is not configurable.
- Front Door to the back-end TCP session timeout is 90 seconds.

## Upload and download data limit

	WITH CHUNKED TRANSFER ENCODING (CTE)	WITHOUT HTTP CHUNKING
Download	There's no limit on the download size.	There's no limit on the download size.
Upload	There's no limit as long as each CTE upload is less than 2 GB.	The size can't be larger than 2 GB.

## Other limits

- Maximum URL size - 8,192 bytes - Specifies maximum length of the raw URL (scheme + hostname + port + path + query string of the URL)
- Maximum Query String size - 4,096 bytes - Specifies the maximum length of the query string, in bytes.
- Maximum HTTP response header size from health probe URL - 4,096 bytes - Specified the maximum length of all the response headers of health probes.

## Notification Hubs limits

TIER	FREE	BASIC	STANDARD
Included pushes	1 million	10 million	10 million
Active devices	500	200,000	10 million
Tag quota per installation or registration	60	60	60

For more information on limits and pricing, see [Notification Hubs pricing](#).

## Role-based access control limits

RESOURCE	LIMIT
Role assignments for Azure resources per Azure subscription	2,000
Role assignments for Azure resources per management group	500
Custom roles for Azure resources per tenant	5,000
Custom roles for Azure resources per tenant (for Azure Germany and Azure China 21Vianet)	2,000

## Service Bus limits

The following table lists quota information specific to Azure Service Bus messaging. For information about pricing and other quotas for Service Bus, see [Service Bus pricing](#).

QUOTA NAME	SCOPE	NOTES	VALUE
Maximum number of Basic or Standard namespaces per Azure subscription	Namespace	Subsequent requests for additional Basic or Standard namespaces are rejected by the Azure portal.	100
Maximum number of Premium namespaces per Azure subscription	Namespace	Subsequent requests for additional Premium namespaces are rejected by the portal.	100
Queue or topic size	Entity	Defined upon creation of the queue or topic.  Subsequent incoming messages are rejected, and an exception is received by the calling code.	1, 2, 3, 4 GB or 5 GB.  In the Premium SKU, and the Standard SKU with <a href="#">partitioning</a> enabled, the maximum queue or topic size is 80 GB.
Number of concurrent connections on a namespace	Namespace	Subsequent requests for additional connections are rejected, and an exception is received by the calling code. REST operations don't count toward concurrent TCP connections.	Net Messaging: 1,000.  AMQP: 5,000.
Number of concurrent receive requests on a queue, topic, or subscription entity	Entity	Subsequent receive requests are rejected, and an exception is received by the calling code. This quota applies to the combined number of concurrent receive operations across all subscriptions on a topic.	5,000

Quota name	Scope	Notes	Value
Number of topics or queues per namespace	Namespace	Subsequent requests for creation of a new topic or queue on the namespace are rejected. As a result, if configured through the <a href="#">Azure portal</a> , an error message is generated. If called from the management API, an exception is received by the calling code.	10,000 for the Basic or Standard tier. The total number of topics and queues in a namespace must be less than or equal to 10,000.  For the Premium tier, 1,000 per messaging unit (MU). Maximum limit is 4,000.
Number of <a href="#">partitioned topics or queues</a> per namespace	Namespace	Subsequent requests for creation of a new partitioned topic or queue on the namespace are rejected. As a result, if configured through the <a href="#">Azure portal</a> , an error message is generated. If called from the management API, the exception <b>QuotaExceededException</b> is received by the calling code.	Basic and Standard tiers: 100.  Partitioned entities aren't supported in the <a href="#">Premium</a> tier.  Each partitioned queue or topic counts toward the quota of 1,000 entities per namespace.
Maximum size of any messaging entity path: queue or topic	Entity	-	260 characters.
Maximum size of any messaging entity name: namespace, subscription, or subscription rule	Entity	-	50 characters.
Maximum size of a <a href="#">message ID</a>	Entity	-	128
Maximum size of a message <a href="#">session ID</a>	Entity	-	128
Message size for a queue, topic, or subscription entity	Entity	Incoming messages that exceed these quotas are rejected, and an exception is received by the calling code.	Maximum message size: 256 KB for <a href="#">Standard tier</a> , 1 MB for <a href="#">Premium tier</a> .  Due to system overhead, this limit is less than these values.  Maximum header size: 64 KB.  Maximum number of header properties in property bag: <b>byte/int.MaxValue</b> .
			Maximum size of property in property bag: No explicit limit. Limited by maximum header size.

