

# **Alibaba Cloud Enterprise Distributed Application Service**

Best Practices

Issue: 20200607

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## Document conventions

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

<b>Style</b>	<b>Description</b>	<b>Example</b>
{ } or {a b}	This format is used for a required value, where only one item can be selected.	switch {active stand}



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# 1 Create an instance by using an instance startup template

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Enterprise Distributed Application Service (EDAS) is seamlessly integrated with instance startup templates. In scenarios such as application creation and auto scaling, Elastic Compute Service (ECS) clusters of EDAS allow you to configure an instance startup template as a blueprint for creating resources. This helps improve the efficiency of your resource creation.

## Introduction

You can refer to [#unique\\_4](#) quickly create an ECS instance. An instance startup template can include any configurations except passwords. It can include key pairs, Resource Access Management (RAM) roles, instance type, and network configurations. An instance startup template cannot be modified. However, you can create multiple versions of each template and configure different parameters for each version. Instance configurations updates are shown in version updates. You can create a template version.

In EDAS, when you create an instance by using an instance startup template or based on existing instance specifications, the instance created adopts the [#unique\\_5](#) mode. When you create an instance, the billing rules after the instance is released vary with the recycling mode you selected:

- **Release:** After an application is scaled in, EDAS automatically releases the unused instance. You only need to pay for the usage of the instance during its service period.
- **Shutdown and recycling:** After an application is scaled in, the unused instance is stopped and is not billed for CPU and memory resources. However, disks such as system disks and data disks, elastic IP addresses, and bandwidth are still billed. The public IP address will be recycled and reassigned upon startup, while the elastic IP address is retained. You only need to pay a low fee for the storage to retain the instance.

When you configure the logon credentials for an instance startup template in the ECS console, EDAS recommends that you use a [#unique\\_6](#). A key pair is much more secure than a common password, which can prevent brute-force cracking. In addition, it is impossible for others to derive a private key from a public key. For access control between ECS instances or between an ECS instance and a cloud product, EDAS recommends that you use a [#unique\\_7](#). If you configure a security group when creating an ECS template, the

ECS instances that you create by using the template in EDAS will belong to the configured security group. Therefore, you can configure security group rules to control access to the created ECS instance.

## Prerequisites

You have [#unique\\_4](#) in the ECS console.



### Notice:

- The created instance startup template and your application must be in the same Virtual Private Cloud (VPC). Otherwise, you cannot select the created instance startup template.
- You must specify a VSwitch for the instance startup template when selecting a VPC. Otherwise, the instance startup template cannot be used in EDAS.

## Add an instance by using an instance startup template when you create an application

1. Log on to the [EDAS console](#).
2. In the left-side navigation pane, choose **Application Management > Applications**.
3. On the **Applications** page, click **Create Application** in the upper-right corner.
4. On the **Application Information** page, select **Cluster Type** and **Application Runtime Environment**, enter **Application Name** and **Application Description** (optional), and then click **Next**.
  - **Cluster Type:** Currently, only an ECS cluster allows you to purchase an instance by using an instance startup template. Therefore, select **ECS Cluster**.
  - **Application Runtime Environment:** You can select **Java**, **Tomcat**, or **EDAS-Container (HSF)**. In this example, **EDAS-Container (HSF)** is selected.

5. On the **Application Configuration** page, select **Deployment Package Source** and **Demo Type**, set **Instances** to **Custom**, and then click **Next**.
  - **Environment**
    - If you do not have any VPC, namespace, or cluster, EDAS creates a default environment for you.
    - If you have created resources such as VPCs, namespaces, and clusters, you can see a drop-down list of corresponding resources. You can select a resource from the drop-down list.
  - **Instances**: Select **Buy a new instance**, and then select **Purchase based on instance startup template** for **Method of Purchase**.
    - Select the template and template version for creating the instance from the **Select Start Template** drop-down list. If no instance startup template is available, you can create a template in the ECS console. For more information, see [Create an instance startup template](#).
    - Select **Recycling Mode**.
    - **Purchase Quantity**: Select the quantity of instances to be purchased, such as **1**.
    - **Service Agreement**: Select **ECS Service Terms | Image Service Terms**.
6. On the **Apply Advanced Settings** page, enter **Version** and **Application Health Check** (optional), and then click **Create Application**.
  - **Version**: You can click **Use Timestamp as Version Number** to use the current timestamp as the version number, which is in the format of **yyyy-mm-dd hh:mm:ss**. You can also enter other version IDs.
  - **Application Health Check** (optional): You can set the URL for health check, which is used to check whether the application is healthy.
7. On the **Application Creation Complete** page, check the application information, application configuration, and advanced settings, and then click **Confirm to Create Application**.