Quota Name	Scope	Notes	Value
Message property size for a queue, topic, or subscription entity	Entity	The exception <code>SerializationException</code> is generated.	Maximum message property size for each property is 32,000. Cumulative size of all properties can't exceed 64,000. This limit applies to the entire header of the <a href="#">Brokered Message</a> , which has both user properties and system properties, such as <a href="#">Sequence Number</a> , <a href="#">Label</a> , and <a href="#">Message ID</a> .
Number of subscriptions per topic	Entity	Subsequent requests for creating additional subscriptions for the topic are rejected. As a result, if configured through the portal, an error message is shown. If called from the management API, an exception is received by the calling code.	2,000 per-topic for the Standard tier.
Number of SQL filters per topic	Entity	Subsequent requests for creation of additional filters on the topic are rejected, and an exception is received by the calling code.	2,000
Number of correlation filters per topic	Entity	Subsequent requests for creation of additional filters on the topic are rejected, and an exception is received by the calling code.	100,000
Size of SQL filters or actions	Namespace	Subsequent requests for creation of additional filters are rejected, and an exception is received by the calling code.	Maximum length of filter condition string: 1,024 (1 K). Maximum length of rule action string: 1,024 (1 K). Maximum number of expressions per rule action: 32.
Number of <a href="#">SharedAccessAuthorizationRule</a> rules per namespace, queue, or topic	Entity, namespace	Subsequent requests for creation of additional rules are rejected, and an exception is received by the calling code.	Maximum number of rules per entity type: 12. Rules that are configured on a Service Bus namespace apply to all types: queues, topics.

Quota Name	Scope	Notes	Value
Number of messages per transaction	Transaction	Additional incoming messages are rejected, and an exception stating "Cannot send more than 100 messages in a single transaction" is received by the calling code.	100 For both <code>Send()</code> and <code>SendAsync()</code> operations.
Number of virtual network and IP filter rules	Namespace		128

## Site Recovery limits

The following limits apply to Azure Site Recovery.

Limit Identifier	Limit
Number of vaults per subscription	500
Number of servers per Azure vault	250
Number of protection groups per Azure vault	No limit
Number of recovery plans per Azure vault	No limit
Number of servers per protection group	No limit
Number of servers per recovery plan	50

## SQL Database limits

For SQL Database limits, see [SQL Database resource limits for single databases](#), [SQL Database resource limits for elastic pools and pooled databases](#), and [SQL Database resource limits for SQL Managed Instance](#).

## Azure Synapse Analytics limits

For Azure Synapse Analytics limits, see [Azure Synapse resource limits](#).

## Storage limits

The following table describes default limits for Azure general-purpose v1, v2, Blob storage, and block blob storage accounts. The *ingress* limit refers to all data that is sent to a storage account. The *egress* limit refers to all data that is received from a storage account.

Resource	Limit
Number of storage accounts per region per subscription, including standard, and premium storage accounts.	250
Maximum storage account capacity	5 PiB <sup>1</sup>

RESOURCE	LIMIT
Maximum number of blob containers, blobs, file shares, tables, queues, entities, or messages per storage account	No limit
Maximum request rate <sup>1</sup> per storage account	20,000 requests per second
Maximum ingress <sup>1</sup> per storage account (US, Europe regions)	10 Gbps
Maximum ingress <sup>1</sup> per storage account (regions other than US and Europe)	5 Gbps if RA-GRS/GRS is enabled, 10 Gbps for LRS/ZRS <sup>2</sup>
Maximum egress for general-purpose v2 and Blob storage accounts (all regions)	50 Gbps
Maximum egress for general-purpose v1 storage accounts (US regions)	20 Gbps if RA-GRS/GRS is enabled, 30 Gbps for LRS/ZRS <sup>2</sup>
Maximum egress for general-purpose v1 storage accounts (non-US regions)	10 Gbps if RA-GRS/GRS is enabled, 15 Gbps for LRS/ZRS <sup>2</sup>
Maximum number of virtual network rules per storage account	200
Maximum number of IP address rules per storage account	200

<sup>1</sup> Azure Storage standard accounts support higher capacity limits and higher limits for ingress by request. To request an increase in account limits, contact [Azure Support](#).

<sup>2</sup> If your storage account has read-access enabled with geo-redundant storage (RA-GRS) or geo-zone-redundant storage (RA-GZRS), then the egress targets for the secondary location are identical to those of the primary location. For more information, see [Azure Storage replication](#).

#### NOTE

Microsoft recommends that you use a general-purpose v2 storage account for most scenarios. You can easily upgrade a general-purpose v1 or an Azure Blob storage account to a general-purpose v2 account with no downtime and without the need to copy data. For more information, see [Upgrade to a general-purpose v2 storage account](#).

If the needs of your application exceed the scalability targets of a single storage account, you can build your application to use multiple storage accounts. You can then partition your data objects across those storage accounts. For information on volume pricing, see [Azure Storage pricing](#).

All storage accounts run on a flat network topology regardless of when they were created. For more information on the Azure Storage flat network architecture and on scalability, see [Microsoft Azure Storage: A Highly Available Cloud Storage Service with Strong Consistency](#).

For more information on limits for standard storage accounts, see [Scalability targets for standard storage accounts](#).

#### Storage resource provider limits

The following limits apply only when you perform management operations by using Azure Resource Manager with Azure Storage.

RESOURCE	LIMIT
Storage account management operations (read)	800 per 5 minutes
Storage account management operations (write)	10 per second / 1200 per hour
Storage account management operations (list)	100 per 5 minutes

## Azure Blob storage limits

RESOURCE	TARGET	TARGET (PREVIEW)
Maximum size of single blob container	Same as maximum storage account capacity	
Maximum number of blocks in a block blob or append blob	50,000 blocks	
Maximum size of a block in a block blob	100 MiB	4000 MiB (preview)
Maximum size of a block blob	50,000 X 100 MiB (approximately 4.75 TiB)	50,000 X 4000 MiB (approximately 190.7 TiB) (preview)
Maximum size of a block in an append blob	4 MiB	
Maximum size of an append blob	50,000 x 4 MiB (approximately 195 GiB)	
Maximum size of a page blob	8 TiB	
Maximum number of stored access policies per blob container	5	
Target request rate for a single blob	Up to 500 requests per second	
Target throughput for a single page blob	Up to 60 MiB per second	
Target throughput for a single block blob	Up to storage account ingress/egress limits <sup>1</sup>	

<sup>1</sup> Throughput for a single blob depends on several factors, including, but not limited to: concurrency, request size, performance tier, speed of source for uploads, and destination for downloads. To take advantage of the performance enhancements of [high-throughput block blobs](#), upload larger blobs or blocks. Specifically, call the [Put Blob](#) or [Put Block](#) operation with a blob or block size that is greater than 4 MiB for standard storage accounts. For premium block blob or for Data Lake Storage Gen2 storage accounts, use a block or blob size that is greater than 256 KiB.

The following table describes the maximum block and blob sizes permitted by service version.

SERVICE VERSION	MAXIMUM BLOCK SIZE (VIA PUT BLOCK)	MAXIMUM BLOB SIZE (VIA PUT BLOCK LIST)	MAXIMUM BLOB SIZE VIA SINGLE WRITE OPERATION (VIA PUT BLOB)
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Service Version	Maximum Block Size (via Put Block)	Maximum Blob Size (via Put Block List)	Maximum Blob Size via Single Write Operation (via Put Blob)
Version 2019-12-12 and later	4000 MiB (preview)	Approximately 190.7 TiB (4000 MiB X 50,000 blocks) (preview)	5000 MiB (preview)
Version 2016-05-31 through version 2019-07-07	100 MiB	Approximately 4.75 TiB (100 MiB X 50,000 blocks)	256 MiB
Versions prior to 2016-05-31	4 MiB	Approximately 195 GiB (4 MiB X 50,000 blocks)	64 MiB

## Azure Files limits

For more information on Azure Files limits, see [Azure Files scalability and performance targets](#).