### Add an instance by using an instance startup template for manual scaling

1. Log on to the [EDAS console](#).
2. In the left-side navigation pane, choose **Application Management > Applications**.

3. Click an application. On the Basic Information page, click **Scale Out** in the upper-right corner. In the **Add an Instance** dialog box, set **Target Group** on the **Scale-Out Method** tab.
4. Select **Purchase Based on Instance Startup Template** for **Scale-Out Method**.
5. Select the template and template version, select **Recycling Mode**, and then click **Next**.
  - **With Binding Template:** You must bind an instance startup template to a deployment group. For more information, see [#unique\\_8](#). Then, select the bound template for scaling.
  - **With Specified Template:** If you have created multiple templates in the ECS console, you need to select a **specific template** and **version**.
6. On the **Purchase Details** tab, set **Purchase Quantity**, select **ECS Service Terms | Image Service Terms**, and then click **Next**.
7. On the **Confirm** tab, check the quantity of ECS instances that you want purchase and the information about the instance startup template. Verify all the information and click **Confirm**.

On the top of the page, the "**Automatic purchasing is triggered. Check the real-time information in the application change process.**" page appears.

### Add an instance by using an instance startup template for auto scaling

You can only add instances for auto scaling of High-speed Service Framework (HSF) applications in ECS clusters.

1. Log on to the [EDAS console](#).
2. In the left-side navigation pane, choose **Application Management > Applications**, then click an application's name.
3. On the Application Details page, click **Auto Scaling** in the upper-right corner.
4. Enable **Scale-Out Rule**.

5. Set the scale-out rule parameters and click **Save**.

- a) **Trigger Indicators:** Set the thresholds of RT, Load, and CPU. When the threshold is exceeded, scale-out is triggered.
- b) **Trigger Conditions:**
  - **Any One of the Indicators:** Auto scale-out is triggered when the threshold of any metric is exceeded.
  - **All Indicators:** Auto scale-out is triggered only when the thresholds of all metrics are exceeded.
- c) **Last for More Than:** indicates the duration when the metric continuously reaches the threshold, in minutes. Within the duration, if the average value of a metric every minute continuously reaches the set threshold, auto scale-out is triggered. You can configure the duration based on the sensitivity of the cluster service capabilities.
- d) **Application Source:** Select **Elastic Resources**.
  - **Building Method:** Select **Purchase based on instance startup template**.
  - **Launch Template:** Click **Select Template**. In the **Select Start Template** dialog box, select the template and template version, select **Recycling Mode**, and then click **OK**.
  - **Service Agreement:** Select **ECS Service Terms | Image Service Terms**.
  - **Advanced Options:** Open and set **Network Type** and **Multi-Zone Scaling Policy**.
    - **Network Type:** Specify the network where the application to be scaled out is located, which cannot be changed. If the current network is a VPC, you need to specify the VSwitch that is connected to the new instance. If you specify multiple VSwitches, EDAS will automatically allocate VSwitches based on the multi-zone scaling policy.
    - **Multi-Zone Scaling Policy:** You can select **Priority Policy** or **Distribution Balancing Policy**.
- e) **Number of Instances for Each Scale-Out:** indicates the number of instances that are automatically added upon each scale-out. You can configure this parameter based on the service capabilities of a single instance of the application.
- f) **Maximum Number of Instances:** indicates the maximum number of instances in a cluster. When the maximum number is reached, scale-out stops. You can set this parameter based on the resource quota.

## Verify the result

After you added an instance by using any type of template, you can view the number and status of the application instances on the Instance Information tab.

## References

- [#unique\\_9Scale out applications deployed in ECS clusters](#): This topic describes how to manually scale out an application in three ways to balance the load of the application instances.
- [#unique\\_10](#): This topic describes how to dynamically adjust the number of application instances through auto scaling to balance the load of the application instances.