Resource	Standard File Shares	Premium File Shares
Minimum size of a file share	No minimum; pay as you go	100 GiB; provisioned
Maximum size of a file share	100 TiB*, 5 TiB	100 TiB
Maximum size of a file in a file share	1 TiB	1 TiB
Maximum number of files in a file share	No limit	No limit
Maximum IOPS per share	10,000 IOPS*, 1,000 IOPS	100,000 IOPS
Maximum number of stored access policies per file share	5	5
Target throughput for a single file share	up to 300 MiB/sec*, Up to 60 MiB/sec ,	See premium file share ingress and egress values
Maximum egress for a single file share	See standard file share target throughput	Up to 6,204 MiB/s
Maximum ingress for a single file share	See standard file share target throughput	Up to 4,136 MiB/s
Maximum open handles per file or directory	2,000 open handles	2,000 open handles
Maximum number of share snapshots	200 share snapshots	200 share snapshots
Maximum object (directories and files) name length	2,048 characters	2,048 characters
Maximum pathname component (in the path \A\B\C\D, each letter is a component)	255 characters	255 characters

\* Default on standard file shares is 5 TiB, see [Enable and create large file shares](#) for the details on how to increase the standard file shares scale up to 100 TiB.

## Azure File Sync limits

RESOURCE	TARGET	HARD LIMIT
Storage Sync Services per region	100 Storage Sync Services	Yes
Sync groups per Storage Sync Service	200 sync groups	Yes
Registered servers per Storage Sync Service	99 servers	Yes
Cloud endpoints per sync group	1 cloud endpoint	Yes
Server endpoints per sync group	50 server endpoints	No
Server endpoints per server	30 server endpoints	Yes
File system objects (directories and files) per sync group	100 million objects	No
Maximum number of file system objects (directories and files) in a directory	5 million objects	Yes
Maximum object (directories and files) security descriptor size	64 KiB	Yes
File size	100 GiB	No
Minimum file size for a file to be tiered	V9: Based on file system cluster size (double file system cluster size). For example, if the file system cluster size is 4kb, the minimum file size will be 8kb. V8 and older: 64 KiB	Yes

### NOTE

An Azure File Sync endpoint can scale up to the size of an Azure file share. If the Azure file share size limit is reached, sync will not be able to operate.

## Azure Queue storage limits

RESOURCE	TARGET
Maximum size of a single queue	500 TiB
Maximum size of a message in a queue	64 KiB
Maximum number of stored access policies per queue	5
Maximum request rate per storage account	20,000 messages per second, which assumes a 1-KiB message size
Target throughput for a single queue (1-KiB messages)	Up to 2,000 messages per second

## Azure Table storage limits

The following table describes capacity, scalability, and performance targets for Table storage.

RESOURCE	TARGET
Number of tables in an Azure storage account	Limited only by the capacity of the storage account
Number of partitions in a table	Limited only by the capacity of the storage account
Number of entities in a partition	Limited only by the capacity of the storage account
Maximum size of a single table	500 TiB
Maximum size of a single entity, including all property values	1 MiB
Maximum number of properties in a table entity	255 (including the three system properties, <b>PartitionKey</b> , <b>RowKey</b> , and <b>Timestamp</b> )
Maximum total size of an individual property in an entity	Varies by property type. For more information, see <b>Property Types</b> in <a href="#">Understanding the Table Service Data Model</a> .
Size of the <b>PartitionKey</b>	A string up to 1 KiB in size
Size of the <b>RowKey</b>	A string up to 1 KiB in size
Size of an entity group transaction	A transaction can include at most 100 entities and the payload must be less than 4 MiB in size. An entity group transaction can include an update to an entity only once.
Maximum number of stored access policies per table	5
Maximum request rate per storage account	20,000 transactions per second, which assumes a 1-KiB entity size
Target throughput for a single table partition (1 KiB-entities)	Up to 2,000 entities per second

### Virtual machine disk limits

You can attach a number of data disks to an Azure virtual machine. Based on the scalability and performance targets for a VM's data disks, you can determine the number and type of disk that you need to meet your performance and capacity requirements.

#### IMPORTANT

For optimal performance, limit the number of highly utilized disks attached to the virtual machine to avoid possible throttling. If all attached disks aren't highly utilized at the same time, the virtual machine can support a larger number of disks.

### For Azure managed disks:

The following table illustrates the default and maximum limits of the number of resources per region per subscription. There is no limit for the number of Managed Disks, snapshots and images per resource group.

RESOURCE	LIMIT
Standard managed disks	50,000

RESOURCE	LIMIT
Standard SSD managed disks	50,000
Premium managed disks	50,000
Standard_LRS snapshots	50,000
Standard_ZRS snapshots	50,000
Managed image	50,000

- **For Standard storage accounts:** A Standard storage account has a maximum total request rate of 20,000 IOPS. The total IOPS across all of your virtual machine disks in a Standard storage account should not exceed this limit.

You can roughly calculate the number of highly utilized disks supported by a single Standard storage account based on the request rate limit. For example, for a Basic tier VM, the maximum number of highly utilized disks is about 66, which is 20,000/300 IOPS per disk. The maximum number of highly utilized disks for a Standard tier VM is about 40, which is 20,000/500 IOPS per disk.

- **For Premium storage accounts:** A Premium storage account has a maximum total throughput rate of 50 Gbps. The total throughput across all of your VM disks should not exceed this limit.

For more information, see [Virtual machine sizes](#).

#### Disk encryption sets

There's a limitation of 50 disk encryption sets per region, per subscription. For more information, see the encryption documentation for [Linux](#) or [Windows](#) virtual machines. If you need to increase the quota, contact Azure support.

#### Managed virtual machine disks

##### Standard HDD managed disks

STANDARD DISK TYPE	S4	S6	S10	S15	S20	S30	S40	S50	S60	S70	S80
Disk size in GiB	32	64	128	256	512	1,024	2,048	4,096	8,192	16,384	32,767
IOPS per disk	Up to 500	Up to 1,300	Up to 2,000	Up to 2,000							
Throughput per disk	Up to 60 MB/sec	Up to 300 MB/sec	Up to 500 MB/sec	Up to 500 MB/sec							

##### Standard SSD managed disks

STANDARD SSD SIZE S	E1	E2	E3	E4	E6	E10	E15	E20	E30	E40	E50	E60	E70	E80
Disk size in GiB	4	8	16	32	64	128	256	512	1,024	2,048	4,096	8,192	16,384	32,767
IOPS per disk	Up to 500	Up to 2,000	Up to 4,000	Up to 6,000										
Throughput per disk	Up to 60 MB/sec	Up to 400 MB/sec	Up to 600 MB/sec	Up to 750 MB/sec										

#### Premium SSD managed disks: Per-disk limits

PREMIUM SSD SIZE S	P1	P2	P3	P4	P6	P10	P15	P20	P30	P40	P50	P60	P70	P80
Disk size in GiB	4	8	16	32	64	128	256	512	1,024	2,048	4,096	8,192	16,384	32,767
Provisioned IOPS per disk	120	120	120	120	240	500	1,100	2,300	5,000	7,500	7,500	16,000	18,000	20,000
Provisioned Throughput per disk	25 MB/sec	25 MB/sec	25 MB/sec	25 MB/sec	50 MB/sec	100 MB/sec	125 MB/sec	150 MB/sec	200 MB/sec	250 MB/sec	250 MB/sec	500 MB/sec	750 MB/sec	900 MB/sec

PRE MIU M SSD SIZE S	P1	P2	P3	P4	P6	P10	P15	P20	P30	P40	P50	P60	P70	P80
Max burst IOPS per disk	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500						
Max burst throughput per disk	170 MB/sec													
Max burst duration	30 min													
Eligible for reservation	No	Yes, up to one year												

### Premium SSD managed disks: Per-VM limits

RESOURCE	LIMIT
Maximum IOPS Per VM	80,000 IOPS with GS5 VM
Maximum throughput per VM	2,000 MB/s with GS5 VM

### Unmanaged virtual machine disks

#### Standard unmanaged virtual machine disks: Per-disk limits

VM TIER	BASIC TIER VM	STANDARD TIER VM
Disk size	4,095 GB	4,095 GB
Maximum 8-KB IOPS per persistent disk	300	500
Maximum number of disks that perform the maximum IOPS	66	40

### Premium unmanaged virtual machine disks: Per-account limits

RESOURCE	LIMIT
Total disk capacity per account	35 TB
Total snapshot capacity per account	10 TB
Maximum bandwidth per account (ingress + egress) <sup>1</sup>	<=50 Gbps

<sup>1</sup>*Ingress* refers to all data from requests that are sent to a storage account. *Egress* refers to all data from responses that are received from a storage account.