## 2 Automatically add a RAM role for accessing ACM to an ECS instance

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By using a Resource Access Management (RAM) role on an Elastic Compute Service (ECS) instance, you can access Application Configuration Management (ACM) without configuring an AccessKey pair, which improves the security. This topic describes how to automatically add a RAM role for accessing ACM to an ECS instance when adding the ECS instance for an application by using the mount script capability of EDAS.

### Overview

In the past, for an application deployed in an ECS instance to access ACM, the Access Key ID and Access Key Secret ( "AK" ) must be stored in the ECS instance as a configuration file or in other forms. However, this increases the complexity of AK management and the risk of leaking sensitive data.

Now, with the [RAM role of an instance](#), you can associate a RAM role with an ECS instance, and then inform ACM SDK (Version 1.0.8 and later) of the name of this RAM role, so that you can access ACM without configuring AK later. In addition, with [RAM \(Resource Access Management\)](#), you can also have multiple instances with different authorizations for ACM by tweaking their roles and authorization policies. For example, if assigned a role with a read-only authorization policy, an ECS instance can read ACM configurations but can't add or modify one.

### Prerequisites

You have activated RAM. For more information, see [#unique\\_14](#).

### Step 2: Create a permission policy

1. In the left-side navigation pane, click **Policies** under **Permissions**.
2. On the page that appears, click **Create Policy**.
3. Enter **AttachACMRamRoleToECSPolicy** in **Policy Name**, and enter information in **Note**.
4. Set **Configuration Mode** to **Script**, and enter the following content in the **Policy Content** field:

```
{
  "Statement": [
    {
      "Effect": "Allow",
      "Action": "ecs:AttachInstanceRamRole",
    }
  ]
}
```

```
    "Resource": "*"
  },
  {
    "Effect": "Allow",
    "Action": "ecs:DescribeInstanceRamRole",
    "Resource": "*"
  },
  {
    "Effect": "Allow",
    "Action": "ram:*",
    "Resource": "acs:ram:*:<Replace with your Alibaba Cloud account ID>:role/<Replace with the role name you created in #unique_11/unique_11_Connect_42_section_h7q_1bz_jwt>"
  }
],
"Version": "1"
}
```

5. Click **OK**.

### Step 3: Create and authorize a RAM user

1. In the left-side navigation pane, click **Users** under **Identities**.
2. Click **Create User**.



#### Note:

You can click **Add User** to create multiple RAM users at a time.

3. Specify the **Logon Name** and **Display Name** parameters.
4. In the **Access Mode** section, select **Programmatic Access**, and then click **OK**.  
The **Basic Information** tab displays the **AccessKey ID** and **AccessKey secret** of the created user. Record and keep them properly, which will be used subsequently.
5. In the **User Logon Name/Display Name** column, find the RAM user.
6. Click **Add Permissions**. On the page that appears, the **Principal** field is automatically filled in.
7. In the **Policy Name** field, enter the policy name that is generated in [Step 2: Create a permission policy](#).
8. Click **OK**, and then close the panel on the right side.

### Step 4: Grant a RAM user to an ECS instance by using the mount script

1. On the **Basic Information** tab of the application, click **Edit** in the **Application Settings** section, and then select **Mount Script** from the drop-down list.
2. In the **Mount Script** dialog box, click to expand .



3. Enter the following script in the field, and then click **Modify**.



**Notice:**

The following script contains the AccessKey pair of the RAM user you created in [Step 3: Create and authorize a RAM user](#). Keep the AccessKey pair properly.

```
#!/bin/sh
fileURL='https://edas-public.oss-cn-hangzhou.aliyuncs.com/samples/acm/
attachAcmRamRole.sh'
file=/tmp/attachAcmRamRoleToEcs.sh
wget "$fileURL" -O "$file" &>/dev/null
chmod +x "$file"
#<accessKeyId> Replace with the AccessKey ID of the RAM user.
#<accessSecret> Replace with the AccessKey secret of the RAM user.
#<ecsRamRoleForACM> Replace with the role name you created in #unique\_11/unique\_11\_Connect\_42\_section\_h7q\_1bz\_jwt.
bash "$file" <accessKeyId> <accessSecret> <ecsRamRoleForACM>
```

After the script is executed, <ecsRamRoleForACM> is bound to the added ECS instance.

## References

- [Create an AccessKey pair](#)
- [What is RAM?](#)
- [#unique\\_12](#)
- [#unique\\_16](#)
- [#unique\\_17](#)
- [#unique\\_18](#)