#### Premium unmanaged virtual machine disks: Per-disk limits

PREMIUM STORAGE DISK TYPE	P10	P20	P30	P40	P50
Disk size	128 GiB	512 GiB	1,024 GiB (1 TB)	2,048 GiB (2 TB)	4,095 GiB (4 TB)
Maximum IOPS per disk	500	2,300	5,000	7,500	7,500
Maximum throughput per disk	100 MB/sec	150 MB/sec	200 MB/sec	250 MB/sec	250 MB/sec
Maximum number of disks per storage account	280	70	35	17	8

#### Premium unmanaged virtual machine disks: Per-VM limits

RESOURCE	LIMIT
Maximum IOPS per VM	80,000 IOPS with GS5 VM
Maximum throughput per VM	2,000 MB/sec with GS5 VM

## StorSimple System limits

LIMIT IDENTIFIER	LIMIT	COMMENTS
Maximum number of storage account credentials	64	
Maximum number of volume containers	64	
Maximum number of volumes	255	
Maximum number of schedules per bandwidth template	168	A schedule for every hour, every day of the week.

LIMIT IDENTIFIER	LIMIT	COMMENTS
Maximum size of a tiered volume on physical devices	64 TB for StorSimple 8100 and StorSimple 8600	StorSimple 8100 and StorSimple 8600 are physical devices.
Maximum size of a tiered volume on virtual devices in Azure	30 TB for StorSimple 8010 64 TB for StorSimple 8020	StorSimple 8010 and StorSimple 8020 are virtual devices in Azure that use Standard storage and Premium storage, respectively.
Maximum size of a locally pinned volume on physical devices	9 TB for StorSimple 8100 24 TB for StorSimple 8600	StorSimple 8100 and StorSimple 8600 are physical devices.
Maximum number of iSCSI connections	512	
Maximum number of iSCSI connections from initiators	512	
Maximum number of access control records per device	64	
Maximum number of volumes per backup policy	24	
Maximum number of backups retained per backup policy	64	
Maximum number of schedules per backup policy	10	
Maximum number of snapshots of any type that can be retained per volume	256	This amount includes local snapshots and cloud snapshots.
Maximum number of snapshots that can be present in any device	10,000	
Maximum number of volumes that can be processed in parallel for backup, restore, or clone	16	<ul style="list-style-type: none"> <li>• If there are more than 16 volumes, they're processed sequentially as processing slots become available.</li> <li>• New backups of a cloned or a restored tiered volume can't occur until the operation is finished. For a local volume, backups are allowed after the volume is online.</li> </ul>

LIMIT IDENTIFIER	LIMIT	COMMENTS
Restore and clone recover time for tiered volumes	<2 minutes	<ul style="list-style-type: none"> <li>The volume is made available within 2 minutes of a restore or clone operation, regardless of the volume size.</li> <li>The volume performance might initially be slower than normal as most of the data and metadata still resides in the cloud. Performance might increase as data flows from the cloud to the StorSimple device.</li> <li>The total time to download metadata depends on the allocated volume size. Metadata is automatically brought into the device in the background at the rate of 5 minutes per TB of allocated volume data. This rate might be affected by Internet bandwidth to the cloud.</li> <li>The restore or clone operation is complete when all the metadata is on the device.</li> <li>Backup operations can't be performed until the restore or clone operation is fully complete.</li> </ul>

LIMIT IDENTIFIER	LIMIT	COMMENTS
Restore recover time for locally pinned volumes	<2 minutes	<ul style="list-style-type: none"> <li>The volume is made available within 2 minutes of the restore operation, regardless of the volume size.</li> <li>The volume performance might initially be slower than normal as most of the data and metadata still resides in the cloud. Performance might increase as data flows from the cloud to the StorSimple device.</li> <li>The total time to download metadata depends on the allocated volume size. Metadata is automatically brought into the device in the background at the rate of 5 minutes per TB of allocated volume data. This rate might be affected by Internet bandwidth to the cloud.</li> <li>Unlike tiered volumes, if there are locally pinned volumes, the volume data is also downloaded locally on the device. The restore operation is complete when all the volume data has been brought to the device.</li> <li>The restore operations might be long and the total time to complete the restore will depend on the size of the provisioned local volume, your Internet bandwidth, and the existing data on the device. Backup operations on the locally pinned volume are allowed while the restore operation is in progress.</li> </ul>
Thin-restore availability	Last failover	
Maximum client read/write throughput, when served from the SSD tier*	920/720 MB/sec with a single 10-gigabit Ethernet network interface	Up to two times with MPIO and two network interfaces.
Maximum client read/write throughput, when served from the HDD tier*	120/250 MB/sec	
Maximum client read/write throughput, when served from the cloud tier*	11/41 MB/sec	Read throughput depends on clients generating and maintaining sufficient I/O queue depth.

\*Maximum throughput per I/O type was measured with 100 percent read and 100 percent write scenarios. Actual throughput might be lower and depends on I/O mix and network conditions.

## Stream Analytics limits

LIMIT IDENTIFIER	LIMIT	COMMENTS
Maximum number of streaming units per subscription per region	500	To request an increase in streaming units for your subscription beyond 500, contact <a href="#">Microsoft Support</a> .
Maximum number of inputs per job	60	There's a hard limit of 60 inputs per Azure Stream Analytics job.
Maximum number of outputs per job	60	There's a hard limit of 60 outputs per Stream Analytics job.
Maximum number of functions per job	60	There's a hard limit of 60 functions per Stream Analytics job.
Maximum number of streaming units per job	192	There's a hard limit of 192 streaming units per Stream Analytics job.
Maximum number of jobs per region	1,500	Each subscription can have up to 1,500 jobs per geographical region.
Reference data blob MB	300	Reference data blobs can't be larger than 300 MB each.
Maximum number of characters in a query	512000	There's a hard limit of 512k characters in an Azure Stream Analytics job query.

## Virtual Machines limits

### Virtual Machines limits

RESOURCE	LIMIT
<a href="#">Virtual machines</a> per cloud service <sup>1</sup>	50
Input endpoints per cloud service <sup>2</sup>	150

<sup>1</sup>Virtual machines created by using the classic deployment model instead of Azure Resource Manager are automatically stored in a cloud service. You can add more virtual machines to that cloud service for load balancing and availability.

<sup>2</sup>Input endpoints allow communications to a virtual machine from outside the virtual machine's cloud service. Virtual machines in the same cloud service or virtual network can automatically communicate with each other. For more information, see [How to set up endpoints to a virtual machine](#).

### Virtual Machines limits - Azure Resource Manager

The following limits apply when you use Azure Resource Manager and Azure resource groups.

RESOURCE	LIMIT
VMs per <a href="#">subscription</a>	25,000 <sup>1</sup> per region.
VM total cores per <a href="#">subscription</a>	20 <sup>1</sup> per region. Contact support to increase limit.

RESOURCE	LIMIT
Azure Spot VM total cores per <a href="#">subscription</a>	20 <sup>1</sup> per region. Contact support to increase limit.
VM per series, such as Dv2 and F, cores per <a href="#">subscription</a>	20 <sup>1</sup> per region. Contact support to increase limit.
<a href="#">Availability sets</a> per subscription	2,500 per region.
Virtual machines per availability set	200
Certificates per subscription	Unlimited <sup>2</sup>

<sup>1</sup>Default limits vary by offer category type, such as Free Trial and Pay-As-You-Go, and by series, such as Dv2, F, and G. For example, the default for Enterprise Agreement subscriptions is 350.

<sup>2</sup>With Azure Resource Manager, certificates are stored in the Azure Key Vault. The number of certificates is unlimited for a subscription. There's a 1-MB limit of certificates per deployment, which consists of either a single VM or an availability set.

#### NOTE

Virtual machine cores have a regional total limit. They also have a limit for regional per-size series, such as Dv2 and F. These limits are separately enforced. For example, consider a subscription with a US East total VM core limit of 30, an A series core limit of 30, and a D series core limit of 30. This subscription can deploy 30 A1 VMs, or 30 D1 VMs, or a combination of the two not to exceed a total of 30 cores. An example of a combination is 10 A1 VMs and 20 D1 VMs.

## Shared Image Gallery limits

There are limits, per subscription, for deploying resources using Shared Image Galleries:

- 100 shared image galleries, per subscription, per region
- 1,000 image definitions, per subscription, per region
- 10,000 image versions, per subscription, per region

## Virtual machine scale sets limits

RESOURCE	LIMIT
Maximum number of VMs in a scale set	1,000
Maximum number of VMs based on a custom VM image in a scale set	600
Maximum number of scale sets in a region	2,500

## See also

- [Understand Azure limits and increases](#)
- [Virtual machine and cloud service sizes for Azure](#)
- [Sizes for Azure Cloud Services](#)
- [Naming rules and restrictions for Azure resources](#)